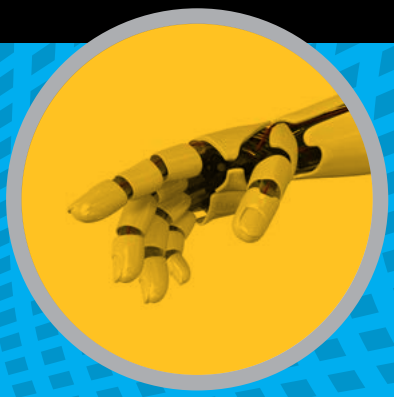
CONFERENCE
Nov 11 – 17, 2016

EXHIBITION
Nov 13 – 16, 2016

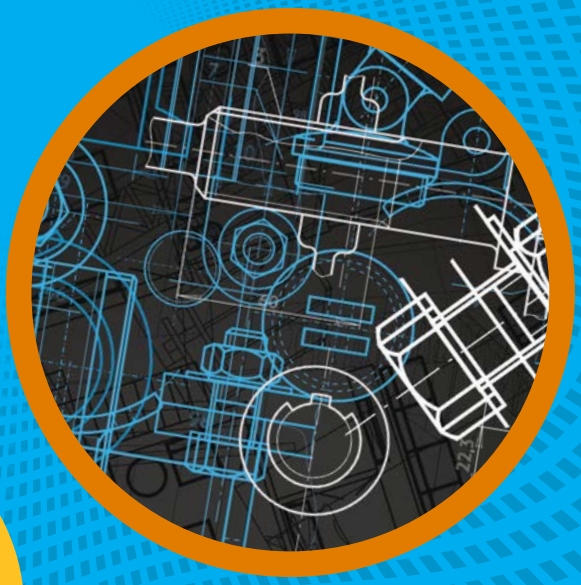
Phoenix Convention Center, Phoenix, Arizona

2016 IMECE™

ONE GREAT LEARNING EXPERIENCE.
INTERNATIONAL MECHANICAL ENGINEERING CONGRESS & EXPOSITION®



Program



go.asme.org/IMECE

The American Society of Mechanical Engineers® (ASME®)

ASME
SETTING THE STANDARD

8 Sponsors

1158 ACCEPTED TECHNICAL PAPERS

9 honorees at the

HONORS ASSEMBLY

32

EXHIBITORS

3 CONFERENCE-WIDE PLENARY SPEAKERS

1 CONFERENCE KEYNOTE

19 TRACK PLENARY SPEAKERS

200+ NON-TECHNICAL ACTIVITIES

(COMMITTEE MEETINGS, STUDENT DESIGN COMPETITION, OLD GUARD ORAL COMPETITION, FUTUREME MINI-TALKS)

20 *technical tracks*

450+

TECHNICAL SESSIONS

3 INVITED INDUSTRY PRESENTATIONS

2230 ACCEPTED ABSTRACTS

What can IMECE do for YOU?

Contents

Welcome from the Chairs

On behalf of the Congress Steering Committee (CSC), we are delighted that you have chosen to join us in Phoenix for the 2016 IMECE. We have attendance from colleagues in academia, industry and government, who will share their activities, ideas and advances in mechanical engineering. There are 20 technical tracks covering a range of topics from fundamental to contemporary issues that comprise over 2200 presentations. The breadth of the technical tracks is a result of the hard work and dedication of our track chairs and topic organizers who volunteer and commit their time to bring you this program. As you review the program, you will find opportunities to network and relax with colleagues in addition to attending plenary and technical sessions.

On Sunday evening, all IMECE participants are welcome to attend the evening Honors Assembly as well the Undergrad R&D Expo poster competition. The poster session features research performed by undergraduate mechanical engineering students from around the world. Afterward, the Honors Assembly will recognize the achievements of nine individuals who have made significant contributions to our profession.

On Monday morning, we are pleased to host keynote speaker **Dr. David Sandalow,** who is the Inaugural Fellow at Columbia University's Center on Global Energy Policy, where he directs the US-China Energy & Climate program and works on issues including the future of the electric grid, renewables finance, and CO2 utilization. The conference-wide plenary sessions feature three exceptional speakers. Tuesday we host **Mr. Jeffrey B. Lowinger**, senior vice president and chief technology officer, industrial sector for Eaton Corporation. Our speaker for Wednesday is **Mr. Jim Holland**, vice president for Vehicle Component and System Engineering at Ford Motor Company. On Thursday at the closing lunch, our speaker is **Dr. Ilan Gur**, founding director of Cyclotron Road. Additionally we are excited to have three fantastic industry speakers who will address the activities, research, and challenges at their respective workplaces. On Monday, **Mr. David A. Howell**, senior vice president of Operating Plants Business at Westinghouse Electric Company will give his presentation. On Tuesday, we welcome **Mr. Jeff Geertsen**, engineering manager, Ultrasound Probes for GE Healthcare. And on Wednesday, **Mr. Steven Unikewicz**, Nuscale Power, Senior Licensing Engineer, NuScale Power LLC, will present. We are truly honored to have these individuals speak at IMECE and offer a broader perspective of the challenges and successes that mechanical engineering can provide to the industrial and government arenas.

Other events include the President's luncheon on Monday to recognize seventeen ASME medal recipients. On Tuesday there are three National Science Foundation (NSF) sponsored events to promote and support IMECE. NSF program managers will hold the CBET/CMMI Engineering Information session and a workshop on Proposal Writing. There are also two competitions featuring the Micro/Nano Forum Poster competition and the Student Poster Competition for NSF-funded research projects. These activities bring together researchers from across the mechanical engineering disciplines to share their findings. There will also be a general poster session on Wednesday afternoon during lunch to showcase state-of-the-art research posters on a variety of topics encompassing the essence of all track topics.

As you peruse the program, you will find ASME division and technical committee events. Please consider attending some of these events to become more active in the Society and participate in upcoming programs and conferences. It is volunteers such as yourselves that help infuse ASME and direct its future. The ASME Event Connect App has been upgraded to assist you with scheduling your time for these exciting activities!

A conference of this size and stature would not be possible without the tremendous efforts of volunteer organizers, ASME Staff and participants. We are grateful for the support of the CSC, our operations team including our local section representatives, and the dedicated ASME staff with whom we have worked closely. The technical program and conference proceedings were made possible by the dedicated service of ASME staff, and we are indebted to them for their patience and timely responses to the many inquiries from authors and organizers. Countless hours have been dedicated by the track chairs, topic and session organizers, reviewers, and judges, without whom this conference would not be possible. We thank them for their diligence in affording a quality conference filled with presentations from authors around the globe on the breadth of topics that makes mechanical engineering so special. Finally, we would like to thank the speakers for their time and commitment by traveling to the meeting and sharing their work with the attendees.

Thank you for your participation and we hope you enjoy IMECE!

Sincerely,

Francine Battaglia
2016 IMECE Technical Program Chair

Ramakrishna Koganti
2016 IMECE General Chair

Stephen D. Tse
2016 IMECE Technical Program Vice Chair

Assimina Pelegri
2016 Congress Steering Committee Chair

General Information

General Information

ASME EVENT CONNECT APP

Download the ASME Event Connect App and hold the entire program at the palm at your hand! The ASME Event Connect App allows you to easily look up sessions, search for paper or people, message with other attendees, post to the social wall, and create your own schedule.

AUTHORS'/SPEAKERS' PRACTICE ROOM

Room 130 on the street level of the Phoenix Convention Center is the Authors'/Speakers' Practice Room. The schedule is Monday–Thursday, November 14 - 17, 7:00AM–5:00PM. The room is equipped with two (2) LCD projectors and two (2) screens for authors/speakers to practice their presentations.

AUDIOVISUAL EQUIPMENT IN SESSION ROOMS

All technical sessions are equipped with one LCD projector and one screen. Laptops will NOT be provided in the sessions. You MUST bring your own.

BADGES ARE REQUIRED FOR ADMISSION TO ALL ACTIVITIES

All conference attendees must wear their official IMECE 2016 conference badge in order to gain admission to conference sessions/events/activities. No one will be admitted to the technical sessions unless he/she is registered and is wearing a badge that shows "Full Conference.".

ASME BOOTH

Attendees are encouraged to make time to visit the ASME booth in the exhibit hall, hall CD on the third floor of the Phoenix Convention Center. Representatives from ASME Publications, and Membership will be present to answer any questions you may have.

Information about all ASME publications, such as Proceedings, Transaction Journals, ASME Press, Codes & Standards, Catalogs, and the ASME Digital Library, and other information is available at the ASME Publications & Membership Booth. During the conference, all publications are sold at the ASME member price. Prepaid orders will be taken for publications not available at the IMECE. You will be billed for shipping and handling charges. Within the U.S. Postal Service, airmail, first class, or any other expedited shipment must be specified, if desired, and charges will be billed to you.

BUSINESS CENTER AT THE PHOENIX CONVENTION CENTER

THE UPS STORE is located on the 1st floor of the West building (on 2nd street.) They can be reached at 602-251-0135. Hours vary based on client needs.

EMERGENCY INFORMATION

For emergencies you can call 911, but we ask that you also call our operations center (602-262-7271) so that our in-house security can direct emergency personal to the proper location.

HOSPITALITY SUITE

The hospitality suite is located in room 126C on the street level of the Phoenix Convention Center. The schedule is as follows:

Sunday, November 13	8:00AM–11:00AM
Monday, November 14	8:00AM–11:00AM
Tuesday, November 15	8:00AM–11:00AM
Wednesday, November 16	8:00AM–11:00AM

BADGES ARE REQUIRED FOR ADMISSION

LUNCH

Conference lunches will be served on Monday–Thursday, November 14-17. Fully paid attendees are entitled to attend. Guests/Committee Members interested in buying tickets to the lunches can do so at the Registration Desk for $50 each or $190 for the entire week. The schedule is as follows:

Monday, November 14, 12:20PM–1:20PM, Exhibit Hall CD

Tuesday, November 15, 12:20PM–1:20PM, Exhibit Hall CD

Wednesday, November 16, 12:20PM–1:20PM, Exhibit Hall CD

Thursday, November 17, 12:00PM–1:00PM, North Ballroom CD

MEETING INFORMATION BOOTH

The meeting information booth is located in the North Ballroom Foyer on the street level of the Phoenix Convention Center. The operating hours are:

Friday, November 11 12:00PM–5:00PM

Saturday, November 12	7:00AM–6:00PM
Sunday, November 13	7:00AM–6:00PM
Monday, November 14	7:00AM–6:00PM
Tuesday, November 15	7:00AM–6:00PM
Wednesday, November 16	7:00AM–6:00PM
Thursday, November 17	7:00AM–5:00PM

MEMBERSHIP TO ASME (ONE YEAR FREE)

Registrants who paid the non-member conference registration fees will receive a one-year ASME Membership. ASME will automatically activate this complimentary membership for qualified attendees. Please allow approximately four weeks after the conclusion of the conference for your membership to become active. Visit www.asme.org/membership for more information about the benefits of ASME Membership.

PHOTOGRAPHY

ASME has retained the services of a photographer to capture photo images of the events and activities from the conference. The photographer will be taking photos as assigned by the ASME Communications Department. All photographs are the sole property of ASME, and ASME retains all rights in and to said photographs. These photographs may be used for promotional purposes only, including, but not limited to, the ASME website. If you require more information about the use of IMECE photographs, please go to the media desk at Conference Registration.

PRESENTER ATTENDANCE POLICY

The compilation of papers presented online is not the archival version of the conference Proceedings. Paper information contained therein should not be used for citation purposes. According to ASME's Presenter Attendance Policy, if a paper is not presented at the conference, the paper will not be published in the official Archival Proceedings, which are registered with the Library of Congress and are abstracted and indexed. The paper also will not be published in the ASME Digital Collection and may not be cited as a published paper.

EXHIBITS INFORMATION

The exhibits are located in the hall CD on the third floor of the Phoenix Convention Center. The exhibit hours are as follows:

Sunday, November 13
5:00PM–6:30PM

Monday, November 14
10:00AM–4:00PM

Tuesday, November 15
10:00AM–4:00PM

Wednesday, November 16
10:00AM–3:00PM

General Information

TWITTER

The #IMECE Twitter stream will be displayed prominently around the conference venue. We encourage you to participate by using the hashtag #IMECE to tweet about anything that's on your mind with regard to the conference.

REGISTRATION

Conference registration is located in the North Ballroom foyer, street level of the Phoenix Convention Center. The operating hours are:

Friday, November 11 12:00PM–5:00PM

Saturday, November 12
7:00AM–6:00PM

Sunday, November 13
7:00AM–6:00PM

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7:00AM–6:00PM

Tuesday, November 15
7:00AM–6:00PM

Wednesday, November 16
7:00AM–6:00PM

Thursday, November 17
7:00AM–5:00PM

PROFESSIONAL DEVELOPMENT HOURS WHILE AT IMECE

In keeping with the ongoing need of engineers to monitor their continuing professional development, IMECE attendees can earn PDH credits. Please note: Approval of credits rests with each state's licensing board, and individuals must keep track of their own PDH credits. Please go to the ASME Meeting Information Desk for more information.

PUBLICATIONS: IMECE2016 CONFERENCE PAPERS AND PROCEEDINGS

Technical papers accepted for publication for IMECE2016 will be available in four ways:

- Dedicated Online Papers site available to all fully paid attendees beginning a week before the conference. Attendees may also view the papers while at the conference at a special kiosk at the ASME Booth at the Exhibit Hall.
- IMECE2016 DVD, which will be distributed to fully paid attendees at Registration.
- Individual PDFs of papers accessible through the ASME IMECE2016 Event Connect app.

Post-conference, papers presented at the conference will be published in the official Proceedings of the conference at The ASME Digital Collection (asmedigitalcollection.asme.org). Authors may refer to The Collection for DOI links and citation information for their papers.

All ASME conference Proceedings are disseminated worldwide and submitted for indexing to SCOPUS, COMPENDEX, the ISI Conference Proceedings Citation Index, and several other indexing and discovery services. For further information, please stop by the ASME Booth at the Exhibit Hall.

REFRESHMENT BREAKS

Conference breaks will be available on Monday–Wednesday, November 14–16, from 10:00–10:30AM and 3:15–3:45PM in the Exhibit Hall (hall CD, Phoenix Convention Center). The conference break on Thursday, November 17 is from 3:00–3:30PM in the North Ballroom foyer.

TICKET SALES

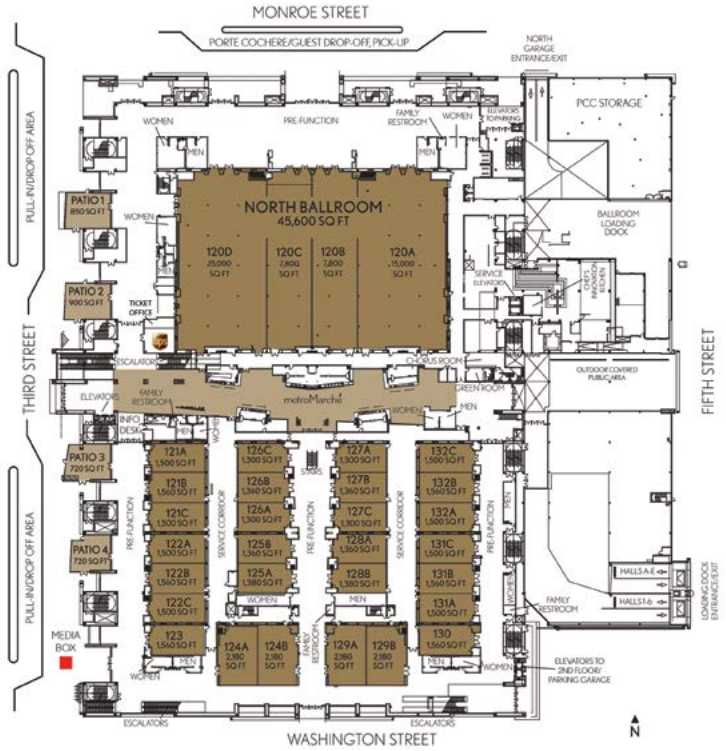
Many division and society awards are given at IMECE. Tickets for these functions may be purchased on-site at the ASME Registration Desk. Please purchase tickets as soon as possible after you register. In order to ensure accurate guarantees and avoid disappointment, tickets for all events will be sold up to 24 hours prior to the event or as long as there is flexibility to adjust the guarantee.

WIFI

Free wifi access is provided to IMECE conference attendees throughout the Phoenix Convention Center. Free wifi access is also provided in the hotel room at the Sheraton Grand.

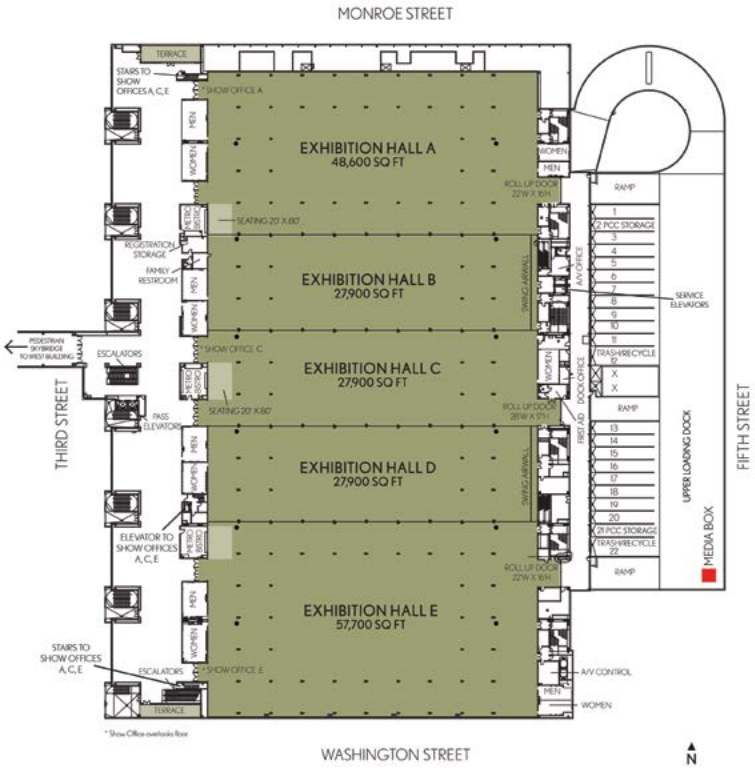
Floor Plans

PHOENIX CONVENTION CENTER



NORTH BUILDING / NORTH BALLROOM & MEETING ROOMS / 100 LEVEL / STREET LEVEL

NORTH BUILDING / MEETING ROOMS / 200 LEVEL



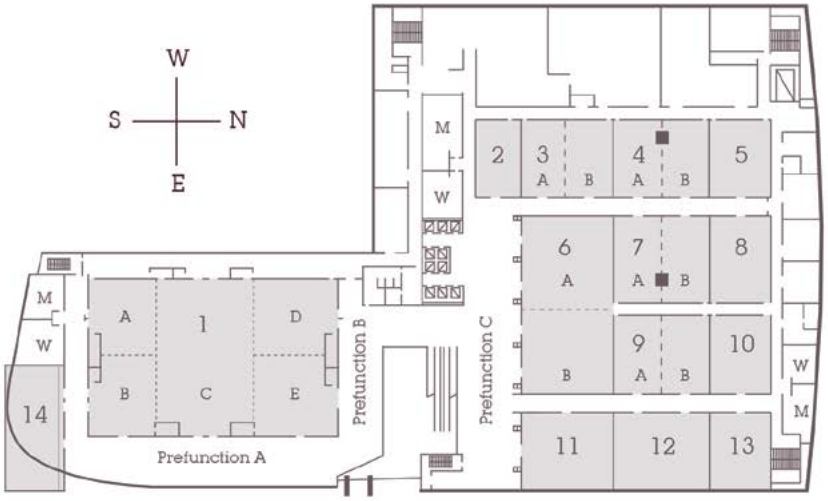
NORTH BUILDING / EXHIBITION HALL / 300 LEVEL

Floor Plans

SHERATON

Room Name

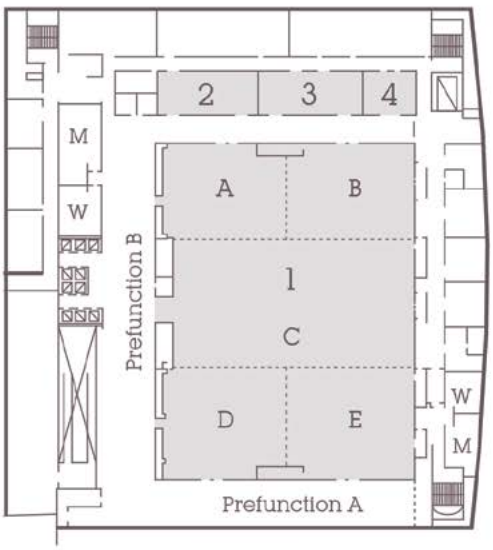
1 VALLEY OF THE SUN
2 ARCADIA
3 AHWATUKEE
4 LAVEEN
5 SOUTH MOUNTAIN
6 ENCANTO
7 MARYVALE
8 ESTRELLA
9 CAMELBACK
10 ALHAMBRA
11 DEER VALLEY
12 PARADISE VALLEY
13 NORTH MOUNTAIN
14 OCULUS



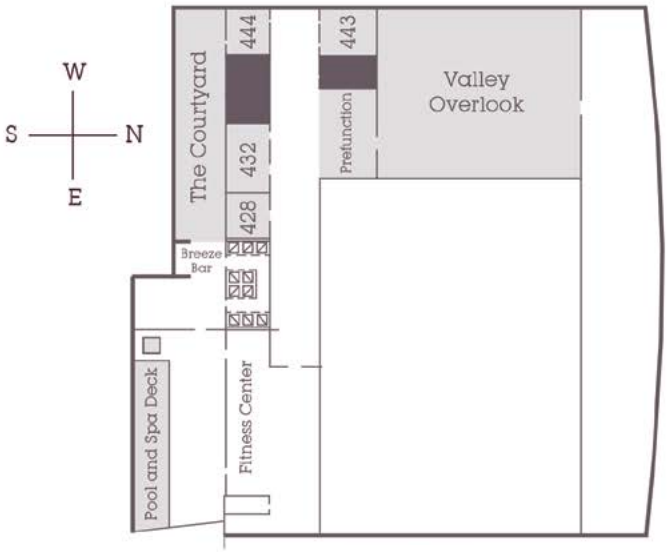
SECOND LEVEL

Room Name

1 PHOENIX
2 CAVE CREEK
3 DESERT SKY
4 CORONADO



THIRD LEVEL



FOURTH LEVEL

Special Events

Special Events FRIDAY/SATURDAY

FRIDAY, NOVEMBER 11

ASME BUSINESS MEETING

5:30PM–6:00PM
223, Phoenix Convention Center

Call to order by Keith Roe, ASME President, 2016 - 2017

Report by the Treasurer
Membership Report
2015–2016 Annual Report
State of the Society Video
Report on Proxies Received
President 2017–2018
Board of Governors 2017–2020
Approval of Acts and Transactions from Fiscal Year 2015-2016
Ratification of Auditor
Election of the 2017 Nominating Committee
Other Business

SATURDAY, NOVEMBER 12

OLD GUARD ORAL PRESENTATION COMPETITION FINALS

9:00AM–4:00PM
Camelback AB, Sheraton Grand

All are invited to attend the finals of the Society-level Old Guard Oral Presentation Competition. Meet the engineering students who have successfully competed at their local universities, at the ASME Student Professional Development Conferences (SPDCs), and are now vying for the $2,000 ASME Old Guard Prize for outstanding presentation skills.

Like all effective professionals, engineers must possess a well-developed ability to synthesize issues and communicate both orally and in writing. This competition is designed to emphasize the value of an ability to deliver clear, concise, and effective oral presentations, particularly pertaining to some sphere in which an engineer is or should be involved. Presentation topics must address a technical, economic, or environmental aspect of engineering or other basic engineering theme, and often relate to the students' engineering design/analysis projects. For more information, please visit https://www.asme.org/events/competitions/old-guard-competitions/old-guard-prize-oral-presentation-competition/

Participants:

Georgia Institute of Technology
Jefferson Dixon
Georgia Institute of Technology
Power Generation from a Sr-90 Betavoltaic Device

Minnesota State University
Jonathan Pang
Union College
Operation Uranus Phase I to Phase X

Oklahoma State University
Brennan Harrup
Oral Roberts University
The Mark 3.5 Biomechanical Forearm

Rutgers University
Daniel Kimminau
Virginia Tech
Hyperloop - Vhyper Pod Design

American University in Cairo - Egypt
Geraldine Wael
American University in Cairo
A Failure Analysis Case Study of a Car Gearbox Shaft

Vellore Institute of Technology - India
Robin Ranjan
B. H. Gardi College of Engineering & Technology
Innovative Bolt Design

American University in Beirut - Lebanon
Maryam Nsaif
Notre Dame University
Radio Frequency Identification

Instituto Tecnologico de Ciudad - Mexico
Jonathan Lewis Adán Pacheco Alcocer
Universidad Autónoma del Carmen (UNACAR)
Constructal form Optimization of Bladeless Windmill Using Von Kármán Vortex Street

UET – Taxila - Pakistan
Ayesha Nasir
NEDUET
Turbulent Box AC

Universidad Nacional del Altiplano - Peru
Pedro Solorzano Picon
Universidad Nacional de Ingeniería
Seawater desalination using solar energy with cylindrical parabolic collectors in southern coastal cities of Peru (ILO,Moquegua)

Yeditepe University - Istanbul
Baris Suslu
Yeditepe University
Investigation of Brain Aneurysms Hemodynamics with Computational Fluid Dynamics (CFD)

History & Heritage and Old Guard Presentation/Reception
6:00–7:30pm
Sheraton – Deer Valley

Please join us for this year's History & Heritage/Old Guard Committees joint reception, where ASME's History & Heritage Committee will present its Engineer-Historian award to Dr. Bryan Lawton, in recognition of his two-volume work, "Various and Ingenious Machines."

The ASME Old Guard Committee will announce the Old Guard Oral Presentation winners and present them with their award certificates.

SUNDAY, NOVEMBER 13

2016 ASME STUDENT DESIGN COMPETITION FINALS AND AWARD CEREMONY AND RECEPTION

8:00AM–6:00PM

North Ballroom B, Phoenix Convention Center

Participant Check-In: 9:00AM
Participant Setup: 9:00AM–11:00AM
Competition: 12:00PM–3:00PM
Award Ceremony and Reception: 3:00PM–4:00PM

Manufacturing plays an essential role in innovation. The field of manufacturing accounts for the majority of private research and development spending and employs a significant percentage of engineers. In order for society to benefit for the latest advances in technology, skilled engineers and novel manufacturing techniques will be required.

This year's challenge is to build a compact engineering system in order to manufacture a projectile from a standard sheet of paper and test it by propelling it a maximum distance.

Participating Teams:

- Georgia Institute of Technology
- University of Central Florida
- El Nile University, Egypt
- Instituto Tecnologico de la Laguna, Mexico
- University of Missouri, Columbia
- Oral Roberts University
- Rowan University
- Indiana University –Purdue Univ, Fort Wayne
- Western New England University
- University of Illinois at Chicago
- Milwaukee School of Engineering
- Oregon State University
- California Polytechic-St Luis Obispo
- Tennessee Technological University
- Indian Institute of Technology Bombay
- Birla Institute of Technology and Science, Pilani-Dubai, UAE
- Rafic Hariri University, Mechref, Lebanon
- University of Engineering and Technology-Lahore, Pakistan
- Yeditepe University, Turkey
- Escuela Politecnica Nacional, Peru
- Hong Kong Polytechnic University

For more information, visit https://www.asme.org/events/competitions/student-design-competition

Major funding provided by: Boeing

Please make plans to attend and support these brilliant future engineers. You never know, your next grad student, intern or new hire may be an SDC finalist.

MEMBERS AND STUDENTS LUNCHEON, SPONSORED BY THE COMMITTEE ON HONORS

12:00PM–1:30PM

124AB, Phoenix Convention Center

Ticket: $60 (members and non-members), $30 (students)

WILLIAM T. ENNOR MANUFACTURING TECHNOLOGY AWARD
Yusuf Altintas
The University of British Columbia

GEORGE WESTINGHOUSE GOLD MEDAL
Kenneth Bray
Retired

MCDONALD MENTORING AWARD
Luciano Castillo
Texas Tech University

GUSTUS L. LARSON MEMORIAL AWARD
Kenneth T. Christensen
University of Notre Dame

CHARLES T. MAIN STUDENT LEADERSHIP AWARD (SILVER)
Eduardo Guevara
UNAM, National and Autonomous University of Mexico

CHARLES RUSS RICHARDS MEMORIAL AWARD
Kenneth E. Goodson
Stanford University

CHARLES T. MAIN STUDENT LEADERSHIP AWARD (GOLD)
Hind Hajjar
American University of Beirut

PI TAU SIGMA GOLD MEDAL
David L. Henann
Brown University

ARTHUR L. WILLISTON MEDAL
Leong Ka Long Karen
The Hong Kong University of Science and Technology

OUTSTANDING STUDENT SECTION ADVISOR AWARD
Kok-Keung Lo
The Hong Kong Polytechnic University

GEORGE WESTINGHOUSE SILVER MEDAL
Elia Merzari
Argonne National Laboratory

EXHIBIT HALL GRAND OPENING AND OPENING RECEPTION

Sunday, November 13
5:00PM–6:30PM
Exhibit Hall, Hall CD, Phoenix Convention Center

All registrants are invited to this special event to celebrate the opening of the IMECE exhibits. Come grab a drink and some food and meet this year's group of exhibitors and learn about their products and services.

FIRST-TIME ATTENDEES ORIENTATION

2:30PM–3:30PM
124AB, Phoenix Convention Center

First-time attendees to IMECE are cordially invited to this informal yet informative session to learn about how to navigate the conference, how to use the program, and more importantly, where all the best parties are. Snacks and refreshments will be served.

VOLT LEADERSHIP WORKSHOP

2:00PM–4:00PM
Deer Valley, Sheraton Grand

Title: ***Advocacy for Engineers: Personal, Professional, and Public***

Panelists: Noël Bakhtian, Jennifer Bell, and Kalan Guiley

Description: As engineers, we know that our work plays a vital role in the world. We believe that the value of engineering should be self-evident. But in today's competitive environment, we must advocate for ourselves and our work if we are to advance as individuals and as a field. This workshop will help you master the principles that are essential to all types of advocacy.

INTERNATIONAL UNDERGRADUATE RESEARCH AND DESIGN EXPOSITION

6:00PM–7:30PM
Exhibit Hall, Hall CD, Phoenix Convention Center

Poster Setup:	3:00PM–5:00PM
Expo (General Viewing):	6:00PM–7:30PM
Winners Announced:	7:30PM–8:00PM

The Student Expo provides undergraduate engineering students with a professional and technical forum for presenting their research, design project, and other engineering solutions and endeavors to top researchers and scientists from academia, industry, government, prospective employers, entrepreneurs graduate schools, and potential faculty advisors.

HONORS ASSEMBLY

Sunday, November 13
7:00PM–8:00PM
North Ballroom CD, Phoenix Convention Center

All registered attendees are cordially invited to attend the 2016 ASME Honors Assembly. This multimedia program celebrates some of today's leading engineers, educators, entrepreneurs and innovators.

This year's Honors Assembly will recognize the achievements of:

ASME MEDAL

J.N. Reddy, Ph.D., P.E., Fellow

Harvard University

For lasting contributions to applied mechanics through authored textbooks and the development of shear deformation plate and shell finite elements for the accurate determination of interlaminar stresses in composite structures, which have had a major impact on engineering education and practice.

HONORARY MEMBER

Cristina H. Amon, Ph.D., Fellow

University of Toronto

For extraordinary contributions as a researcher focusing on heat transfer, as dean of engineering at the University of Toronto, as a leader in ASME and the broader engineering community, and as a champion for increased diversity in the profession.

HONORARY MEMBER

Ashwani Gupta, Ph.D., Fellow

University of Maryland

For distinguished research and educational contributions, particularly those related to energy and environmental sustainability; for mentoring high school students; and for providing services to government and industry.

HONORARY MEMBER

Shiv G. Kapoor, Ph.D., Fellow

University of Illinois at Urbana Champaign

For more than three decades of pioneering contributions to manufacturing engineering through basic and applied research with close collaboration with industrial users, the education and mentoring of young talent, and lifelong service to ASME and other professional societies.

NANCY DELOYE FITZROY AND ROLAND V. FITZROY MEDAL

Evangelos T. Laskaris, Ph.D.

General Electric Global Research Center

For pioneering contributions to the design and construction of superconducting magnets for magnetic resonance imaging systems and energy applications, and for continued efforts to increase affordability and penetration of MRI equipment in underserved regions of the world.

KATE GLEASON AWARD

Helen L. Reed, Ph.D., P.E., Fellow

Texas A&M University

For lifetime achievements in the fundamental understanding and control of boundary layer transition for high-efficiency aerospace vehicles, and in pioneering small satellite design and implementation.

MELVIN R. GREEN CODES & STANDARDS MEDAL

Bernard E. Hrubala, Fellow

TÜV Rheinland AIA Servcies, LLC

For exceptional leadership in ASME Standards and Certification, particularly the advancement and promulgation of the Society's Conformity Assessment programs, the global acceptance of ASME codes and standards, and the implementation of key initiatives that continue to enhance ASME's position as a world renowned standards development organization.

SIA NEMAT-NASSER EARLY CAREER AWARD

Lijie G. Zhang, Ph.D., Member

The George Washington University

For pioneering research in tissue engineering and biomechanics for the development of novel biologically inspired nanomaterials; and for research in the integration of nanobiomaterials with advanced 3-D bioprinting for complex tissue and organ regeneration.

RALPH COATS ROE MEDAL

James J. Duderstadt, Ph.D.

University of Michigan

For outstanding public service as a professor and university administrator; for leadership roles in defining the science and technology agenda for the nation; and for efforts to grow underrepresented groups in our educational institutions.

MONDAY, NOVEMBER 14

ROBERT HENRY THURSTON LECTURE

10:00AM–12:00PM

231C, Phoenix Convention Center

Title: ***Modeling and Simulation of Material Failure at High Strain Rates***

Dr. Rohesh Batra, Virginia Polytechnic University

Dr. Batra joined Virginia Polytechnic Institute and State University, Blacksburg, as Clifton C. Garvin professor of engineering science and mechanics in 1994. His job responsibilities at Virginia Tech include mentoring graduate students in their dissertation research, teaching, helping professionally develop postdoctoral fellows and visiting scientists, serving on committees, and enhancing the visibility of the department and college internationally. Previously Batra was a member of the faculty (1974-94) at the University of Missouri–Rolla (now Missouri University of Science and Technology).

Batra is a world recognized leader in the mechanics of abiabatic shear bands, which usually precede ductile failure of materials exposed to extreme loads such as those produced by roadside bombs (improvised explosive devices/IEDs in the media). These shear bands also occur in high-speed machining and grinding of many metals, ore crushing, and impact and penetration problems. Batra's work has wide-ranging applications in both defense and civilian industries including improved design of armor and anti-armor components, and lightweight composites. He served on the National Research Council's Panel on Armor and Armaments (1996-99) and Panel on Survivability and Lethality (2002-06).

Batra's team has published more than 400 papers in peer-reviewed journals; these papers have been cited more than 13,300 times with an h-index of 61 (Google Scholar). Results from his team are also included in at least five books. His graduate level textbook titled "Elements of Continuum Mechanics" (AIAA, 2006) extensively covers the development of material models. In 1995 Batra co-founded the journal Mathematics and Mechanics of Solids, which he continues to co-edit. He has given numerous plenary/memorial lectures.

VOLT LEADERSHIP WORKSHOP

10:00AM–12:00PM

Deer Valley, Sheraton

Title: ***Advocacy for Engineers: Personal, Professional, and Public***

Panelists: Noël Bakhtian, Jennifer Bell, and Kalan Guiley

Description: As engineers, we know that our work plays a vital role in the world. We believe that the value of engineering should be self-evident. But in today's competitive environment, we must advocate for ourselves and our work if we are to advance as individuals and as a field. This workshop will help you master the principles that are essential to all types of advocacy.

KEYNOTE EVENT

Monday, November 14
8:30AM–10:00AM
(breakfast served from 8:00AM–8:30AM)
North Ballroom CD, Phoenix Convention Center

Keynote Speaker: DAVID SANDALOW, Inaugural Fellow, Columbia University Center on Global Energy Policy

Energy Policy and Technology: Seven Trends to Watch

Biography: **David Sandalow** is the Inaugural Fellow at Columbia University's Center on Global Energy Policy, where he directs the Future of the Grid and US-China Energy & Climate programs.

Prior to joining Columbia, Mr. Sandalow served in senior positions at the U.S. Department of Energy, including Under Secretary of Energy (acting) and Assistant Secretary for Policy & International Affairs. As Under Secretary (acting), Mr. Sandalow helped oversee DOE's renewable energy, energy efficiency, fossil energy, nuclear energy and electricity delivery programs, with a budget of more than $3.5 billion per year. As Assistant Secretary, he helped coordinate policy development and international activities at the Department. Prior to serving at DOE, Mr. Sandalow was a Senior Fellow at the Brookings Institution, as well as Energy & Climate Change Working Group Chair at the Clinton Global Initiative. He has served as Assistant Secretary of State for Oceans, Environment & Science and a Senior Director on the National Security Council staff.

Mr. Sandalow writes and speaks widely on energy and climate policy. He was project chair for the ICEF Solar and Storage Roadmap (December 2015), lead author of Meeting China's Shale Gas Goals (Columbia Center on Global Energy Policy, September 2014), editor of Plug-In Electric Vehicles: What Role for Washington? (Brookings Press, 2009) and co-author of U.S.-China Cooperation on Climate Change (Brookings, 2009). He is the author of Freedom from Oil (McGraw-Hill, 2008) and dozens of articles and op-eds. Mr. Sandalow has appeared on CNN, NPR, NBC, BBC, CCTV and many other broadcast outlets and served as a moderator at many conferences including the World Future Energy Summit, ARPA-E Summit and Clean Energy Ministerial. He served as Honorary Chair of the Energy Storage Association's 2015 Annual Conference.

INVITED INDUSTRY PRESENTATION

10:30AM–11:15AM
125A, Phoenix Convention Center

Speaker: David Howell, Senior Vice President, Operating Plants Business, Westinghouse Electric Company

Title: ***Changing the Nuclear Paradigm through Technology for the Long Run***

Abstract: Nuclear energy provides 19 percent of the country's electricity supply, while accounting for roughly 62 percent of its carbon-free electricity. It has been reported that without nuclear power providing carbon-free energy, states would find it "difficult if not impossible" to meet ambitious federal clean energy goals in coming decades, and that more than 531 million tons of CO2 emissions prevented by nuclear plants every year will be worth $85 billion by 2020, using the federal government's guidelines for estimating the social cost of carbon. That's just a sampling of why it's critical that commercial nuclear power be part of our national strategy for the long run.

A lot of people and companies talk about climate change, while Westinghouse is doing something about it… through technology. While inventing new plant technology we have continued to support utility operators in extending the useful life of their assets from the original license term of 40 years for an initial extension to 60 years and soon to 80. This would be impossible without state of the art technology. For example:

- Guided wave radar technology has been deployed to nearly 100 sites, resulting in a spent fuel pool instrumentation system mandated by post-Fukushima regulation that is simple, effective and affordable.
- Laser Peening is a proven technology for preventing stress corrosion cracking.
- Our newest robotic inspection technologies provide utilities with reduced inspection times, reduced dose and reduced costs by eliminating unnecessary operations, eliminate problem areas, and reducing outage critical path times.
- Advanced pattern recognition software is being used to detect changes otherwise undetectable to find problems before they happen and optimize maintenance.
- The accident-tolerant fuel (ATF) program began in 2004, aimed at producing light water reactor fuel that provides a leap ahead in safety and performance using advanced material that will be able to withstand and survive extreme events and are expected to provide increased degradation resistance at temperatures up to ~1800°C (3272°F).
- ASME design stress and fatigue analyses using NB-3200 criteria is now performed by WESTEMS, a Microsoft® Windows®-based integrated diagnostics and monitoring system. It is modular in design, using project-based models and a family of plug-in programmable components.
- Pre-engineered control system retrofit solutions have been developed for installation in existing cabinets, minimizing the impact on plant infrastructure, maximizing re-use of existing plant cables, and

allowing utilities to take advantage of state of the art digital equipment, models and control techniques to more reliably operate automatically over a wider range of conditions.

It will take a balanced portfolio of energy generation to satisfy the world's future demand. In that context it's hard to ignore the fact that a single uranium fuel pellet the size of a pencil eraser contains the same amount of energy as 17,000 cubic feet of natural gas, 1,780 pounds of coal or 149 gallons of oil, and the fact that a single nuclear site can displace the annual carbon footprint equivalent to 56,000 rail car loads of coal.

Technology is clearly a key enabler to safely, efficiently, and effectively building and operating the world's nuclear assets. Westinghouse continues to innovate and collaborate with nuclear and non-nuclear colleagues to leverage technologies across disciplines… for the long run.

Biography: **David Howell** heads the Westinghouse Electric Company Operating Plants Business product line, where he has operational responsibility for all products and services related to operating plant services including instrumentation and control systems, outage support and plant modification services as well as engineering products and nuclear parts for pressurized water reactors and boiling water reactors worldwide. Mr. Howell assumed this role in July 2013.

Mr. Howell's prior experience includes executive responsibility for both I&C and outage oversight. Most recently, he was senior vice president, Nuclear Automation, and was responsible for the growth of the Westinghouse I&C business from July 2010 to June 2013. Mr. Howell was also previously vice president of global Field Services, where he had executive oversight of the field service business which offers complete outage support, advanced products, nuclear power plant component services and training to customers worldwide.

In his 34 years with Westinghouse, Mr. Howell has held engineering and field operations management positions for business lines related to reactor vessel and steam generator inspection and repair for pressurized water reactor nuclear steam supply systems. Prior to these management positions, he was a lead design engineer for remote reactor repair projects.

He holds six patents for innovative equipment serving this market, is a certified Customer 1st Leader and a black belt in Six Sigma and Lean processes. He was the Customer 1st deployment director for Westinghouse's Nuclear Fuel business, with responsibility for driving implementation of the initiative throughout that business.

Mr. Howell holds a bachelor's degree in mechanical engineering from Geneva College in Beaver Falls, Pennsylvania (USA). He is a registered professional engineer in Pennsylvania and is a member of the Geneva College Advanced Board and an elder in the Presbyterian Church in America.

He is a member of the Westinghouse Operating Committee and a past member of the Westinghouse Board of Directors.

PRESIDENT'S LUNCHEON

12:00PM–1:30PM
124AB, Phoenix Convention Center

MELVILLE MEDAL
Balakumar Balachandran
University of Maryland

JAMES HARRY POTTER GOLD MEDAL
Derek Bradley
University of Leeds

SPIRIT OF ST. LOUIS MEDAL
Inderjit Chopra
University of Maryland

EDWARD F. OBERT AWARD
Sara Cosentino
Politecnico Di Torino

PER BRUEL GOLD MEDAL FOR NOISE CONTROL AND ACOUSTICS
Patricia Davies
Purdue University

WORCESTER REED WARNER MEDAL
Isaac Elishakoff
Florida Atlantic University

SOICHIRO HONDA MEDAL
Bahram Khalighi
General Motors Global Research and Development

MELVILLE MEDAL
Xianbo Liu
Shanghai Jiao Tong University

MELVILLE MEDAL
Xinhua Long
Shanghai Jiao Tong University

M. EUGENE MERCHANT MANUFACTURING MEDAL OF ASME/SME
Jyotirmoy Mazumder
University of Michigan

MELVILLE MEDAL
Guang Meng
Shanghai Jiao Tong University

EDWARD F. OBERT AWARD
Adriano Sciacovelli
University of Birmingham

HENRY R. WORTHINGTON MEDAL
Bruno Schiavello
Flowserve Corporation

DIXY LEE RAY AWARD
Jerald L. Schnoor
The University of Iowa

FRANK KREITH ENERGY AWARD
Aldo Steinfeld
ETH Zurich

EDWARD F. OBERT AWARD
Vittorio Verda
Politecnico Di Torino

MELVILLE MEDAL
Nicholas Vlajic
National Institute of Standards and Technology

ME/MET DEPARTMENT HEADS FORUM

1:30PM–3:30PM
Phoenix Ballroom AB, Sheraton Grand

Sponsored by: Mechanical Engineering and Technology Department Head Committees

The Department Heads Forum is an annual event at the ASME Congress for mechanical engineering and mechanical engineering technology department heads. The forum is a chance to learn about some of the latest research funding developments, curricular innovations, accreditation issues, and upcoming ASME Center for Education activities.

MATERIALS DIVISION LECTURES AND RECEPTION. SPONSORED BY THE MATERIALS DIVISION.

3:45PM–7:00PM
Phoenix Grand Ballroom E, Sheraton Grand

The following awards and lectures will be presented:

ORR AWARD PRESENTATION (3:45PM-4:15PM)

Title: Fracture in Functionally Graded Materials

Addis Kidane, University of South Carolina

SIA NEMAT-NASSER AWARD PRESENTATION (4:15PM-4:45PM)

Title: Advanced Nano and Smart Materials Based 3D/4D Bioprinting

Lijie "Grace" Zhang, The George Washington University

NADAI MEDAL AWARD PRESENTATION (4:45PM-5:15PM)

Title: An analytical model of reactive diffusion for transient electronics

Yonggang Huang, Northwestern University

SERAD AWARDS DINNER

7:00PM–9:00PM
126C, Phoenix Convention Center

FUTUREME MINI-TALKS PRESENTED BY THE ECE PROGRAMMING COMMITTEE

Monday, November 14
5:30PM–7:00PM
120A, Phoenix Convention Center

Join the ASME ECE Programming Committee for this social experience! You will have the opportunity to hear four short, relevant, and inspirational Mini-Talks given in an informal setting by experienced engineers sharing their perspective on career development.

In addition to the mini-talks, you can meet up with other mechanical engineers that have similar interests, to network professionally, and make new connections with ASME leadership and/or renew past friendships. Bring plenty of business cards for networking!

Ice cream will be served and an Apple IPad mini 2 will be (32GB) will be given away! (must be present to win)

Program Moderator:

Daniel J. Kearney, PHD, CEng, Senior Scientist, ABB Corporate Research

Moderator Biography: Daniel J. Kearney, CEng received his Bachelor of Engineering degree in mechanical engineering from University College Dublin, Ireland in 2005 and the PhD degree in mechanical engineering from University of Limerick, Ireland, in 2009. In his current role at ABB Corporate research, in Switzerland, Dr. Kearney holds the technical lead on research in the area of thermal management of electromagnetic components and the advanced package design in PCB embedded power electronic architectures with over 17 peer-reviewed manuscripts and 10 patents pending. Dr. Kearney was the recipient of the 2006 Power Electronics Industry Group Scholarship, a prizewinner at the 10th Sir Bernard Crossland Symposium and recipient of the 2016 European Centre for Power Electronics Young Engineer Award. He is a member of Engineers Ireland and an active member of the American Society of Mechanical Engineers (ASME).

PROGRAM DETAILS

Importance of Effective Listening Skills

Sriharsha S. Sundarram, PhD, Assistant Professor, Fairfield University School of Engineering

How effective are your listening skills? This talk will start off by defining what essentially is effective listening, and provide the science behind the concept of hearing verses listening. Then, discuss common misconceptions, including why it is most important to develop and how you, as an engineer, can improve your listening skills. Sundarram will conclude the talk by sharing a few examples from his own professional experiences illustrating the good and the bad of listening, so that attendees can clearly distinguish the differences between the two types. The examples would be ones to which all engineers can relate to.

Presenter Biography: Sriharsha S. Sundarram, PhD joined Fairfield University School of Engineering in September 2014 as an assistant professor in Mechanical Engineering. He received his PhD in Mechanical Engineering from The University of Texas at Austin in 2013. He received his master's degree from Texas A&M University in Mechanical Engineering and bachelor's degree in Manufacturing Engineering from College of Engineering (Guindy), India. He teaches courses in design, manufacturing and materials. Dr. Sundarram's current research interest is in the area of micro/nano manufacturing, specifically large-scale processing of advanced micro/nano-structured materials with applications in energy, thermal management and biomedicine. The work is interdisciplinary encompassing manufacturing, materials, chemistry and numerical modeling. The eventual goal of the research group is to be able to fabricate metal foams with pore sizes on the order of tens of nanometers. Apart from research, Dr. Sundarram is highly interested in innovative teaching practices and has implemented numerous innovative practices in his classroom.

Preparing Presentations: Building Fundamentals for Long Term Success

Braden Kowalyk, E.I.T., Design Engineer, AltaGas Utilities Inc.

Presentations are common in the workplace and it's an essential skill to have in your toolbox. At some point in your career, it may be necessary to make a presentation, to pitch an idea, provide information, or to deliver project outcomes. It can be a defining moment in your career and advancement. Therefore, you want to develop a process that starts with some fundamental best practices. True success in presentations is found during the preparation - days, weeks, and sometimes months before hand. In this talk, Kowalyk will share how he uses inspiration from all corners of his life and professional experience, to develop the skills and habits required for long term success in presentations.

Presenter Biography: Braden Kowalyk is a design engineer at AltaGas Utilities, a natural gas utility in Alberta, Canada. Working on teams Braden is involved with both the hydraulic simulations and the detailed design involved with new business and system betterment projects. On any given day he can be found designing gas measuring, regulating, and odorizing stations, designing both high and medium pressure pipelines, evaluating pipeline integrity, or providing recommendations for long term system upgrades to increase capacity. Braden earned a Bachelor of Science in Mechanical Engineering from the University of Alberta in 2014. He interned at Labatt Breweries where he worked on lowering process cost by reducing utility usage. His projects were mainly focused around the brewery's powerhouse, cooling plant, carbon dioxide capture, and effluent conditioning.

Technical Writing: Improve Your Writing Skills by Making a Human Connection

Jennifer S. Cooper, P.E., Project Engineer, RCP, Inc.

Improvement in technical communication is more than just adding words to the page or accumulating more technical knowledge. Knowing yourself, your audience, and letting your readers know you is what improves your writing. In this talk, Cooper will share her experiences with the human side of technical writing as an early career engineer who develops compliance manuals and operating procedures.

Presenter Biography: Jennifer S. Cooper, P.E. provides engineering support to the energy industry at the consulting firm RCP, Inc. with an emphasis on regulatory compliance. She specializes in assessing regulatory requirements and applying specific regulations to develop compliance programs, operating procedures, and technical reports. Jennifer received her Bachelor of Science in Mechanical and Industrial Engineering from the University of Tennessee-Martin. She received a Graduate Certificate in Safety Engineering and a Master's of Science in Engineering Management from the Missouri University of Science and Technology. Jennifer is a licensed engineer in Texas and North Carolina.

Task Management in a Multi-Project Environment

Sean Burcham, Engineering Supervisor, BAYMAR Solutions, LLC

Managing tasks across multiple work streams can be cumbersome, especially for early career engineers. Learning how to manage your time, communicate effectively, and keeping yourself organized are three key ways to succeed in a multi-project environment. In this talk, Burcham will pull from his own personal experience and share best practices that has helped him along his career path.

Presenter Biography: Sean Burcham is an engineering supervisor at Baymar Solutions based out of Tampa, Florida. Starting as an entry level design engineer, Sean quickly realized that his true passion was in project management, quality, and systems engineering. He now manages Baymar's Tucson operations and oversees all projects. He earned a Bachelor of Science in Mechanical Engineering from the University of South Florida.

TUESDAY, NOVEMBER 15

ME/MET DEPARTMENT HEADS PROFESSIONAL DEVELOPMENT WORKSHOP

10:30AM–12:00PM
Phoenix Grand Ballroom AB, Sheraton Grand

HEAT TRANSFER DIVISION AWARDS LUNCHEON, SPONSORED BY THE HEAT TRANSFER DIVISION

11:00AM–1:00PM
Phoenix Grand Ballroom D, Sheraton Grand

Ticket: $40

HTD Memorial Award (Science)
Brent Webb

HTD Memorial Award (General)
Jayathi Murthy

HTD Memorial Award (Art)
Raj Manglik

Bergles-Rosenhow Award
Patrick Hopkins

Retiring ASME Journal of Heat Transfer Editor
Terry Simon

TRANSFORMING ENGINEERING CULTURE TO ADVANCE INCLUSION AND DIVERSITY (TECAID)

1:00PM–4:30PM
Phoenix Grand Ballroom AB, Sheraton Grand

NSF ENG/CMMI DIVISION PROGRAM DIRECTORS PANEL SESSION (CMMI, CBET)

1:00PM–2:30PM
126C, Phoenix Convention Center

Speakers: Siddiq Qidwai, George Hazelrigg, Mary Toney, Kara Peter

NSF RESEARCH PROGRAM DEVELOPMENT WORKSHOP

3:00PM–5:30PM
126C, Phoenix Convention Center

Speaker: George Hazelrigg

MICRO & NANOTECHNOLOGY SOCIETY WIDE FORUM AND THE NSF POSTER COMPETITION

11:30PM–3:00PM
Exhibit Hall (Hall CD), Phoenix Convention Center

Poster Setup	10:00AM–11:30am
General Viewing/Judging	11:30AM–2:00PM
Awards	2:00PM–3:00PM

Sponsored by the ASME Nanotechnology Institute

Micro- and nanoscale phenomena and processes are widely explored across many ASME divisions to create new applications and to improve existing engineering systems. This forum seeks to bring together ASME members and researchers from academia and industry with a common focus on micro- and nanotechnology. Please join us in discovering small-scale innovation making a large impact.

GUEST LUNCHEON SPONSORED BY THE ASME AUXILIARY

1:00PM–3:00PM
Paradis Valley, Sheraton Grand

Ticket: $40

Special Presentation: ***"Youth Football Helmet Safety Issues", Dr. Kenneth Saczalski***

Dr. Saczalski is well known for his years of research in biomechanics and vehicle occupant safety along with research on head injuries related to football helmet usage. During his career he has worked with the U.S. Office of Naval Research as a Scientific Officer, served as an advisor to the U.S. Secretary of Transportation and advised the National Highway Traffic Safety Administration (NHTSA) on the evaluation of passive safety systems like the airbag. He has appeared on several U.S. and Canadian television shows, such as "60 Minutes" and the "CBS Evening News."

INVITED INDUSTRY PRESENTATION

1:15PM–2:00PM
125A, Phoenix Convention Center

Speaker: Jeff Geertsen, Engineering Manager, Global Ultrasound Probes, GE Healthcare

Title: ***Engineering Challenges for Medical Ultrasound Transducers***

Abstract: Ultrasound transducers for medical applications present engineering challenges on several fronts. High-quality acoustic data-gathering for medical imaging requires the use of a wide variety of dissimilar materials, electrical connectivity to hundreds or thousands of piezoelectric elements, packaging that meets demanding application needs, and robust design for mass production and reliability. A brief history of the science of ultrasound and its use for medical purposes will illustrate the diverse materials, processes, and engineering skills necessary to design and build effective transducers. Modern products will be presented to demonstrate the current state of the art, and engineering challenges that remain to be solved to further transducer technology will be presented.

Comment: Even though ultrasound transducers are considered to be electrical devices from a regulatory standpoint, most of the engineering

goes into assembling difficult materials into very small volumes, and making electrical connections in what little space is left. I see transducers as a fascinating blend of space-age and stone-age materials and processes. The fact is that there are very few efficient piezoelectric materials, and all of them are difficult to manufacture and machine. Areas of research include acoustic materials, adhesives, plating methods and thermal stress management. Solving these problems lies largely in the mechanical engineering realm.

Biography: **Jeff Geertsen** spent nearly his entire career in medical ultrasound; at first in system packaging and then in transducer design and development. I have designed over 40 ultrasound transducers and currently oversee the Transducer Design Group at GE Healthcare, a team of 14 Engineers and Technicians at GE sites in 5 countries. This Group is responsible for Design, Simulation and Modeling, Materials Research and Acoustic R&D for ultrasound transducers.

Geertsen earned his BSME from BYU in 1980. He was a Mechanical Engineer at Advanced Diagnostic Research in Tempe, AZ from 1980-1985. He went on to be a Senior Mechanical Engineer at Edge Computer in Scottsdale, AZ from 1985-1990. From there he served as Director of Engineering for Acoustic Imaging Transducer Co., Phoenix, AZ from 1990-2001; Senior R&D Manager at B-K Medical Systems in Herlev, Denmark from 2001-2004; Senior Manager, Special Projects, Sound Technology Inc., State College, PA from 2004-2009; Director of Operations and Transducer Engineering at U-Systems, Phoenix, AZ from 2009-2014; and now as Engineering Manager, Global Ultrasound Probes, GE Healthcare

RAYLEIGH LECTURE

3:30PM–5:00PM
125A, Phoenix Convention Center

Title: ***Two approaches to reduce the noise impact of overland civilian supersonic flight***

Victor W. Sparrow, Pennsylvania State University

Abstract: This talk will provide a basis for ASME members to understand sonic booms and the ongoing work to enable overland supersonic flight

CONFERENCE-WIDE PLENARY

Tuesday, November 15
8:30AM–10:00AM (breakfast served from 8:00AM–8:30AM)
North Ballroom CD, Phoenix Convention Center

Speaker: JEFFREY B. LOWINGER, Senior Vice President and Chief Technology Officer - Industrial Eaton Corporation

Title: ***How Technological Advances Are Altering Companies Engineering-Skill Set Needs***

Abstract: Global megatrends are driving changes in the world more quickly than ever before. As engineers, we will play an important role in this evolution, but to meet the accelerating pace of innovation we need a more progressive college curriculum that truly prepares students to meet the world's needs. We need engineers with a diverse knowledge base. We need companies, like Eaton, to provide an environment where innovation can flourish. And, we need to talk about the things that are inhibiting our ability to innovate. It's time to adapt and evolve so that we all can play an important role in accelerating the pace of innovation and building tomorrow's innovation – today.

Biography: **Jeff Lowinger** is the senior vice president and chief technology officer for the Industrial Sector. In this role, Lowinger will is responsible for leading the technology road mapping for the sector and overseeing new product development. Eaton provides energy-efficient solutions that help our customers effectively manage electrical, hydraulic and mechanical power more efficiently, safely and sustainably

Prior to joining Eaton, he served as the Executive vice president, engineering, Xworx and Commercial Programs at Bell Helicopter. He was responsible for all aspects of the Engineering organization, including the development and sustaining engineering for all future, current production and legacy aircraft. He also led new innovation and technology through Bell Helicopter's Xworx organization. He was responsible for ensuring Bell Helicopter remains in the forefront of engineering technology, knowledge and process improvement. As the Commercial Program Leader, he is responsible for the execution of the design, manufacturing, and certification of our new products such as the Bell 525 Relentless as well the continual product refresh of existing production programs (the Bell 206L, 407, 412 and 429 aircraft.)

Prior to joining Bell Helicopter, he spent 25 years with Boeing Rotorcraft where he held a series of executive engineering and program leadership positions.

Lowinger is active in promoting science, technology, engineering and math serving on the advisory boards at Rutgers University, Texas Christian University and Penn State University.

He holds a Bachelor of Science degree in electrical engineering from Rutgers University.

for civilian aircraft. U.S. and international regulations currently prohibit unrestricted civil supersonic flight. There is a lot of interest by NASA and industry to develop the technology for small supersonic aircraft that will sound much less objectionable to the pubic (converse to the former Concorde), enabling overland flight. Most of the recent and ongoing research work is directed toward developing an aircraft body with a special geometrical shape so that the resulting supersonic pressure signature is a sound that has a substantially reduced loudness. Such boom shaping has already been demonstrated and proven in limited ways. NASA is currently developing a Quiet Supersonic Technology (QueSST) demonstration aircraft to validate the adequacy of the approach and the associated technologies. At the same time, some in industry would like to build a supersonic aircraft without consideration of passive noise mitigation shaping but instead flown overland at prescribed speeds such that the resulting sonic boom never reaches the ground, and this is called Mach cut-off flight. Both the geometrical aircraft shaping and Mach cut-off approaches seem feasible to reduce the loudness, and this presentation will outline the technical basis for each. Oh, if Rayleigh could see us now!

[The author and his students are supported by NASA and the FAA. The opinions, findings, conclusions and recommendations expressed in this material are those of the author and do not necessarily reflect the views of ASCENT FAA Center of Excellence sponsor organizations.]

Biography: Victor W. Sparrow has been a faculty member in the Graduate Program in Acoustics at The Pennsylvania State University since 1990. Vic currently is Professor of Acoustics, and he serves as Director of the Penn State Acoustics Program. During 2006 to 2015 he served as a U.S. Research Focal Point for the International Civil Aviation Organization's Committee on Aviation Environmental Protection, and he is currently serving as a co-rapporteur for CAEP's Impacts and Science Group. His usual duties include research and teaching graduate level courses, such as The Acoustics of Fluid Media, Nonlinear Acoustics, Computational Acoustics, Outdoor Sound Propagation, and Spatial Sound and 3D Audio. He has served the Acoustical Society of America as a member of Executive Council and as Vice-President, and he is an ASA Fellow. He has been a member of ASME since 1993.

NOISE CONTROL AND ACOUSTICS DIVISION WINE & CHEESE RECEPTION. SPONSORED BY THE NOISE CONTROL AND ACOUSTICS DIVISION

5:00PM–6:30PM
Paradise Valley, Sheraton Grand

WOMEN IN ENGINEERING RECEPTION

5:30PM–7:00PM
Oculus, Sheraton Grand

Sponsored by the Diversity & Inclusion Strategy Committee, the Petroleum Division of the TEC Sector and the Women in Engineering Community

The reception provides a focal point at the conference for a gathering of women from the wide range of ASME activity for networking and a bit of casual relaxation at the end of a conference day. The event is open to all ASME women engineers/engineering students.

KOITER LECTURE

5:00PM–6:15PM
125A, Phoenix Convention Center

Title: ***Nonlinear Composites: A Guided Tour***

Pedro Ponte Castañeda, University of Pennsylvania

Abstract: All materials exhibit nonlinear constitutive response (e.g., plasticity, magnetic saturation) at sufficiently large mechanical or other stimuli. Unlike linear behavior, which comes in essentially one “flavor” (plain vanilla), nonlinear behavior comes in a dizzying array of flavors! Partly for this reason, it is especially challenging, to develop general methods for estimating the macroscopic response of nonlinear composites, or heterogeneous materials with constituents exhibiting nonlinear response. For material systems with specific microstructures and types of nonlinearity, special “micromechanical” models have been developed, which often work very well for the special set of conditions for which they where developed, but which are difficult to generalize, or which don’t work so well more generally. In this presentation, I will discuss a more general “homogenization” approach that is based on the notion of a “linear comparison composite” making use of appropriately designed variational principles. Such “variational linear comparison” methods provide optimal linearization schemes allowing the direct conversion of robust homogenization estimates for linear composites into corresponding estimates for nonlinear composites. We will go on a “tasting tour” of nonlinear composites and consider several examples ranging from plasticity of composites and polycrystals to magneto- and electro-active composites to fluid suspensions of soft particles. The objective will be to show how these methods can be used to generate relatively simple (quasi-)analytical estimates for the macroscopic response---and field statistics---which can, in turn, be used to develop constitutive subroutines (UMATs) for use in standard finite element simulations at higher (structural) length scales. Interestingly, these homogenized models have the capability to account for coupled effects, microstructure evolution under finite strain conditions, as well as for the possible development of material instabilities under appropriate loading conditions.

ADVANCED ENERGY SYSTEMS DIVISION RECEPTION. SPONSORED BY THE ADVANCED ENERGY SYSTEMS DIVISION

5:30PM–7:30PM
Camelback A, Sheraton Grand

THE FRANK KREITH ENERGY AWARD was established in 2005 to honor an individual for significant contributions to a secure energy future with particular emphasis on innovations in conservation and/or renewable energy. Contributions may be through research, education, practice, or significant service to society that will lead to a sustainable energy future. The award was established by the Solar Energy and Advanced Energy Divisions to honor Dr. Frank Kreith’s contributions to solar energy and heat transfer, and was funded by Holocaust Settlement Claim No. 4931 for Nazi victims and by the Kreith family.

FLUIDS ENGINEERING DIVISION RECEPTION. SPONSORED BY THE FLUIDS ENGINEERING EXECUTIVE COMMITTEE

6:30PM–8:30PM
Maryvale B, Sheraton Grand

APPLIED MECHANICS DIVISION HONORS & AWARDS BANQUET. SPONSORED BY APPLIED MECHANICS DIVISION

6:30PM–9:00PM

Phoenix Grand Ballroom D, Sheraton Grand

Tickets: $90

The evening's events will include honoring:

Thomas J. R. Hughes Young Investigator Award Committee
Ted Belytschko Applied Mechanics Award Committee
Thomas K. Caughey Dynamics Award Committee
Daniel C. Drucker Medal Committee
Warner T. Koiter Medal Committee
Timoshenko Medal Committee

WEDNESDAY Special Events

WEDNESDAY, NOVEMBER 16

INVITED INDUSTRY PRESENTATION

1:15 – 2:00PM

125A, Phoenix Convention Center

Speaker: Steven Unikewicz, Senior Licensing Engineer, Nuscale Power

MEMS DIVISION'S VOLUNTEER RECEPTION AND BEST PAPER AWARD PRESENTATION

5:30PM–7:00PM

126C, Phoenix Convention Center

IMECE VOLUNTEER AND STUDENT RECOGNITION RECEPTION

5:30PM–7:00PM

Paradise Valley, Sheraton Grand

ELECTRONIC AND PHOTONIC PACKAGING DIVISION WINE AND CHEESE RECEPTION. SPONSORED BY THE ELECTRONICS AND PHOTONICS PACKAGING DIVISION

7:00PM–8:00PM

126B, Phoenix Convention Center

CONFERENCE-WIDE PLENARY

Wednesday, November 16
8:30AM–10:00AM(breakfast served from 8:00AM–8:30AM)
North Ballroom CD, Phoenix Convention Center

Speaker: Jim Holland, Vice President, Vehicle Component and System Engineering, Ford Motor Company

Title: ***Facing the Mobility Challenge***

Abstract: There are four important megatrends that are driving Ford's thinking around mobility: Urbanization, Rapid growth of the global middle class, Air quality and Changing consumer attitudes. Given the level of disruptive change that we're all facing, it is clear that business as usual will not deliver automotive leadership in tomorrow's world. Non-traditional entrants are already approaching aspects of the auto industry with a mindset similar to that prevalent in Silicon Valley. In this keynote speech, Jim Holland, Ford's vice president, Vehicle Components and Systems Engineering, will share how Ford is deploying an innovative mindset in every part of its business to be successful, focusing on connectivity, vehicle electrification, autonomous vehicles and the user experience.

Biography: **Jim Holland** is Ford Motor Company's vice president, Vehicle Component and Systems Engineering. In this role, Holland is responsible for vehicle component and system engineering for Ford and Lincoln vehicles globally. His role is central to the company's commitment to developing vehicles with top quality, fuel efficiency, safety, smart technology, and value.

During his 32 years with Ford, Holland has served as engineering director, Ford Asia Pacific ; car and truck vehicle line director, Ford Asia Pacific; chief engineer for the Ford Explorer vehicle program; chief engineer for Global Hybrid Vehicle Strategy; and chief program engineer for the Range Rover vehicle line within Land Rover, previously part of Ford Motor Company.

Holland holds a bachelor of science in mechanical engineering from Lawrence Technology University and a masters of business administration from the University of Detroit.

He is also a Board of Trustee for the University of Detroit-Mercy, and a Board member for the Michigan Science Center.

THURSDAY, NOVEMBER 17

CONFERENCE-WIDE PLENARY

Thursday, November 17
12:00PM–1:00PM
North Ballroom CD, Phoenix Convention Center

Speaker: Ilan Gur, Founding Director, Cyclotron Road

Biography: **Ilan Gur** is Founding Director of Cyclotron Road, a new public-private innovation platform for breakthrough energy technologies. Cyclotron Road recruits top technology innovators, allows them to leverage cutting edge facilities at Lawrence Berkeley National Lab, and surrounds them with an unparalleled network of experts, commercial partners, and financiers. The goal: support critical technology development while identifying the most suitable business models, partners, and financing mechanisms for long-term impact. Prior to founding Cyclotron Road, Ilan served as Program Director at the Advanced Research Projects Agency-Energy (ARPA-E), where he managed a ~$50 million portfolio of advanced R&D projects in the areas of energy storage, solar energy, and advanced materials. He was also senior advisor and cofounder of ARPA-E's Technology-to-Market program, aimed at maximizing the commercial and societal impact of the agency's breakthrough R&D portfolio. Prior to ARPA-E, Ilan launched two venture-backed clean energy startups based on advanced materials and novel manufacturing approaches. He holds B.S., M.S., and Ph.D. degrees in Materials Science and Engineering from the University of California, Berkeley.

Track Plenary

Track Plenary

Track 1: Acoustics, Vibration, and Wave Propagation

SESSION: 1-5-1, LOCALLY RESONANT ELASTIC METAMATERIALS

Monday, November 14, 10:30AM–12:15PM

121A, Phoenix Convention Center

Phononic Crystals With Pillars: Band Gaps, Local Resonances And Scattering Properties

(IMECE2016-65864)

Prof. Bahram Djafari Rouhani

University of Lille, France

Biography: Bahram Djafari-Rouhani is Professor of Physics at the University of Lille, France. He received his PhD thesis in 1974 and his Doctorat d'Etat in 1978 at the University of Paris-Orsay. After a post-doctoral position at the University of Gent (Belgium) he got a research position in the French National Center for Scientific Research (CNRS) from 1980 to 1985. In 1985 he became Professor, first at the University of Mulhouse before moving to the University of Lille in 1990. He has published about 300 papers in refereed journals and about 20 review articles and book chapters (h index=42. Citations: over 8000). His scientific activities are dealing with theory and modelling of wave propagation and elementary excitations in heterogeneous and nanostructured materials, more particularly: phononic crystals and acoustic metamaterials; photonic and plasmonic waveguides and nanostrctures; dual phononic-photonic crystals; light scattering by acoustic phonons; optomechanics. He leaded a theory group of five permanent researchers on these topics and he was involved in several European (FP7-ICT and H2020) and national research projects. He supervised 20 PhD students as well as several postodcs. He was awarded the Bloch medal at the conference Phononics2013. His recent teaching activities are dealing with statistical and condensed matter physics, in particular about basic properties of phonons in crystals and advanced properties of phononic crystal structures.

Track 1: Acoustics, Vibration, and Wave Propagation

NCAD TUTORIAL WORKSHOP

Tuesday, November 15, 1:30PM-2:15PM

125B, Phoenix Convention Center

Prof. Miao Yu

University of Maryland

Biography: Dr. Miao Yu received her Ph.D. from the University of Maryland in 2002 and her B.S. and M.S. degrees in Engineering Mechanics from Tsinghua University, Beijing, China. She is currently an Associate Professor at the University of Maryland. Her research interests encompass acoustic sensors, wave matter/structure interactions, metamaterials, microsystems and nanosystems, plasmonics and nanophotonics, and smart materials and structures. Prof. Yu has published 2 book chapters, 50 archival journal articles, 56 conference papers. Her research work has also led to 6 awarded US patents, 2 provisional patent applications, and many UMD invention disclosures. One of these patents was the basis for her receipt of the University of Maryland's 2002 Outstanding Invention of the Year award in the category of Physical Sciences and her two other inventions were selected as one of the three finalists for the same award in 2010 and 2011.

Track 2: Advanced Manufacturing

2-1-1: ADVANCED MANUFACTURING PLENARY

Wednesday, November 16, 10:30AM–12:15PM

121A, Phoenix Convention Center

Structural Integrity Considerations for New Materials - Additive Manufacturing

(IMECE2016-68867)

Prof. Michael Gorelik

Federal Aviation Administration

Biography: Dr. Michael Gorelik is the Chief Scientist and Technical Advisor for Fatigue and Damage Tolerance at the FAA. He has 25 years of experience in the areas of fracture mechanics, fatigue, damage tolerance, probabilistic methods and Six Sigma. He successfully applied this expertise to design and certification of aerospace products, fleet management and risk assessment, root cause analysis, material qualification, and coordination of R&D programs and consortia.

Prior to joining the FAA, Dr. Gorelik was an Engineering Fellow at Honeywell Aerospace working in the areas of life prediction and durability assessment of safety-critical components. His other leadership assignments included positions of Life Methods manager, Reliability and System Safety manager, and a project manager responsible for deployment of Aerospace-wide material data management system.

Dr. Gorelik served as a principal investigator on a number of research programs funded by the FAA, US Air Force, NASA, DARPA and US Army. He authored / co-authored over 50 peer reviewed papers and conference presentations, and one patent. Dr. Gorelik is a member of the America Makes Governance Board, and serves on the Expert Panel for the DARPA Open Manufacturing program.

He holds a number of professional certifications, and is a recipient of NASA TGIR and R&D 100 awards. He received a Ph.D. degree in Engineering Mechanics / Materials Engineering from the University of Illinois, and an MBA degree from the W.P. Carey School of Business (ASU).

Track 3: Advances in Aerospace Technology

3-22-1: RECENT ADVANCES IN COMPOSITES RESEARCH IN USA

Wednesday, November 16, 10:30AM–12:15PM

121B, Phoenix Convention Center

Research Challenges in Aircraft Composite Structures Certification and Analysis

(IMECE2016-68326)

Prof. Stephen Engelstad

Lockheed Martin

Biography: Stephen P. Engelstad is currently a Lockheed Martin Senior Fellow with specialty in Computational Mechanics and Composite Structures. He holds a Ph.D. in Engineering Mechanics from Virginia Polytechnic Institute and State University. He has 29 years of experience in the aircraft industry in the areas of structural analysis, composites, aircraft certification, bonded joints, aircraft survivability analysis, optimization, structural dynamics and acoustics, and sonic and high cycle fatigue. He currently serves as Technical Lead for an LM Aero Advanced Develop-

ment Programs Structures R&D group, and as an LM consultant to aircraft programs for structural analysis. He is a member of the United States Air Force Scientific Advisory Board (SAB), and the NASA Structures Technical Discipline Team.

Track 3: Advances in Aerospace Technology

3-22-1: RECENT ADVANCES IN COMPOSITES RESEARCH IN USA

Wednesday, November 16, 10:30AM–12:15PM

121B, Phoenix Convention Center

Research Challenges in Aircraft Composite Structures Certification and Analysis

(IMECE2016-68769)

Prof. Stephen Tsai

Stanford University

Biography: Stephen Tsai is Professor Research Emeritus, Aeronautics and Astronautics, Stanford University. His research interests are Process and product development of composite materials that may lead to improved design practice and commercialization. His current interests include composite behavior as affected by static, creep and fatigue loading, and products like composite rotors for flywheel systems. Emphasis is on the design, manufacturing and evaluation of the performance and cost. Methodology and supporting software to provide safe service of 30 years under combinations of loads, temperatures and moisture. Also pioneering spreadsheet based composites design tools. His continuing projects (since 2007) include online composites design workshops, which provide intensive, live training to thousands of around the world. Stephen Tsai is the founding editor of the Journal of Composite Materials, and a Life Fellow of ASME. Stephen received his B.S. in Mechanical Engineering from Yale University in 1952, and his D.Eng. in Mechanical Engineering, also from Yale, in 1961.

Track 4: Biomedical & Biotechnology Engineering

4-1-1 BIOMEDICAL PLENARY PRESENTATIONS

Wednesday, November 16, 10:30AM–12:15PM

121C, Phoenix Convention Center

Microfluidic Technologies for Cancer Diagnosis & Personalized Medicine: From Bench to Bedside & Market

(IMECE2016-68307)

Prof. Chwee Lim

National University of Singapore

Biography: Professor Lim is a Provost's Chair Professor at the Department of Biomedical Engineering as well as a Principal Investigator at the Mechanobiology Institute at the National University of Singapore. His research interests include the development of nano/micro technologies for disease detection, diagnosis and therapy. He has authored more than 300 peer-reviewed papers and delivered more than 290 plenary/keynote/invited talks. He is an elected Fellow of the American Institute for Medical and Biological Engineering as well as an elected Council Member of the World Council of Biomechanics. He currently sits on the editorial boards of more than 12 international journals. Prof Lim has co-founded four startups which are commercializing technologies developed in his lab. He and his team have garnered more than 50 research awards and honors including the top Asian Scientist 100 (2016), University's Outstanding Researcher Award & Outstanding Innovator (2014), TIE50 Award, TIEcon (2014), the Credit Suisse Technopreneur of the Year Award and Wall Street Journal Asian Innovation Award (Gold) (2012), TechVenture Most Disruptive Innovation Award and Asian Entrepreneurship Award (First Prize) (2012), President's Technology Award (2011) and the IES Prestigious Engineering Achievement Award (2010).

Track 4: Biomedical & Biotechnology Engineering

4-1-1 BIOMEDICAL PLENARY PRESENTATIONS

Wednesday, November 16, 10:30AM–12:15PM

121C, Phoenix Convention Center

The Artificial Heart MECE2016-68496)

Prof. Richard Smith

Banner University Medical Center

Biography: Professor Lim is a Provost's Chair Professor at the Department of Biomedical Engineering as well as a Principal Investigator at the Mechanobiology Institute at the National University of Singapore. His research interests include the development of nano/micro technologies for disease detection, diagnosis and therapy. He has authored more than 300 peer-reviewed papers and delivered more than 290 plenary/keynote/invited talks. He is an elected Fellow of the American Institute for Medical and Biological Engineering as well as an elected Council Member of the World Council of Biomechanics. He currently sits on the editorial boards of more than 12 international journals. Prof Lim has co-founded four startups which are commercializing technologies developed in his lab. He and his team have garnered more than 50 research awards and honors including the top Asian Scientist 100 (2016), University's Outstanding Researcher Award & Outstanding Innovator (2014), TIE50 Award, TIEcon (2014), the Credit Suisse Technopreneur of the Year Award and Wall Street Journal Asian Innovation Award (Gold) (2012), TechVenture Most Disruptive Innovation Award and Asian Entrepreneurship Award (First Prize) (2012), President's Technology Award (2011) and the IES Prestigious Engineering Achievement Award (2010).

Track 5: Dynamics, Vibration, and Control

5-1-1: PLENARY PRESENTATIONS

Tuesday, November 15, 10:30AM–12:15PM

123, Phoenix Convention Center

Unified Approach to Accurate and Efficient Modeling of Composite Beams and Plates

(IMECE2016-68763)

Prof. Dewey Hodges

Georgia Institute of Technology

Biography: A native of Clarksville, Tennessee, Dr. Hodges received the Bachelor of Science (with high honors) in Aerospace Engineering in June 1969 from the University of Tennessee at Knoxville. He received the Master of Science in June 1970 and the Doctor of Philosophy in January 1973, both in Aeronautics and Astronautics, from Stanford University in California. For sixteen years (1970 – 1986) he was a research scientist for

the U.S. Army Aviation Systems Command, located at the NASA Ames Research Center at Moffett Field, California. During this time he also lectured at Stanford University and spent half a year as guest research scientist at DLR in Germany. Prof. Hodges has been at Georgia Tech since fall 1986. He has been the principal investigator or co-principal investigator on over 50 externally sponsored research projects with expenditures in excess of $10 million in the fields of aeroelasticity, structural mechanics, rotorcraft dynamics, finite element analysis, and computational optimal control. In recent years his research group has been developing methods for accurate analysis and stress recovery in composite beams (including helicopter and wind turbine rotor blades), plates, and shells. The computer programs VABS (for composite beams) and VAPAS (for composite plates and shells) are in use around the world. He has published five books and 200 technical papers in refereed journals. He has advised 32 PhD and 38 MS graduates. Prof. Hodges is a Fellow of the American Helicopter Society, the American Institute of Aeronautics and Astronautics, the American Society of Mechanical Engineers, and the American Academy of Mechanics. He is on the Editorial Boards of the Journal of Fluids and Structures, the Journal of Mechanics of Materials and Structures, and Nonlinear Dynamics. He was previously on the Editorial Board of the International Journal of Solids and Structures and has served as an Associate Editor of the ASCE Journal of Engineering Mechanics, AIAA Journal, and Vertica. He has served multiple terms on the AHS Dynamics Committee and the AIAA Structural Dynamics Technical Committee. Dr. Hodges has received several awards in his professional career including the 2015 ASME Spirit of St. Louis Medal, the 2014 AHS Alexander Nikolsky Honorary Lectureship, the 2013 AIAA Ashley Award for Aeroelasticity, the 2011 Sigma Xi Sustained Research Award, and the 1979 U.S. Army Research and Development Achievement Award.

Track 5: Dynamics, Vibration, and Control

5-1-2: PLENARY PRESENTATIONS

Monday, November 14, 10:30AM–12:15PM
121B, Phoenix Convention Center

The Dynamics of Very Flexible Structures
(IMECE2016-68764)

Prof. Lawrie Virgin
Duke University

Biography: Lawrie Virgin is Professor of Mechanical Engineering and Materials Science at Duke University in North Carolina. He is a former Chair of the Department of Civil and Environmental Engineering and has been a faculty member at Duke since 1988. Prior to that he received his education in the United Kingdom culminating in a PhD from the University of London (UCL). His research interests are centered on nonlinear mechanics especially buckling, nonlinear vibration and their interaction. A good deal of this research has an experimental nature, and the characterization of chaos has been a recurrent theme. Applications of his research include ship capsize, aeroelasticity, marine risers, rotordynamics, rocking blocks, vibration isolation, impacting systems, sonic fatigue, solar sails and the dynamics of very slender structures. He is the subject editor for Nonlinear Dynamics for Journal of Sound and Vibration. He has written well over a one hundred and forty journal papers and two books: "Introduction to Experimental Nonlinear Dynamics" (2000) and "Vibration of Axially Loaded Structures" (2007) both published by Cambridge University Press.

Track 6: Education and Globalization

6-12-1: ENGINEERING EDUCATION PROGRAMS AT THE NATIONAL SCIENCE FOUNDATION

Wednesday, November 16, 1:30PM–3:15PM
131A, Phoenix Convention Center

Engineering Education Programs at the National Science Foundation

Elliott P. Douglas
National Science Foundation

Biography: Elliot P. Douglas is Program Director for Engineering Education in the Division of Engineering Education and Centers at the National Science Foundation. He oversees several programs, including Research in the Formation of Engineers, Research Initiation in Engineering Formation, and is the lead program director for Revolutionizing Engineering and Computer Ccience Departments (RED). He also supports the workforce development programs of the Engineering Research Centers, and serves on the working groups for other NSF programs related to education. Dr. Douglas's home institution is the University of Florida where he is Associate Professor of Environmental Engineering Sciences, Distinguished Teaching Scholar, and Director of the Engineering Education Collaborative. His research interests lie at the intersection between education research and engineering education practice. His work aims to understand complex thinking processes and learning in students, and to use this information to design effective teaching practices, and includes research in critical thinking, active learning, problem-solving, and cultures of inclusion. Dr. Douglas received SBs in Materials Science & Engineering and MSE & Music from MIT in 1988, and his PhD in Polymer Science & Engineering from UMass-Amherst in 1992. He then worked at Los Alamos National Laboratory for four years before joining the University of Florida in 1996. He has served as Deputy Editor of the Journal of Engineering Education and Chair of the Educational Research & Methods Division of ASEE.

Track 8: Energy

8-18-1: PLENARY SESSION I

Monday, November 14, 10:30AM–12:15PM
121C, Phoenix Convention Center

SmartBattery Enabled by In-Cell Sensors and Actuators
(IMECE2016-68863)

Dr. Chao-Yang Wang
Pennsylvania State University

Biography: Chao-Yang Wang is William E. Diefenderfer Endowed Chair Professor in Mechanical Engineering, and Professor of Chemical Engineering and Materials Science & Engineering at the Pennsylvania State University. He has been the founding director of Electrochemical Engine Center (ECEC) since 1997 and an ASME fellow since 2007.

Track 8: Energy

8-18-2: PLENARY SESSION 2

Tuesday, November 15, 10:30AM–12:15PM
129A, Phoenix Convention Center

Metal Oxide-Based Thermochemical Redox Processes for Producing Solar Fuels and Storing Thermal Energy
(IMECE2016-68864)

Dr. James Miller
Sandia National Laboratories

Biography: Dr. James E. Miller (Jim) is a chemical engineer who has been involved in energy, materials, and chemical processing research at Sandia National Laboratories for almost 25 years. His work has touched on diverse topics ranging from hydroprocessing, to oxidation, lignin depolymerization, treatment of radioactive waste and automobile exhaust, and desalination.

Track 11: Materials: Genetics to Structures

11-1-1: PLENARY SESSION I

Monday, November 14, 10:30AM–12:15PM
221B, Phoenix Convention Center

Electrochemical stiffness in lithium-ion batteries – a new concept for understanding electrode response
(IMECE2016-68670)

Prof. Nancy Sottos
University of Illinois at Urbana-Champaign

Biography: Nancy Sottos is the Donald B. Willet Professor of Engineering in the Department of Materials Science and Engineering at the University of Illinois Urbana-Champaign. She is also a co-chair of the Molecular and Electronic Nanostructures Research Theme at the Beckman Institute. Sottos started her career at Illinois in 1991 after earning a Ph.D. in mechanical engineering from the University of Delaware. Her research group studies the mechanics of complex, heterogeneous materials such as self-healing polymers, advanced composites, and battery electrodes, specializing in characterization of deformation and failure in these material systems. Sottos' research and teaching awards include the ONR Young Investigator Award (1992), Outstanding Engineering Advisor Award (1992, 1998, 1999 and 2002), the R.E. Miller award for Excellence in Teaching (1999), University Scholar (2002), the University of Delaware Presidential Citation for Outstanding Achievement (2002), the Hetényi Best Paper Award from the Society for Experimental Mechanics (2004, 2016), Scientific American's SciAm 50 Award (2008), the M.M. Frocht and B.J. Lazan awards from the Society for Experimental Mechanics (2011), and the Daniel Drucker Eminent Faculty Award (2014). She is a Fellow of the Society of Engineering Science and the Society for Experimental Mechanics and serves on the editorial boards for Experimental Mechanics and Composites Science and Technology.

Track 11: Materials: Genetics to Structures

11-1-2: PLENARY SESSION II

Monday, November 14, 1:30PM–3:15PM
226A, Phoenix Convention Center

Architectures of soft robotic locomotion enabled by simple mechanical principles
(IMECE2016-68776)

Prof. Xi Chen
Columbia University

Biography: Dr. Xi Chen received his Ph.D. in Solid Mechanics from Harvard University in 2001. He was a postdoctoral fellow at Harvard from 2001-2003. He joined Columbia University in 2003 as an Assistant Professor and was promoted to an Associate Professor in 2007. He uses multiscale theoretical, experimental, and numerical approaches to investigate various research frontiers in materials addressing challenges in energy and environment, nanomechanics, and mechanobiology. He has published over 250 journal papers with a h-index over 42. He received the NSF CAREER Award in 2007, the Presidential Early Career Award for Scientists and Engineers (PECASE) in 2008, ASME Sia Nemat-Nasser Early Career Award in 2010, SES Young Investigator Medal in 2011, ASME Thomas J. R. Hughes Young Investigator Award in 2012, and a number of international recognitions from Japan, Korea and China. He is a Fellow of ASME.

Track 12: Mechanics of Solids, Structures and Fluids

12-25-1: PLENARY AND SPECIAL LECTURES

Tuesday, November 15, 10:30AM–12:15PM
226B, Phoenix Convention Center

Mechanics of Soft Composites: The Interplay between Geometrical Structuring and Large Deformation to Achieve Novel Behavior
(IMECE2016-68756)

Prof. Mary Boyce
Columbia University

Biography: Mary C. Boyce is Dean of Engineering at The Fu Foundation School of Engineering and Applied Science at Columbia University in the City of New York and also the Morris A. and Alma Schapiro Professor of Engineering. Prior to joining Columbia, Dean Boyce served on the faculty of the Massachusetts Institute of Technology (MIT) for over 25 years, leading the Mechanical Engineering Department from 2008 to 2013. Dean Boyce leads the education and research mission of Columbia Engineering with more than 185 faculty, 1500 undergraduate students, 2500 graduate students, and 100 postdoctoral fellows. She is committed to facilitating and celebrating the creativity and innovation of students and faculty, and enabling collaborations across the University. Her research focuses on materials and mechanics, particularly in the areas of multi-scale mechanics of polymers and soft composites, both those that are man-made and those formed naturally. Her leadership in the field of mechanics of materials has expanded understanding of the interplay between micro-geometry and the inherent physical behavior of a material, which has led to innovative hybrid material designs with novel properties. She has been widely recognized for her scholarly contributions to this field, including election as a fellow of the American Society of Mechanical Engineers, the American Academy of Arts and Sciences, and the National Academy of

Engineering. Dean Boyce earned her BS degree in engineering science and mechanics from Virginia Tech, and her MS and PhD degrees in mechanical engineering from MIT

Track 12: Mechanics of Solids, Structures and Fluids

12-25-2: PLENARY AND SPECIAL LECTURES

Wednesday, November 16, 10:30AM–12:15PM
226C, Phoenix Convention Center

Why Fracking Works and Why Not Better
(IMECE2016-68757)

Prof. Zdenek Bazant
Northwestern University

Biography: Born and educated in Prague (Ph.D. 1963), Bažant joined Northwestern in 1969, where he has been W.P. Murphy Professor since 1990 and simultaneously McCormick Institute Professor since 2002, and Director of Center for Geomaterials (1981-87). He was inducted to NAS, NAE, Am. Acad. of Arts & Sci., Royal Soc. London; to the academies of Italy, Austria, Spain, Czech Rep. and Lombardy; to Academia Europaea and Eur. Acad. of Sci. & Arts.Honorary Member of: ASCE, ASME, ACI, RILEM. Received: Austrian Cross of Honor for Science and Art I. Class; 7 honorary doctorates (Prague, Karlsruhe, Colorado, Milan, Lyon, Vienna, Ohio State); ASME Timoshenko, Nadai and Warner Medals; ASCE von Karman, Newmark, Biot, Mindlin and Croes Medals and Lifetime Achievement Award; SES Prager Medal; RILEM L'Hermite Medal; Exner Medal (Austria); Torroja Medal (Madrid); ?Sol´?n and Bažant, Sr., Medals (Prague), etc. He authored six books: Scaling of Structural Strength, Inelastic Analysis, Fracture and Size Effect, Stability of Structures, Concrete at High Temperatures, and Concrete Creep. H-index: 111, citations: 51,500 (on Google, July 2016, incl. self-cit.), i10 index: 540. In 2015, ASCE established ZP Bažant Medal for Failure and Damage Prevention. He is one of the original top 100 ISI Highly Cited Scientists in Engrg. (www.ISIhighlycited.com).Home: http://cee.northwestern.edu/people/bazant/

Track 13: Micro- and Nano-Systems Engineering and Packaging

13-2-1: MEMS PLENARY

Wednesday, November 16, 10:30AM–12:15PM
222B, Phoenix Convention Center

Designer DNA Architectures for Programmable Self-assembly
(IMECE2016-68865)

Dr. Yan Liu
Arizona State University

Biography: Yan Liu received her BS in Applied Chemistry from Shandong University (1993) and PhD in Physical Chemistry from Columbia University (2000). She did one-year and three-year postdoctoral research in Rockefeller University and Duke University, before joining the faculty of Arizona State University in 2004. She is currently an Associate Professor in the School of Molecular Sciences and the Biodesign Institute at ASU. Her research interests focus on physical chemistry aspects of DNA self-assembly, and nano-photonics based on DNA-directed assembly.

Track 13: Micro- and Nano-Systems Engineering and Packaging

13-18-2: HIGH-BANDWIDTH PACKAGING CHALLENGES IN A CONNECTED WORLD

Thursday, November 17, 8:00AM–9:45AM
224A, Phoenix Convention Center

High-Bandwidth Packaging Challenges in a Connected World
(IMECE2016-68801)

Dr. Lesley Polka
Intel Corporation

Biography: Lesley Polka is a Principal Engineer at Intel Corporation in the Assembly and Test Technology Division (ATTD) in Chandler, Arizona. She received her B.S., M.S. and Ph.D., all in electrical engineering, from Arizona State University (ASU), with a graduate research focus in computational electromagnetics. She joined Intel in 1994 and has worked on a wide variety of package and interconnect technologies, primarily focused on electrical challenges and package technology development. She is presently the ATTD Foundry Packaging Electrical Program Manager, responsible for addressing all electrical aspects of delivering package solutions for Intel's Custom Foundry customers. Lesley has taught at ASU as an engineering adjunct / guest instructor. She is also a Senior member of IEEE active in the Phoenix section. She is the Vice-chair of the IEEE Phoenix Women in Engineering (WIE) Affinity Group and was a member of the local organizing committee for the 2015 IEEE IMS Symposium where she chaired the High School Invitational, a STEM outreach activity for local students.

Track 14: Safety Engineering and Risk Analysis

14-2-1: SAFETY ENGINEERING: PERSPECTIVES AND INNOVATION

Monday, November 14, 1:30PM–3:15PM
224A, Phoenix Convention Center

Teaching the Elements of Safety Engineering in Mechanical Design: More Than Calculations
(IMECE2016-68772)

Prof. Dennis Guenther
Ohio State University

Biography: Dennis Guenther is Professor Emeritus at The Ohio State University where he taught Mechanical Design in the Mechanical Engineering Department for 41 years. His passion for teaching is matched by his dedication to safety in mechanical systems. His interest in safety is supported by his work in reconstruction of vehicle and product accidents. This work not only assisted interested parties in understanding the cause of a particular accident, but also provided insight into the mechanical design and failure modes that contribute to accident occurrence. His prolific involvement in reconstructing accidents provided extensive examples of safety considerations in mechanical design for his students. Not only did he bring the mechanical design aspects of safety into the classroom, but his experience in testifying in court about his reconstructions provided his students with the real word consequences of mechanical design safety decisions. During his tenure as a Professor at OSU, he oversaw more than 120 Master's and 15 Ph.D. candidates. As testament to his dedication to safety education, his graduates are responsible for the handling and stability programs in vehicle manufacturers throughout the world. He has

authored more than 250 technical articles on various topics in Mechanical and Biomechanical Engineering, many addressing some aspect of safety. He is a 50 year member of the ASME and a Fellow of the Society of Automotive Engineers.

Track 17: NDE, Diagnosis, and Prognosis

17-12-1: PLENARY LECTURE

Wednesday, November 16, 10:30AM–12:15PM
222C, Phoenix Convention Center

Ultrasonic and electromagnetic waves for non-destructive evaluation and structural health monitoring
(IMECE2016-68878)

Prof. Tribikram Kundu
University of Arizona

Biography: Professor Kundu received his bachelor degree in Mechanical Engineering from IIT Kharagpur, where he was the winner of the President of India Gold Medal (PGM). He went to UCLA for graduate study. After completing MS and PhD and winning the outstanding graduate student award from UCLA he joined the University of Arizona as an Assistant Professor, then promoted to Full Professor and was then distinguished as a Faculty Fellow in the College of Engineering. To date he has supervised 34 PhD and 23 MS students, published 7 books, 15 book chapters and 315 technical papers; 156 of those in refereed scientific journals. According to Google Scholar his h-index is 38, with close to 5000 total citations. He has won the Humboldt Research Prize (Senior Scientist Award) and Humboldt Fellowship awards from Germany, 2012 NDE Life Time Achievement Award from SPIE (the International Society for Optics and Photonics), 2015 Research Award for Sustained Excellence from ASNT (American Society for Nondestructive Testing), 2015 Lifetime Achievement Award and 2008 Person of the Year Award from the Structural Health Monitoring journal. He received a number Invited Professorships from France, Germany, Sweden, Switzerland, Spain, South Korea, Poland, China, Japan and India. He is Fellow of 5 professional societies - ASME, ASCE, SPIE, ASNT and ASA. He is the Editor-in-Chief of one journal and Associate Editor of 4 more journals. He has delivered a number of plenary and keynote talks in scientific conferences in USA and abroad.

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For more information, please stop by the meeting information booth. GOOD LUCK!

Technical Program

Technical Program At-A-Glance

EXHIBIT HALL POSTER SESSIONS		
Undergraduate Student Expo	Sunday, November 13	6:00PM–7:00PM
Micro/Nano Forum	Tuesday, November 15	11:30AM–2:30PM
NSF Competition	Tuesday, November 15	11:30AM–2:30PM
Virtual Podium (general poster sessions)	Wednesday, November 16	11:30AM–2:30PM

MONDAY, NOVEMBER 14						
	10:30AM–12:15PM	PG.	**1:30PM–3:15PM**	PG.	**3:45PM–5:30PM**	PG.
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222C	17-12-1: Plenary Lecture	184	9-5-3: CFD Applications for Optimization and Controls III	108	9-5-4: CFD Applications for Optimization and Controls IV	109
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224A	11-10-1: Fracture and Damage	137	10-19-2: Micro/Nanoscale Two-phase Heat Transfer	123	10-20-1: Pulsating and Loop Heat Pipes	124
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228B	6-6-1: Fluid Mechanics, Heat Transfer, Experiments and Energy Systems I	85	11-14-1: Modeling and Analytical Investigations	139	11-14-2: Experimental Investigations	140
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121B	2-13-1: Threaded Fasteners I	54	2-13-2: Threaded Fasteners II	55	2-13-3: Material Bonding & Processing	56	2-13-4: Welding	57
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129B	9-4-1: Low and High Speed Fluid Dynamics	110	6-4-1: Systems Engineering and Sustainable Engineering Education I	87	6-4-2: Systems Engineering and Sustainable Engineering Education II	87	6-11-1: Societal and Ethical Dimensions of Engineering and Safety Issues	88
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221B	10-7-2: Thermal Transport in Organic and Inorganic Nanostructured Materials	125	9-16-1: Fluid Measurements and Instrumentation	111	9-12-1: Multiphase Flow with Bio-applications I	112	9-12-2: Multiphase Flow with Bio-applications II	113
221C	10-30-1: Computational Heat Transfer: General (Technical Session)	126	10-23-2: Transport Phenomena in Extreme Conditions - Part 2	127	10-21-1: Gas Path Heat Transfer and Fundamental Film/Pin-Fin Studies	124	9-8-4: Invited Talks	113
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TIME

10:30AM–12:15PM

1-5-1 LOCALLY RESONANT ELASTIC METAMATERIALS

ROOM 121A

Session Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States

Session Co-Organizer: Liang Wu Cai, Kansas State University, Manhanton, KS, United States

10:30AM – Phononic Crystals With Pillars: Band Gaps, Local Resonances And Scattering Properties
Track Plenary Presentation. IMECE2016-65864 – *Bahram Djafari Rouhani, IEMN UMR CNRS 8520, Villeneuve D`Ascq, France, Yabin Jin, IEMN, University of Lille, Villeneuve d'Ascq, France, stephanie Hemon, IEMN, Université Lille1, Villeneuve d'Ascq, France, Yan Pennec, Institut D?Electronique, De Microélectronique, Lille, France, mourad oudich, institut jean lamour, Nancy-Les-Vandoeuvre, French Polynesia, Bernard Bonello, CNRS and University Paris 6, Paris, France*

11:12AM – Parametric Analysis and Design of Discrete Resonators for Low Frequency Metamaterials
Technical Presentation. IMECE2016-67635 – *Alirea V. Amirkhizi, University of Massachusetts, Lowell, Lowell, MA, United States*

11:33AM – A Semi-Analytical Approach Towards Bandgap Analysis of Local Resonance Metamaterials
Technical Presentation. IMECE2016-66591 – *Ashwin Sridhar, Varvara Kouznetsova, Marc Geers, Eindhoven University of Technology, Eindhoven, Noord Brabant, Netherlands*

11:54AM – Metamaterial Application In Stress Wave Mitigation Generated By Impulsive Force
Technical Paper Publication. IMECE2016-67036 – *Gustavo Rodrigues, Pontifícia Universidade Católica do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil, Hans I. Weber, PUC-Rio, Rio de Janeiro, Rio de Janeiro, Brazil*

1:30PM–3:15PM

1-2-1 GENERAL NOISE AND VIBRATION

ROOM 121C

Session Organizer: Henry A. Scarton, Rensselaer Polytechnic Inst, Troy, NY, United States

Session Co-Organizer: Brent Paul, Alion Science & Technology, McLean, VA, United States

1:30PM – The Mechanisms Whereby Double Helical Tooth Synchronous Belt Produces Lower Noise Than Straight-Toothed Synchronous Belt - A Theoretical Investigation
Technical Paper Publication. IMECE2016-65301 – *Jianhua Guo, Yu Wang, Qingming Hu, Shan Li, Ze He, Qiqihar University, Qiqihar, heilongjiang, China, Gordon Gong, Texas Tech University System, Lubbock, TX, United States*

1:51PM – An Investigation Into Acoustic Dipole Source Calibration Methods For Turbomachinery Sound Radiation In Reverberant Fields
Technical Paper Publication. IMECE2016-66815 – *Michael Jonson, Pennsylvania State Unversity, State College, PA, United States, Steven Young, Penn State University, State College, PA, United States*

2:12PM – Effect Of Upstream Cylinder's Oscillation Frequency On Downstream Cylinder's Vortex Induced Vibration
Technical Paper Publication. IMECE2016-66990 – *Mohammad Mobassher Tofa, University Teknologi Malaysia, Skudai, Johor Bahru, Malaysia, Adi Maimun, Yasser Ahmed, Universiti Teknologi Malaysia, Johor Bahru, Malaysia*

2:33PM – Ultrasonic Communications through a Reinforced Concrete Column
Technical Paper Publication. IMECE2016-67710 – *Kyle R. Wilt, Rensselaer Polytechnic Institute, Troy, NY, United States, Henry A. Scarton, Rensselaer Polytechnic Inst, Troy, NY, United States, Gary J. Saulnier, Rensselaer Polytechnic Institute, Troy, NY, United States*

1-3-1 ACOUSTICS AND STRUCTURAL INTERACTION

ROOM 122A

Session Organizer: Shung H. Sung, SHS Consulting, LLC, Troy, MI, United States

Session Co-Organizer: Albert Kirwan, Electric Boat Corporation, Groton, CT, United States

1:30PM – Effects of Kurtosis Value on the response of vibrating beam with different BCs
Technical Paper Publication. IMECE2016-65810 – *Hesam Hoursan, Sharif University of Tech, Tehran, Iran, Mohammad Taghi Ahmadian, Sharif University of Technology, Tehran, Iran*

1:51PM – DESIGN AND PROTOTYPE OF A TWO-AXIS ACOUSTIC LEVITATOR
Technical Paper Publication. IMECE2016-66193 – *Justin Clough, Daniel Piombino, Jonathan Braaten, Michael Sracic, Milwaukee School of Engineering, Milwaukee, WI, United States, Kamlesh Suthar, Advanced Photon Source, Argonne National Laboratory, Argonne, IL, United States, Scott Connors, Nathaniel Pedigo, Vincent Prantil, Milwaukee School of Engineering, Milwaukee, WI, United States*

2:12PM – Bifurcations and uncertainty quantifications in Nonlinear Acousto-Elastic Systems
Technical Paper Publication. IMECE2016-66367 – *W.Dheelibun Remigius, Sunetra Sarkar, INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI, Tamilnadu, India*

2:33PM – Coupling Sound Absorbing Materials with an Air Cavity Using Frequency Dependent Bulk Material Properties
Technical Paper Publication. IMECE2016-67678 – *Shung H. Sung, SHS Consulting, LLC, Troy, MI, United States, Donald J. Nefske, Engineering Mechanics Group, LLC, Troy, MI, United States*

TIME		
1:30PM–3:15PM	**1-5-2 TOPOLOGICAL PHONONICS** **ROOM 121A** *Session Organizer: Liang Wu Cai, Kansas State University, Manhanton, KS, United States* *Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **1:30PM – Tunable topological phononic crystals** **Technical Presentation.** IMECE2016-65998 – *Zeguo Chen, Ying Wu, KAUST, Thuwal, Saudi Arabia* **1:51PM – Unidirectional Wave Propagation In Space-Time Periodic Beams** **Technical Presentation.** IMECE2016-67445 – *Giuseppe Trainiti, Massimo Ruzzene, Georgia Institute Of Technology, Atlanta, GA, United States* **2:12PM – Acoustic non-reciprocator based on topologically non-trivial band-gaps** **Technical Presentation.** IMECE2016-67219 – *Rajesh Chaunsali, Jinkyu Yang, University of Washington, Seattle, WA, United States* **2:33PM – Acoustic wave propagation in time-varying one-dimensional piezoelectric phononic crystals** **Technical Presentation.** IMECE2016-66088 – *Jérôme Vasseur, IEMN, Villeneuve D?Ascq Cedex, France, Charles Croenne, IEMN/ISEN CNRS UMR 8520, Lille, France, Olivier Bou Matar, IEMN/Ecole Centrale de Lille CNRS UMR 8520, Villeneuve d'Ascq, France, Marie_Fraise Ponge, I2M/Université de Bordeaux CNRS UMR 5295, Pessac, France, Anne-Christine Hladky, IEMN/ISEN CNRS UMR 8520, Lille, France, Pierre Deymier, University of Arizona, Tucson, AZ, United States, Bertrand Dubus, IEMN/ISEN CNRS UMR 852, Lille, France*	**1-5-3 NANOPHONONICS** **ROOM 121B** *Session Organizer: Nicholas Boechler, University of Washington, Seattle, WA, United States* *Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **1:30PM – Slowing down heat transfer by mechanical vibrations: New paradigm in energy efficiency** **Technical Presentation.** IMECE2016-66081 – *Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **1:51PM – Observation of Acoustic Phonon Confinement Effects in Arrays of Semiconductor Nanowires using Brillouin-Mandelstam Spectroscopy** **Technical Presentation.** IMECE2016-66978 – *Fariborz Kargar, University of California, Riverside, Riverside, CA, United States, Joona-Pekko Kakko, Aalto University, Aalto, Finland, Bishwajit Debnath, University of California, Riverside, Riverside, CA, United States, Antti Säynätjoki, Aalto University, Aalto, Finland, Denis Nika, Moldova State University, Chisinau, Moldova - Republic Of, Roger Lake, Alexander A. Balandin, University of California, Riverside, Riverside, CA, United States* **2:12PM – Propagation of Elastic Waves in the Nanoscaled Nearly Periodic Layered Phononic Crystals** **Technical Presentation.** IMECE2016-65465 – *A Li Chen, Li Zhi Tian, Yue-Sheng Wang, Beijing Jiaotong University, Beijing, China* **2:33PM – Hypersonic Excitations in Polymeric Nanolines** **Technical Presentation.** IMECE2016-66488 – *Elena Alonso-Redondo, Max Planck Institute for Polymer Research, Mainz, Germany, Abdellatif Gueddida, Institut d?Électronique, de Microélectronique et de Nanotechnologie, UMR-CNRS, Villeneuve d?Ascq, France, Jie Li, Department of Materials Science and Engineering, University of Pennsylvania, Philadelphia, PA, United States, Bartlomiej Graczykowski, ICN2 - Catalan Institute of Nanoscience and Nanotechnology, Bellaterra, Spain, Yan Pennec, Institut D?Electronique, De Microélectronique, Lille, France, Bahram Djafari Rouhani, IEMN UMR CNRS 8520, Villeneuve D`Ascq, France, Shu Yang, University of Pennsylvania, Philadelphia, PA, United States, George Fytas, Institute of Electronic Structure and Laser Foundation for Research and Technology-Hellas, Heraklion, Greece*
3:45PM–5:30PM	**1-4-1 NUMERICAL METHODS IN VIBRATION AND ACOUSTICS** **ROOM 121C** *Session Organizer: Rui Botelho, General Dynamics Electric Boat, Groton, CT, United States* *Session Co-Organizer: Shung H. Sung, SHS Consulting, LLC, Troy, MI, United States* **3:45PM – Application of Finite Element Method in Computing Head-Related Transfer Function Using ANSYS** **Technical Presentation.** IMECE2016-68456 – *Mahdi Farahikia, SUNY Binghamton, Vestal, NY, United States, Quang Su, SUNY Binghamton, Binghamton, NY, United States* **4:06PM – Harmonic Response of Layered Halfspace using Reduced Finite Element Model with Perfectly-Matched Layer Boundaries** **Technical Paper Publication.** IMECE2016-65438 – *Simon Jones, Rose-Hulman Institute of Technology, Terre Haute, IN, United States* **4:27PM – High-frequency vibration analysis of thin plate based on B-spline wavelet on interval finite element method** **Technical Paper Publication.** IMECE2016-65487 – *Jia Geng, Xingwu Zhang, Xi'an Jiaotong University, Xi'an, China, Xuefeng Chen, Xi'an Jiaotong Univ (Mech Engrg), Xi'an, Shaanxi, China, Xiaofeng Xue, Xi'an Jiaotong University, Xi'an, China* **4:48PM – A parametric study of air-pumping phenomenon in tire grooves using computational fluid dynamics** **Technical Paper Publication.** IMECE2016-65500 – *Prashanta Gautam, University of Akron, Akron, OH, United States, Yousof Azizi, Bridgestone Americas, Akron, OH, United States, Abhilash J. Chandy, University of Akron, Akron, OH, United States* **5:09PM – Entropy for Strongly Coupled Oscillators** **Technical Paper Publication.** IMECE2016-65567 – *Dante Tufano, Rensselaer Polytechnic Institute, Troy, NY, United States, Zahra Sotoudeh, Cal Poly Pomona, Pomona, CA, United States*	**1-5-4 HOMOGENIZATION IN PHONONICS** **ROOM 121A** *Session Organizer: Ankit Srivastava, Illinois Institute of Technology, Chicago, IL, United States* *Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **3:45PM – Unified Homogenization of Photonic/Phononic Crystals: Controllable First-band Negative Refraction - Theory** **Technical Presentation.** IMECE2016-65685 – *Siavouche Nemat-Nasser, University of California, San Diego, La Jolla, CA, United States* **4:06PM – Unified Homogenization of Photonic/Phononic Crystals: Controllable First-band Negative Refraction - Examples** **Technical Presentation.** IMECE2016-65687 – *Siavouche Nemat-Nasser, University of California, San Diego, La Jolla, CA, United States* **4:27PM – A Multiscale Approach to Elastic Metamaterials** **Technical Presentation.** IMECE2016-68657 – *Chenchen Liu, Celia Reina, University of Pennsylvania, Philadelphia, PA, United States* **4:48PM – Nonlocal Homogenization Model for Wave Dispersion and Attenuation in Elastic and Viscoelastic Heterogeneous Media** **Technical Presentation.** IMECE2016-65761 – *Ruize Hu, Caglar Oskay, Vanderbilt University, Nashville, TN, United States* **5:09PM – Metamaterials: Supra-Classical Dynamic Homogenisation** **Technical Presentation.** IMECE2016-66701 – *Mihai Caleap, Bruce W. Drinkwater, University of Bristol, Bristol, United Kingdom*

TIME

3:45PM–5:30PM

1-5-5 ACOUSTIC ABSORPTION, FOCUSING, AND NEGATIVE PROPERTIES

ROOM 121B

Session Organizer: Nicholas Fang, MIT, Cambridge, MA, United States

Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States

3:45PM – Acoustic Perfect Absorber Based on Soundless Metasurface Spiral
Technical Presentation. IMECE2016-65415 – *Badreddine ASSOUAR, Yong LI, CNRS - University of Lorraine, Nancy, France*

4:06PM – Upholding the diffraction limit in the focusing of light and sound
Technical Presentation. IMECE2016-67720 – *Alexei Maznev, MIT, Cambridge, MA, United States, Oliver B Wright, Hokkaido University, Sapporo, Japan*

4:27PM – Design of Acoustic Imaging and Mirage Effect Using A Hollow Periodic Metal Structure
Technical Presentation. IMECE2016-65473 – *Sheng Dong Zhao, Yue-Sheng Wang, Beijing Jiaotong University, Beijing, China, Chuanzeng Zhang, University of Siegen, Siegen, Germany*

4:48PM – Waves in a laminated composite: negative refraction, mode switching, and thermodynamically acceptable overall descriptions
Technical Presentation. IMECE2016-66113 – *Ankit Srivastava, Illinois Institute of Technology, Chicago, IL, United States*

5:09PM – Numerical analysis of wave motion through acoustic/elastic metamaterial with anisotropic effective mass density
Technical Presentation. IMECE2016-65915 – *Mehran Jaberzadeh, Bing Li, the University of Akron, akron, OH, United States, Kwek Tze Tan, University of Akron, Akron, OH, United States*

1-6-1 STRUCTURAL-ACOUSTIC SYSTEM IDENTIFICATION

ROOM 122A

Session Organizer: Miao Yu, University of Maryland, College Park, MD, United States

Session Co-Organizer: Weidong Zhu, University of Maryland, Baltimore, MD, United States

3:45PM – Experimental identification of the constitutive model of viscoelastic non-standard materials
Technical Paper Publication. IMECE2016-66807 – *Stefano Amadori, Giuseppe Catania, University of Bologna, Bologna, Italy*

4:06PM – A modified stochastic subspace identification method for estimating natural frequencies of in-service utility-scale wind turbine towers
Technical Paper Publication. IMECE2016-67303 – *Kaoshan Dai, Ying Wang, Yichao Huang, Tongji University, Shanghai, China, Weidong Zhu, University of Maryland, Baltimore, MD, United States, Yongfeng Xu, University of Maryland Baltimore County, Halethorpe, MD, United States*

4:27PM – Development and Validation of an In-Situ Utility Pole Model for Vibration-Based Non-Destructive Testing
Technical Paper Publication. IMECE2016-67463 – *Plinio Ferreira Pinto, Geoff Rideout, Memorial University of Newfoundland, St. John's, NL, Canada*

4:48PM – Spatial Mapping of Acoustic Fields in Metamaterials Using a Miniaturized Optical Fiber Probe
Technical Presentation. IMECE2016-67477 – *Randy Ganye, Yongyao Chen, Miao Yu, University of Maryland, College Park, MD, United States, Haijun Liu, Temple University, Philadelphia, PA, United States, Hyungdae Bae, University of Maryland, College Park, MD, United States*

5:09PM – Diagnostics and Prognostics for Vibrating Structures based on Microstructure-based Damage Precursors
Technical Presentation. IMECE2016-67524 – *Ryan Whitmore, Satish Rajaram, Brian Wisner, Drexel University, Philadelphia, PA, United States, Konstantinos P. Baxevanakis, Drexel University, MEM Department, Philadelphia, PA, United States, Antonios Kontsos, Drexel University, Philadelphia, PA, United States*

TIME	
10:30AM–12:15PM	**1-5-6 EXPERIMENTAL PHONONICS** **ROOM 121A** *Session Organizer: Victor Sanchez-Morcillo, Universitat Politecnica De Valencia, Gandia, Spain* *Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **10:30AM – Multi-layer locally resonant meta-material acoustic barriers: To large scale testing and beyond...** **Technical Presentation.** IMECE2016-66342 – *Andrew J Hall, Emilio P. Calius, Callaghan Innovation, Auckland, New Zealand, George Dodd, University of Auckland, Auckland, New Zealand* **10:51AM – Experimental study of the transmission spectrum of a sonic/ultrasonic acoustic metamaterial** **Technical Paper Publication.** IMECE2016-67140 – *Yanbo He, University of Pittsburgh, Pittsburgh, PA, United States, Jeffrey Vipperman, Univ Of Pittsburgh, Pittsburgh, PA, United States* **11:12AM – Contact-Based and Spheroidal Vibrational Dynamics of a Two-Dimensional Micro-Granular Crystal Studied with Laser-Induced Transient Gratings** **Technical Presentation.** IMECE2016-67481 – *Alejandro Vega-Flick, CINVESTAV, Merida, Yucatan, Mexico, Ryan A. Duncan, Alexei A. Maznev, Massachusetts Institute of Technology, Cambridge, MA, United States, Samuel Wallen, Nicholas Boechler, University of Washington, Seattle, WA, United States, Christian Stelling, Markus Retsch, University of Bayreuth, Bayreuth, Germany, Juan J. Alvarado-Gil, CINVESTAV, Merida, Mexico, Keith A. Nelson, Massachusetts Institute of Technology, Cambridge, MA, United States* **11:33AM – Application of Phononic Crystals in Engineering of Mechanical Quality Factors of Micro-Toroidal Optomechanical Resonators** **Technical Presentation.** IMECE2016-67793 – *Seyedhamidreza Alaie, Weill Cornell Medicine, New York, NY, United States, Mani Hossein-Zadeh, Mohamedhosein Baboly, Mohammad Reza Zamani, University of New Mexico, Albuquerque, NM, United States, Simon Dunham, Weill Cornell Medicine, New York, NY, United States, Zayd Leseman, University of New Mexico, Albuquerque, NM, United States*	**1-5-7 EXOTIC LATTICES IN PHONONICS** **ROOM 121B** *Session Organizer: Srikantha Phani, University of British Columbia, Vancouver, BC, Canada* *Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **10:30AM – Tunable Wave Dynamics in Origami-based Mechanical Metamaterials** **Technical Presentation.** IMECE2016-65457 – *Hiromi Yasuda, Mia Lee, Jinkyu Yang, University of Washington, SEATTLE, WA, United States* **10:51AM – Transformable Origami-inspired Acoustic Waveguides** **Technical Presentation.** IMECE2016-65695 – *Sahab Babaee, Johannes B. Overvelde, Elizabeth R. Chen, Vincent TOURNAT, Katia Bertoldi, Harvard university, Cambridge, MA, United States* **11:12AM – Kirigami-inspired Elastic Hyperbolic Metamaterial for Subwavelength Flexural Wave Control** **Technical Presentation.** IMECE2016-68755 – *Rui Zhu, Hiromi Yasuda, Jinkyu Yang, University of Washington, Seattle, WA, United States* **11:33AM – Manipulation of elastic waves in graded mechanical metamaterials** **Technical Presentation.** IMECE2016-67644 – *Eunho Kim, Chonbuk National Univeristy, Jeonju-si, Jeollabuk-do, Korea (Republic), Rajesh Chaunsali, Sean Eunsik Phenisee, Jinkyu Yang, University of Washington, Seattle, WA, United States* **11:54AM – Active Tunable Stop Band of Piezoelectric Phononic Crystal By Negative Capacitance Circuit** **Technical Presentation.** IMECE2016-65935 – *Yi-Ze Wang, Yue-Sheng Wang, Beijing Jiaotong University, Beijing, Beijing, China*
	1-5-9 NONLINEAR PHONONICS **ROOM 121C** *Session Organizer: Victor Sanchez-Morcillo, Universitat Politecnica De Valencia, Gandia, Spain* *Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **10:30AM – Foundational principles for nonlinear dispersive elastic waves in homogeneous and periodic media** **Technical Presentation.** IMECE2016-67118 – *Romik Khajehtourian, University of Colorado Boulder, Boulder, CO, United States, Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **10:51AM – The Effects of Cubic Stiffness Nonlinearity on the Attenuation Bandwidth of 1D Elasto-dynamic Metamaterials** **Technical Paper Publication.** IMECE2016-66359 – *Arnab Banerjee, The University of Auckland, Auckland, Auckland, New Zealand, Emilio P. Calius, Callaghan Innovation, Auckland, New Zealand, Raj Das, University of Auckland; Dept of Mechanical Engrg, Auckland, New Zealand* **11:12AM – Realizing a Nonlinear Mechanical Metamaterial Unit** **Technical Presentation.** IMECE2016-66448 – *Andrew J Hall, Callaghan Innovation, Auckland, New Zealand, Arnab Banerjee, The University of Auckland, Auckland, Auckland, New Zealand, Emilio P. Calius, Callaghan Innovation, Auckland, New Zealand, Raj Das, University of Auckland; Dept of Mechanical Engrg, Auckland, New Zealand* **11:33AM – Experimental Evidence of Modal and Directional Mixing in Nonlinear Lattices** **Technical Presentation.** IMECE2016-66239 – *Ganesh Ramakrishnan, Stefano Gonella, University of Minnesota, Minneapolis, MN, United States* **11:54AM – Surface Acoustic Wave Propagation in Self-Assembled Multilayer Microscale Granular Crystals** **Technical Presentation.** IMECE2016-67408 – *Amey Khanolkar, Maroun Abi Ghanem, Nicholas Boechler, University of Washington, Seattle, WA, United States*	**1-7-1 AERO-ACOUSTICS AND SOUND PROPAGATION** **ROOM 122A** *Session Organizer: Zhongquan Charlie Zheng, University of Kansas, Lawrence, KS, United States* *Session Co-Organizer: Brent Paul, Alion Science & Technology, McLean, VA, United States* **10:30AM – Time-Domain Simulation of Ultrasound Propagation with Fractional Laplacian** **Technical Paper Publication.** IMECE2016-65966 – *Junjian Zhang, Guoyi Ke, Zhongquan Charlie Zheng, University of Kansas, Lawrence, KS, United States* **10:51AM – Effect on Sound Source Drift Caused by Angles between Jet Flow Direction and Microphone Array or Sound Source Plane** **Technical Paper Publication.** IMECE2016-66099 – *Zhe Shen, Yigang Wang, Yang Zhigang, Tongji University, Shanghai, China* **11:12AM – Compressible 2D flow field interaction of two contra-rotating blades** **Technical Paper Publication.** IMECE2016-67449 – *Natasha Barbely, NASA, Moffett Field, CA, United States, Narayanan Komerath, Georgia Institute of Technology, Atlanta, GA, United States* **11:33AM – Spacetime discontinuous Galerkin method for wave propagation simulation in complex media** **Technical Presentation.** IMECE2016-68547 – *Reza Abedi, University of Tennessee Space Institute, Tullahoma, TN, United States*

TIME

1:30PM–3:15PM

1-5-8 EXOTIC PHENOMENA IN PHONONICS

ROOM 121A

Session Organizer: Liang Wu Cai, Kansas State University, Manhanton, KS, United States

Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States

1:30PM – Nonlinear waves in phononic rotational lattices
Technical Presentation. IMECE2016-66408 – *Victor Sanchez-Morcillo, Universitat Politecnica De Valencia, Gandia, Spain, Vitalyi Gusev, Université du Maine, Le Mans, France, Noé Jiménez, Laboratoire d?Acoustique de l?Université du Maine, Le Mans, France*

1:51PM – Solitary Wave Propagation in an Acoustic Switch Using Lateral Contacts and Inclination
Technical Presentation. IMECE2016-67262 – *Robert Waymel, University of Illinois at Urbana-Champaign, Urbana, IL, United States, R.K. Pal, Georgia Institute of Technology, Atlanta, GA, United States, Philippe Geubelle, University of Illinois, Urbana, IL, United States, John Lambros, University of Illinois at Urbana-Champagin, Urbana, IL, United States*

2:12PM – Beaming Due to Local Resonance in High Geometric Fidelity Periodic Lattices
Technical Presentation. IMECE2016-68723 – *Alex Zelhofer, Dennis Kochmann, California Institute of Technology, Pasadena, CA, United States*

2:33PM – Double Dirac cones in two-dimensional phononic crystals
Technical Presentation. IMECE2016-65832 – *Jun Mei, Department of Physics, South China University of Technology, Guangzhou, China, Ying Wu, KAUST, Thuwal, Saudi Arabia*

2:54PM – Phonon Tunneling Through Vacuum Cavity in Finite Piezoelectric Superlattices
Invited Presentation. IMECE2016-67269 – *Mohammed Alami, El Houssaine El Boudouti, University Mohammed 1, Oujda, Morocco, Bahram Djafari Rouhani, IEMN UMR CNRS 8520, Villeneuve D`Ascq, France*

1-5-10 DISSIPATIVE PHONONICS

ROOM 121B

Session Organizer: Badreddine ASSOUAR, CNRS - University of Lorraine, Nancy, France

Session Co-Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States

1:30PM – Dissipation driven exceptional points in Bloch wave propagation
Technical Presentation. IMECE2016-66202 – *Srikantha Phani, University of British Columbia, Vancouver, BC, Canada*

1:51PM – Dissipation engineering by elastic metamaterials
Technical Presentation. IMECE2016-66102 – *Clémence L.M. Bacquet, University of Colorado Boulder, Boulder, CO, United States, Mahmoud Hussein, University of Colorado, Boulder, CO, United States*

2:12PM – Damped free waves in periodic media: Dispersion curves with simultaneously complex frequencies and wavenumbers
Technical Presentation. IMECE2016-68065 – *Michael Frazier, California Institute of Technology, Pasadena, CA, United States, Mahmoud Hussein, University of Colorado, Boulder, CO, United States*

2:33PM – Vibrational Power Flow in Spatially Continuous Elastic Metamaterials
Technical Presentation. IMECE2016-67603 – *Hasan Al-Babaa, Mostafa Nouh, University at Buffalo, Buffalo, NY, United States*

2:54PM – Bifurcation of avoided crossings in the dispersion of light and sound in locally resonant media
Technical Presentation. IMECE2016-67815 – *Alexei Maznev, MIT, Cambridge, MA, United States*

1-8-1 FLOW-INDUCED NOISE AND VIBRATION

ROOM 121C

Session Organizer: Robert Tomko, Bechtel Marine Propulsion Corporation, South Park, PA, United States

Session Co-Organizer: Kristin Cody, Bechtel Marine Propulsion Corp, Jefferson Hls, PA, United States

1:30PM – Minimizing the Acoustic Signature of a Cooling Fan Using the Mesh Morpher Optimizer
Technical Paper Publication. IMECE2016-66170 – *Mike Kheirallah, Badih Jawad, Liping Liu, Lawrence Technological University, Southfield, MI, United States*

1:51PM – Effect of Vibrations on the Performance of a Centrifugal Pump-Impeller when using a Variable Frequency Drive.
Technical Paper Publication. IMECE2016-67010 – *Gerardo Lara-Rodriguez, Center for Research and Advanced Studies of the National Polytechnic Institute, Guadalajara, Mexico, Zapopan, Mexico, Ofelia Begovich, José Luis Naredo, Center for Research and Advanced Studies of the National Polytechnic Institute, Guadalajara Unit, Zapopan, Mexico*

2:12PM – Investigation into the Cause of Vibration Problem and Countermeasures of the Wet Electric Precipitator
Technical Presentation. IMECE2016-66415 – *Takahiro Sugano, JFE Steel Corporation, Okyayama, Japan*

2:33PM – Analysis Of Flow-induced Whistle At The Joint Of Suction Tube Of Vehicle Climate Control System And Its Coupling With The Tube Structural Mode
Technical Paper Publication. IMECE2016-65247 – *Xiangjie Kong, Jian Pang, Jun Zhang, Qin Zhao, Changan Automobile Co., Ltd, Chongqing, Chongqing, China*

TIME	
3:45PM–5:30PM	

1-5-11 SOFT PHONONICS

ROOM 121C

Session Organizer: Jinkyu Yang, University of Washington, SEATTLE, WA, United States

3:45PM – Stable propagation of mechanical signals in soft media using stored elastic energy
Technical Presentation. IMECE2016-65755 – *Katia Bertoldi, Jordan R. Raney, Harvard University, Cambridge, MA, United States, Neel Nadkarni, Dennis Kochmann, California Institute of Technology, Pasadena, CA, United States, Chiara Daraio, ETH Zurich, Zurich, Switzerland, Jennifer Lewis, Harvard University, Cambridge, United Arab Emir.*

4:06PM – Waves in soft elastic metamaterials with dynamic local buckling
Technical Presentation. IMECE2016-65677 – *Bolei Deng, Pai Wang, Vincent TOURNAT, Katia Bertoldi, Harvard University, Cambridge, MA, United States*

4:27PM – Hypersonic Soft Phononics
Technical Presentation. IMECE2016-66479 – *George Fytas, Institute of Electronic Structure and Laser Foundation for Research and Technology-Hellas, Heraklion, Greece*

4:48PM – On the Influence of External Fields on the Acoustic Characteristics of Phononic Crystals
Technical Paper Publication. IMECE2016-66169 – *Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States, Pavel I. Galich, Technion, Haifa, N/A, Israel*

5:09PM – Modulating band gap structure in soft composites using sacrificial interfaces
Technical Presentation. IMECE2016-67585 – *Ahmed Elbanna, Qianli Chen, University of Illinois Urbana Champaign, urbana, IL, United States*

1-5-12 COMPUTATIONAL PHONONICS

ROOM 121A

Session Organizer: Mahmoud Hussein, University of Colorado, Boulder, CO, United States

Session Co-Organizer: Liang Wu Cai, Kansas State University, Manhanton, KS, United States

3:45PM – Fast Band-Structure Calculation by Generalized Bloch Mode Synthesis
Technical Presentation. IMECE2016-66751 – *Dimitri Krattiger, Unicersity of Colorado Boulder, Boulder, CO, United States, Mahmoud Hussein, University of Colorado, Boulder, CO, United States*

4:06PM – Band-sorting in phononic computations with application to thermal property calculations
Technical Presentation. IMECE2016-66867 – *Yan Lu, Ankit Srivastava, Illinois Institute of Technology, Chicago, IL, United States*

4:27PM – Atomic Operators for Phonon Bandgap Design
Technical Presentation. IMECE2016-67675 – *Rose Weisburgh, Peter Chung, University of Maryland, College Park, MD, United States*

4:48PM – Generalized Spatial Aliasing Solutions for Dispersion Analysis of Multilayered Periodic Composites
Technical Presentation. IMECE2016-66183 – *ABM Tahidul Haque, Jongmin Shim, University at Buffalo, Buffalo, NY, United States*

5:09PM – Mesh Independent Design of Phononic Crystals using an Advanced Finite Element Formulation
Technical Paper Publication. IMECE2016-66928 – *Sanne J. van den Boom, Alejandro M. Aragón, Delft University of Technology, Delft, Zuid-Holland, Netherlands, Fred Van Keulen, Technical University of Delft, Delft, Netherlands*

TIME		
10:30AM–12:15PM	**2-3-1 SYMPOSIUM ON ADDITIVE MANUFACTURING: APPLICATIONS** **ROOM 122B** *Session Organizer: John Irwin, Michigan Technological University, Houghton, MI, United States* **10:30AM – Mechanical Response Of Different Lattice Structures Fabricated Using The Clip Technology** **Technical Paper Publication.** IMECE2016-65907 – *Anil Saigal, Tufts Univ, Medford, MA, United States, John Tumbleston, Hendric Vogel, Carbon, Redwood City, CA, United States* **10:51AM – Hybrid Polymer Additive Manufacturing of a Darrieus Type Vertical Axis Wind Turbine Design to Improve Power Generation Efficiency** **Technical Paper Publication.** IMECE2016-65910 – *Sourabh P. Deshpande, Nithin Rao, Nitin Pradhan, John Irwin, Michigan Technological University, Houghton, MI, United States* **11:12AM – Stress Distribution Based Partitioning of Helmets for 3-D Printing** **Technical Presentation.** IMECE2016-66109 – *Gozde Basara, Ilker Tari, Sibel Tari, METU, Ankara, Turkey* **11:33AM – 3D printing of chitosan physical hydrogel scaffolds** **Technical Presentation.** IMECE2016-67608 – *Qinghua Wu, Marie-Claude Heuzey, Polytechnique Montréal, Montréal, QC, Canada, Daniel Therriault, Polytechnique Montreal, Montreal, QC, Canada, Marion Maire, École de technologie supérieure, Montréal, QC, Canada, Sophie Lerouge, École de technologie supérieure, montreal, QC, Canada* **11:54AM – 3D Printing of a skin-like tactile sensor using polymer composites with ionic liquids and carbon nanotubes** **Technical Presentation.** IMECE2016-67687 – *Md. Omar Faruk Emon, Faez Alkadi, Jeongwoo Lee, The University of Akron, Akron, OH, United States, Morteza Vatani, Eoplex Inc, San Jose, CA, United States, Jae-Won Choi, University of Akron, Akron, OH, United States*	**2-9-1 INNOVATIVE PRODUCT DESIGN I** **ROOM 122C** *Session Organizer: Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal* *Session Co-Organizer: Joao P. Mendonca, Universidade do Minho, Guimaraes 4800-058, Portugal* **10:30AM – Automated Reengineering of Industrial Service-based Systems** **Technical Paper Publication.** IMECE2016-65697 – *Carlos Agostinho, Carlos Raposo, UNINOVA, Caparica, Portugal, Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal* **10:51AM – IMPLEMENTATION OF AN OPEN CONTROL ARCHITECTURE FOR CNC SYSTEMS BASED ON OPEN-SOURCE ELECTRONICS** **Technical Paper Publication.** IMECE2016-65964 – *Jorge Correa, University of Illinois At Urbana-Champaign, Urbana, IL, United States, Nicholas Toombs, Placid Ferreira, University of Illinois, Urbana, IL, United States* **11:12AM – An Enhanced Development of 3D Intra-Oral Scanner Using Fringe-Projection Technique for Dentistry** **Technical Paper Publication.** IMECE2016-66427 – *Hong Seok Park, Chintal Shah, Rima Shah, University of Ulsan, Ulsan, Korea (Republic)* **11:33AM – Programming over AutoCAD for the proficiency of disabled users using webcam based eye-tracker** **Technical Paper Publication.** IMECE2016-66917 – *Fernando Luís-Ferreira, Joao Sarraipa, UNINOVA - DEE/FCT/UNL, Caparica, Portugal, Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal* **11:54AM – A Framework for Evaluating Pipe Repair Technologies for CuNi Shipboard Piping Systems** **Technical Paper Publication.** IMECE2016-66992 – *Virginia Degiorgi, U.S. Naval Research Laboratory, Washington, DC, United States, Steven Policastro, C. R. (Jerry) Feng, Richard Fonda, Naval Research Laboratory, Washington, DC, United States*
1:30PM–3:15PM	**2-3-2 SYMPOSIUM ON ADDITIVE MANUFACTURING: PROCESS MODELING & SIMULATION** **ROOM 122B** *Session Organizer: Yucheng Liu, Mississippi State University, Mississippi State University, MS, United States* **1:30PM – An integrated phase-field and finite-element model of grain growth: insights into the beta-grain structure and texture in additive manufacturing of Ti-6Al-4V** **Invited Presentation.** IMECE2016-65723 – *Lei Chen, Nima Shamsaei, Mississippi State University, Mississippi State, MS, United States, Scott Thompson, Associate Professor, Auburn, AL, United States, Steve R. Daniewicz, Mississippi State University, Mississippi State, MS, United States* **2:12PM – A method for characterizing model fidelity in powder bed fusion additive manufacturing** **Technical Paper Publication.** IMECE2016-67220 – *Ibrahim ASSOUROKO, Université de Technologie de Compiègne, Compiègne, France, Felipe LOPEZ, University of Texas at Austin, Austin, TX, United States, Paul Witherell, NIST, Gaithersburg, MD, United States* **2:33PM – Multi-scale System Dynamics Modeling for Evaluating the Current State, Future Trends and Associated Implications of Additive Manufacturing** **Technical Presentation.** IMECE2016-67576 – *Runze Huang, Northwestern University, Evanston, IL, United States, Matthew Riddle, Diane Graziano, Argonne National Laboratory, Argonne, IL, United States, Joe Cresko, U.S. Department of Energy, Washington, DC, DC, United States, Eric Masanet, Northwestern University, Chicago, IL, United States* **2:54PM – Development of 3D Finite Element Model for Predicting Process-induced Defects in Additive Manufacturing by Selective Laser Melting (SLM)** **Technical Paper Publication.** IMECE2016-66245 – *Bilal Kamal Hussain, Ahmed Sherif El-Gizawy, University of Missouri, Columbia, MO, United States*	**2-9-2 INNOVATIVE PRODUCT DESIGN II** **ROOM 122C** *Session Organizer: Joao P. Mendonca, Universidade do Minho, Guimaraes 4800-058, Portugal* *Session Co-Organizer: Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal* **1:30PM – Case-based support to sustainable interoperability and decision in enterprise networks** **Technical Paper Publication.** IMECE2016-65704 – *Maria Marques, Carlos Agostinho, UNINOVA, Caparica, Portugal, Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal* **1:56PM – MANUFACTURING ENERGY ANALYSIS USING THEORETICAL MODELS FOR SHEET METAL MANUFACTURING** **Technical Paper Publication.** IMECE2016-65732 – *Ala Qattawi, University of California, Merced, Merced, CA, United States* **2:22PM – Evaluation and identification of Lean-Green Resourced Person (LGRP) for integrating and implementing lean and green practices in a manufacturing industry.** **Technical Paper Publication.** IMECE2016-66516 – *Balaji Kuppusamy, Anna University, Chennai, India, Senthil Kumar Velukkudi Santhanam, COLLEGE OF ENGINEERING, GUINDY, CHENNAI-25, India, Mohan Bangaru, Viswanathan Doraiswamy, Anna University, Chennai, India* **2:48PM – IoT and Self-Driving Cars a Revolution Beyond the Automobile Industry** **Technical Paper Publication.** IMECE2016-66897 – *Fernando Luís-Ferreira, Sudeep Ghimire, Joao Sarraipa, UNINOVA - DEE/FCT/UNL, Caparica, Portugal, Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal*

TIME	
1:30PM–3:15PM	**2-12-1 SHEET METAL & TUBE FORMING: NOVEL PROCESSES AND CONTROLS** **ROOM 122A** *Session Organizer: Ala Qattawi, University of California, Merced, Merced, CA, United States* *Session Co-Organizer: Hugo Ivan Medellin Castillo, UNIVERSIDAD AUTONOMA DE SAN LUIS POTOSI, San Luis Potosi, Mexico* **1:30PM – Cup forming: A study in quasi-automatic strain based control** **Technical Paper Publication.** IMECE2016-65783 – *Suchethan M Srinath, University of Louisiana at Lafayette, Lafayette, LA, United States, William Emblom, University Of Louisiana-Lafayette, Lafayette, LA, United States* **1:51PM – Material Response to Deformation Conditions in the Continuous Rotary Extrusion Process of Magnesium Alloy AZ31** **Invited Presentation.** IMECE2016-67022 – *Monika Mitka, Maciej Gawlik, Institute for Nonferrous Metals,, 32-050 Skawina, Poland, Mariusz Bigaj, Institute for Nonferrous Metals, 32-050 Skawina, Poland, Wojciech Z. Misiolek, Lehigh University, Bethlehem, PA, United States, Marzena Lech-Grega, Wojciech Szymanski, Institute for Nonferrous Metals, 32-050 Skawina, Poland* **2:33PM – HYBRID RAPID SPINNING AND INCREMENTAL SHEET METAL FORMING OF EXTRA DEEP DRAWING (EDD) STEEL** **Technical Paper Publication.** IMECE2016-65979 – *Srinivasa Prakash Regalla, Department of Mech Engg., BITS, Pilani, Hyderabad, Telangana, India, Suresh Kurra, Birla Institute of Technology & Science, Pilani, Hyderabad, Telangana, India* **2:54PM – A Novel Incremental Bending Process Of Complex Curved Sheet Metal** **Technical Paper Publication.** IMECE2016-65262 – *Qiyang Zuo, Kai He, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, Shenzhen, China, Hui Xu, Wei Li, Wei Li, Zhigang Sun, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, Shenzhen, China, Xiaobing Dang, Ruxu Du, The Chinese University of Hong Kong, Hong Kong, Hong Kong*
3:45PM–5:30PM	**2-3-3 SYMPOSIUM ON ADDITIVE MANUFACTURING: MECHANICAL CHARACTERIZATION** **ROOM 122B** *Session Organizer: Paul Allison, University of Alabama, Tuscaloosa, AL, United States* *Session Co-Organizer: Nima Shamsaei, Mississippi State University, Mississippi State, MS, United States* **3:45PM – Overview of Materials Qualification for Metal Additive Manufacturing** **Invited Presentation.** IMECE2016-67102 – *Mohsen Seifi, Case Western Reserve University, Cleveland, OH, United States* **4:27PM – A Methodology to Investigate Interfacial Bonding Strength of Laser Direct Deposition for Martensitic Stainless Steel by Using Uniaxial Tension Testing** **Technical Paper Publication.** IMECE2016-65882 – *Shaopeng Wei, Gang Wang, Tsinghua University, Beijing, China, Zilin Huang, Beijing Jiaotong University, Beijing, China, Peng Wen, Tsinghua University, Beijing, China, Yiming Rong, South University of Science and Technology of China, Shenzhen, China* **4:48PM – A Finite Element Model to Predict the Part Strength of Fused Deposition Modeling Printed Parts** **Technical Paper Publication.** IMECE2016-66810 – *Vivek Velivela, Saravana Kumar Gurunathan, Indian Institute of Technology Madras, Chennai, Tamilnadu, India* **5:09PM – Mechanical property testing and data analysis of 3D printing objects** **Technical Paper Publication.** IMECE2016-65067 – *Xiaobin Le, Wentworth Inst Of Tech, Boston, MA, United States, Rami A Akouri, Anthony Latassa, Brett L Passemato, Ryan Wales, Wentworth Institute of Technology, Boston, MA, United States* **2-9-3 INNOVATIVE PRODUCT DESIGN III** **ROOM 122C** *Session Organizer: Joao P. Mendonca, Universidade do Minho, Guimaraes 4800-058, Portugal* *Session Co-Organizer: Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal* **3:45PM – Aquaculture Production Processes and Training Validation through Serious Games** **Technical Paper Publication.** IMECE2016-66941 – *Elsa Marcelino-Jesus, Andreia Artífice, Joao Sarraipa, Fernando Luís-Ferreira, UNINOVA - DEE/FCT/UNL, Caparica, Portugal, Elisabeth Ilie-Zudor, Research Institute Hungarian Academy of Sciences, Budapest, Hungary, Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal* **4:06PM – REQUIREMENTS FOR THE DEVELOPMENT OF MEDICAL DEVICES - CAREGIVERS PERSPECTIVES SURVEY** **Technical Paper Publication.** IMECE2016-67002 – *Karolina Bezerra, University of Minho, Guimarães, Portugal, José Machado, University of Minho, Guimaraes, Portugal, Celina P. Leão, Filomena Soares, University of Minho, Guimarães, Portugal, Vitor Carvalho, IPCA-EST, Barcelos, Portugal, Demétrio Matos, Polytechnic Institute of Cávado and Ave, Barcelos, Portugal* **4:27PM – Innovative mechatronic approach to redesign a punch and bind machine** **Technical Paper Publication.** IMECE2016-67154 – *João Sousa, Luís Figueiredo, Universidade do Minho, Guimarães, Portugal, Joao P. Mendonca, Universidade do Minho, Guimaraes 4800-058, Portugal, José Machado, University of Minho, Guimaraes, Portugal, Luís Monteiro, Universidade do Minho, Guimarães, Portugal* **4:48PM – Semantic Annotation of Aquaculture production data** **Technical Paper Publication.** IMECE2016-67316 – *Pedro Amaral, Pedro Oliveira, UNINOVA, Caparica, Portugal, Márcio Moutinho, Federal University of Western Pará UFOPA / IEG / PC, Santarém, Brazil, Daniel Matado, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal, Ruben Costa, UNINOVA, Caparica, Portugal, Joao Sarraipa, UNINOVA - DEE/FCT/UNL, Caparica, Portugal* **5:09PM – 3D Construction of Process-condition Dependent Thickness Distribution for Microinjection Molded Plano Lenses** **Technical Presentation.** IMECE2016-68603 – *Can Yang, Xiao-Hong Yin, Dong Liang, Xiping Li, Zhejiang Normal University, Jinhua, Zhejiang, China*

TIME	
3:45PM–5:30PM	**2-12-2 SHEET METAL AND TUBE FORMING: NOVEL PROCESSES AND MATERIAL CHARACTERIZATION** **ROOM 122A** *Session Organizer: Chetan Nikhare, The Pennsylvania State University, Erie, PA, United States* *Session Co-Organizer: Hugo Ivan Medellin Castillo, UNIVERSIDAD AUTONOMA DE SAN LUIS POTOSI, San Luis Potosi, Mexico* **3:45PM – Finite Element Analysis of Origami-Based Sheet Metal Folding Process** **Technical Paper Publication.** IMECE2016-67324 – *Muhammad Ali Ablat, University of California Merced, Merced, CA, United States, Ala Qattawi, University of California, Merced, Merced, CA, United States* **4:06PM – COMPARATIVE STUDY OF ANALYTICAL EXPRESSIONS TO ESTIMATE THE DEEP DRAWING FORCE OF CYLINDRICAL AND RECTANGULAR PARTS** **Technical Paper Publication.** IMECE2016-67273 – *Hugo Ivan Medellin Castillo, Aarón Rivas-Menchi, UNIVERSIDAD AUTONOMA DE SAN LUIS POTOSI, San Luis Potosi, Mexico, Dirk De Lange, Universidad Autónoma De San Luis Potosí, Facultad De Ingeniería, San Luis Potosí, Mexico, Pedro De Jesus Garcia Zugasti, Instituto Tecnológico de San Luis Potosí, San Luis Potosi, Mexico* **4:27PM – UNDERSTANDING THE DIFFERENCES IN HEMISPHERICAL DOME AND BIAXIAL TEST DURING EQUI-BIAIXAL TENSION ON CRUCIFORM** **Technical Paper Publication.** IMECE2016-67117 – *Chetan Nikhare, The Pennsylvania State University, Erie, PA, United States, Emmett Vorisek, Penn State Behrend, Erie, PA, United States, John Nolan, Penn State Pehrend, Erie, PA, United States, John Roth, Penn State Erie, The Behrend College, Erie, PA, United States* **4:48PM – Efficient manufacturing methods for hybrid metal-polymer components** **Invited Paper Publication.** IMECE2016-65621 – *Frank Schieck, Fraunhofer Inst For Machine Tools & Forming Tech IWU, Chemnitz, Germany, Dirk Landgrebe, Fraunhofer Institute for Machine Tools and Forming Technologie (IWU), Chemnitz, Saxony, Germany, Roland Müller, Fraunhofer Institue for Machine Tools and Forming Technology (IWU), Chemnitz, Saxony, Germany, Rico Haase, Peter Scholz, Matthias Riemer, Andre Albert, Fraunhofer Institute for Machine Tools and Forming Technology (IWU), Chemnitz, Saxony, Germany, Raik Grützner, Fraunhofer Institute for Machine Tools and Forming Technology (IWU), Dresden, Saxony, Germany*

TIME	
10:30AM–12:15PM	**2-1-1 ADVANCED MANUFACTURING PLENARY: MICHAEL GORELIK, FAA CHIEF SCIENTIST AND TECHNICAL ADVISOR** **ROOM 121A** *Session Organizer: Scott Thompson, Associate Professor, Auburn, AL, United States* *Session Co-Organizer: Jae-Won Choi, University of Akron, Akron, OH, United States, Jenny Qiu, Texas Tech University, Lubbock, TX, United States, Marriner Merrill, US Naval Research Laboratory, Washington, DC, United States* **10:30AM – Structural Integrity Considerations for New Materials - Additive Manufacturing** **Track Plenary Presentation.** IMECE2016-68867 – *Michael Gorelik, FAA FSDO, Scottsdale, AZ, United States*
1:30PM–3:15PM	**2-2-1 NANOMANUFACTURING OF ONE-DIMENSIONAL NANOSTRUCTURES ON SUBSTRATES** **ROOM 121B** *Session Organizer: Matthew Maschmann, University of Missouri, Columbia, MO, United States* *Session Co-Organizer: Junghoon Yeom, Michigan State University, East Lansing, MI, United States, Martin Jun, University of Victoria, Victoria, BC, Canada* **1:30PM – Bubble-Regulated Silicon Nanowire Synthesis on Micro-Structured Surfaces by Metal Assisted Chemical Etching** **Technical Presentation.** IMECE2016-67814 – *Yinxiao Li, Chuanhua Duan, Boston University, Boston, MA, United States* **1:51PM – Electrically Addressable Hierarchical Carbon Nanotube Forests** **Technical Paper Publication.** IMECE2016-67226 – *Benjamin Davis, University of Missouri, Columbia, MO, United States, Nitin Muralidharan, Cary Pint, Vanderbilt University, Nashville, TN, United States, Matthew Maschmann, University of Missouri, Columbia, MO, United States* **2:12PM – Development of Highly Sensitive Microarray Using Glancing Angle Deposited Ag Nanorod Substrate** **Technical Presentation.** IMECE2016-66213 – *Mohsin Ali Badshah, Xun Lu, Jonghyun Ju, Chung-Ang University, Seoul, Korea (Republic), Seok Min Kim, Chung-Ang Univ., Seoul, Korea (Republic)* **2:33PM – Fabricating vertically aligned one-dimensional photocatalytic nanostructures on the flexible substrates** **Invited Presentation.** IMECE2016-67676 – *Yaozhong Zhang, Junghoon Yeom, Michigan State University, East Lansing, MI, United States* **2-3-4 SYMPOSIUM ON ADDITIVE MANUFACTURING: COMPOSITES & POWDER ADDITIVES** **ROOM 121A** *Session Organizer: Xiaobin Le, Wentworth Inst Of Tech, Boston, MA, United States* *Session Co-Organizer: Scott Thompson, Auburn University, Auburn, AL, United States* **1:30PM – Additively Manufactured Components with Embedded Instrumentation** **Technical Paper Publication.** IMECE2016-66697 – *Matthew Davis, Luna Innovations, Blacksburg, VA, United States, John Middendorf, Advratech, Dayton, OH, United States, Osgar Ohanian, Naman Garg, Luna Innovations, Blacksburg, VA, United States* **1:51PM – Design and Characterization of a Bi-material Co-extruder for Fused Deposition Modeling** **Technical Paper Publication.** IMECE2016-65330 – *Mohammad Abu Hasan Khondoker, Dan Sameoto, University of Alberta, Edmonton, AB, Canada* **2:12PM – Effect of Solution Temperature on Microstructure and Mechanical Properties of Graphene Nanoplatelets Reinforced Inconel 718 Composites by Selective Laser Melting** **Technical Paper Publication.** IMECE2016-67304 – *Yachao Wang, Jing Shi, University of Cincinnati, Cincinnati, OH, United States, Xiaoyang Deng, Shiqiang Lu, Nanchang Hangkong University, Nanchang, China* **2:33PM – Developing Valid Material Models For Additive Manufacturing In The Presence Of Process And Design Complexity** **Technical Presentation.** IMECE2016-68384 – *Dhruv Bhate, PhD, Phoenix Analysis & Design Technologies, Inc. (PADT), Tempe, AZ, United States* **2:54PM – Impact Mechanics of Micron Scale Aluminum Particles** **Technical Presentation.** IMECE2016-68201 – *Arash Alizadeh, Northeastern University, Boston, MA, United States, Wanting Xie, University of Massachuesstts, Amherst, MA, United States, Ara Kim, Qiyong Chen, Hankang Yang, Northeastern University, Boston, MA, United States, Xuemei Wang, United Technologies Research Center, East Hartford, CT, United States, Victor K. Champagne, US Army Research Laboratory, Aberdeen Proving Ground, MD, United States, Andrew Gouldstone, Sinan Muftu, Northeastern University, Boston, MA, United States*

TIME

1:30PM–3:15PM

2-8-1 DIGITAL MANUFACTURING AND INFORMATION CENTRIC ENGINEERING

ROOM 122A

Session Organizer: J. Cecil, Oklahoma State University, Stillwater, OK, United States

Session Co-Organizer: Pramod Chembrammel, university of illinois at urbana champaign, urbana, IL, United States

1:30PM – Gesture Based Training of A Robot for Manufacturing Tasks
Technical Paper Publication. IMECE2016-68206 – *Pramod Chembrammel, university of illinois at urbana champaign, urbana, IL, United States, Thenkurussi Kesavadas, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

1:51PM – An Internet of Things (IoT) Based Cyber Physical Test Bed for Collaborative Manufacturing
Invited Paper Publication. IMECE2016-65029 – *J. Cecil, SADIQ ALBUHAMOOD, Oklahoma State University, Stillwater, OK, United States*

2:12PM – Tool Geometry design and its Environmental Impact
Technical Paper Publication. IMECE2016-65926 – *Nand Jha, Manhattan College, Riverdale, NY, United States*

2:33PM – A Preliminary Study on the Effect of High Speed Sintering Process Parameters on the Mechanical Properties of HSS Processed PA 2200
Technical Presentation. IMECE2016-67193 – *Alexander Hurst, Washington State University, Vancouver, WA, United States, Daewook Kim, Washingon State Univ, Vancouver, WA, United States, Hua Tan, WSU Purchasing Services, Pullman, WA, United States*

2-14-1 LARGE-SCALE MANUFACTURING OF 2D MATERIALS

ROOM 121C

Session Organizer: SungWoo Nam, University of Illinois at Urbana-Champaign, Urbana, IL, United States

Session Co-Organizer: Chi Hwan Lee, Purdue University, West Lafayette, IN, United States

1:30PM – Roll-to-Roll Manufacturing of Graphene using Plasma Chemical Vapor Deposition
Technical Presentation. IMECE2016-67235 – *Majed Alrefae, Purdue University, West Lafayette, IN, United States, Anurag Kumar, Purdue University, Birck Nanotechnology Center, West Lafayette, IN, United States, Aaditya A. Candadai, Purdue University, West Lafayette, IN, United States, Timothy Fisher, Purdue, West Lafayette, IN, United States*

1:51PM – Flame Synthesis of Highly-Defective Graphene with Application for Water Desalination
Technical Presentation. IMECE2016-67067 – *Hua Hong, Semih Cetindag, Zhizhong Dong, Jerry Shan, Rutgers University, Piscataway, NJ, United States, Bernard Kear, Stephen Tse, Rutgers, The State University of New Jersey, Piscataway, NJ, United States*

2:12PM – Synthesis of WS2xSe2-2x Alloy by Sulfurization of Large-Area WSe2 Monolayer
Technical Presentation. IMECE2016-66520 – *Kyung Yong Ko, Jeong-Gyu Song, Kyunam Park, Whang Je Woo, Youngjun Kim, Jusang Park, Hyungjun Kim, Yonsei University, Seoul, Korea (Republic)*

2:33PM – Three-Dimensional Assembly of Two-Dimensional Materials via Substrate Engineering
Technical Presentation. IMECE2016-67349 – *Jonghyun Choi, Minsu Kim, SungWoo Nam, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

2:54PM – Tensile Properties of Glass Fiber/ Carbon Fiber Reinforced Polypropylene Hybrid Composites Fabricated By Direct Fiber Feeding Injection Molding Process
Technical Paper Publication. IMECE2016-66270 – *Xiaofei YAN, Kyoto Institute of Technology, Kyoto, Japan, Putinun UAWONGSUWAN, King Mongkut's University of Technology North Bangkok, Bangkok, Thailand, Masuo MURAKAMI, Akihiko IMAJO, Kyoto Institute of Technology, Kyoto, Japan, Yuqiu YANG, Donghua University, Shanghai, China, Hiroyuki HAMADA, Kyoto Institute of Technology, Kyoto, Japan*

3:45PM–5:30PM

2-2-2 SCALABLE NANOMANUFACTURING: FIBERS AND NANOCOMPOSITES

ROOM 121B

Session Organizer: Marriner Merrill, US Naval Research Laboratory, Washington, DC, United States

Session Co-Organizer: Junghoon Yeom, Michigan State University, East Lansing, MI, United States, Chuanhua Duan, Boston University, Boston, MA, United States

3:45PM – Contributions of Various Strengthening Effects in Particulate-Reinforced Metal Matrix Nanocomposites by Additive Manufacturing
Technical Paper Publication. IMECE2016-67312 – *Yachao Wang, Jing Shi, University of Cincinnati, Cincinnati, OH, United States, Xiaoyang Deng, Shiqiang Lu, Nanchang Hangkong University, Nanchang, China*

4:06PM – Pulsed Laser Deposition of Nanostructured Bismuth Telluride
Technical Presentation. IMECE2016-67386 – *William Mozet, Rutgers University, Piscataway, NJ, United States, Gang Xiong, Stephen Tse, Rutgers, The State University of New Jersey, Piscataway, NJ, United States, Liping Liu, Rutgers University, Piscataway, NJ, United States, Mona Zebarjadi, Bernard Kear, Rutgers, The State University of New Jersey, Piscataway, NJ, United States*

4:27PM – Scalable nanomanufacturing of self-powered nanosystem by laser processing and integration of nanostructured piezoelectric semiconductors
Technical Presentation. IMECE2016-67717 – *Wenzhuo Wu, Purdue University, West Lafayette, IN, United States, C. Richard Liu, Purdue University, W. Lafayette, IN, United States, Zhikun Liu, Purdue University, West Lafayette, IN, United States*

4:48PM – Controlling PCL electrospun fibers using melt electrospinning technique based on filaments
Technical Presentation. IMECE2016-66898 – *Junghyuk Ko, University of Victoria, Victoria, BC, Canada, Patrick Lee, University of Vermont, Burlington, VT, United States, Martin Jun, University of Victoria, Victoria, BC, Canada*

5:09PM – Morphological and Structural Control during Continuous Nanofiber Nanomanufacturing for Superior Mechanical Properties
Technical Presentation. IMECE2016-68068 – *Yuris Dzenis, Univ Of Nebraska, Lincoln, NE, United States, Dimitry Papkov, University of Nebraska-Lincoln, Lincoln, NE, United States*

TIME

3:45PM–5:30PM

2-3-5 SYMPOSIUM ON ADDITIVE MANUFACTURING: PROCESS DEVELOPMENT

ROOM 121A

Session Organizer: Scott Thompson, Auburn University, Auburn, AL, United States

3:45PM – There's Plenty of Room at the Top
Invited Presentation. IMECE2016-65652 – *Lonnie Love, Brian Post, Oak Ridge National Laboratory, Knoxville, TN, United States*

4:27PM – Development of Wire 3D (Wir3D) Printing Parameters
Technical Paper Publication. IMECE2016-66186 – *Wesley S. Hunko, Lewis Payton, Auburn University, Auburn University, AL, United States*

4:48PM – Manufacturability of Overhang Structures Fabricated by Binder Jetting Process
Technical Paper Publication. IMECE2016-65927 – *Fan Yang, Yunlong Tang, Yaoyao Fiona Zhao, McGill University, Montreal, QC, Canada*

5:09PM – Minimizing Voids with Using an Optimal Raster Orientation and Bead Width for a Material Extrusion Based Process
Technical Paper Publication. IMECE2016-67708 – *Hasti Eiliat, Jill Urbanic, University of Windsor, Windsor, ON, Canada*

2-10-1 SENSING, MEASUREMENT, AND PROCESS CONTROL

ROOM 122A

Session Organizer: Chiyen Kim, The University of Texas at El Paso, El Paso, TX, United States

Session Co-Organizer: Eric MacDonald, The University of Texas at El Paso, El Paso, TX, United States

3:45PM – A COMPARISON OF AMMONIA MEASUREMENTS USING FOURIER TRANSFORM INFRARED AND TUNEABLE DIODE LASER SPECTROSCOPY
Technical Paper Publication. IMECE2016-65454 – *Nilton Li, Ashraf El-Hamalawi, Loughborough University, Loughborough, Leicestershire, United Kingdom, Richard Barrett, Caterpillar Inc., Peterborough, United Kingdom, Andrew Wheatley, Loughborough University, Loughborough, United Kingdom, Jonathan Robinson, Caterpillar Inc., peterborough, United Kingdom*

4:06PM – Tool Pre-Failure Detection in Intermittent Cutting Operations
Technical Paper Publication. IMECE2016-65748 – *Mahmoud Hassan, University of McGill, Montréal, QC, Canada, Ahmad Sadek, National Research Council Canada, Montreal, QC, Canada, Ahmed Damir, M.H. Attia, National research council Canada, Montréal, QC, Canada, Vincent Thomson, University of McGill, Montréal, QC, Canada*

4:27PM – A Multi-wavelength Light Interference Method for the Measurement of Lubricating Film Thickness
Technical Paper Publication. IMECE2016-65948 – *Yingjun Chen, Xiaodong Wu, Guangdong University of Petrochemical Technology, Maoming, Guangdong, China, Ping Huang, South China University Of Technology, Guangzhou, China*

4:48PM – A study of temperature distribution and its effect on grinding wheel surface during wheel loading
Technical Paper Publication. IMECE2016-67952 – *SHANMUGAM RAGAVANANTHAM, S SAMPATHKUMAR, S SANTHOSH KUMAR, ANNA UNIVERSITY, CHENNAI, TAMILNADU, India*

5:09PM – Robust Parameter Design of Simplex Search for RGBW Color Mixing Test
Technical Paper Publication. IMECE2016-68122 – *HyungTae Kim, Kitech(korea Institute Of Industrial Technology), Cheonan, Chungnam, Korea (Republic), SeungTaek Kim, Kyung Chan Jin, Jongseok Kim, HongSeok Kim, KITECH, CheonAn, ChungNam, Korea (Republic)*

2-14-2 MECHANICALLY-DRIVEN ASSEMBLY AND CHARACTERIZATIONS OF 2D MATERIALS

ROOM 121C

Session Organizer: SungWoo Nam, University of Illinois at Urbana-Champaign, Urbana, IL, United States

Session Co-Organizer: Chi Hwan Lee, Purdue University, West Lafayette, IN, United States

3:45PM – Liquid Evaporation-Driven Folding of Graphene Sheets
Invited Presentation. IMECE2016-66627 – *Qingchang Liu, Baoxing Xu, University of Virginia, Charlottesville, VA, United States*

4:27PM – Tunable friction of monolayer MoS2 by control of interfacial chemistry
Technical Presentation. IMECE2016-67712 – *Weibing Chen, Rice University, Houston, TX, United States*

4:48PM – Controlled Crumpling of Two-dimensional Materials for Enhanced and Tunable Optical Absorption and Mechanical Stretchability
Technical Presentation. IMECE2016-67828 – *Pilgyu Kang, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Michael Cai Wang, Peter M. Knapp, University of Illinois, Urbana-Champaign, Urbana, IL, United States, Juyoung Leem, University of Illinois, Urbana-Champaign (UIUC), Urbana, IL, United States, SungWoo Nam, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

5:09PM – Continuous Manufacturing of Graphitic Petals on Carbon Fibers
Technical Presentation. IMECE2016-67210 – *Kimberly Saviers, Majed Alrefae, Purdue University, West Lafayette, IN, United States, Timothy Fisher, Purdue, West Lafayette, IN, United States*

TIME

8:00AM–9:45AM

2-7-1 COMPUTATIONAL MODELING - MACHINING

ROOM 121A

Session Organizer: Matthew Campbell, OREGON STATE UNIVERSITY, corvallis, OR, United States

Session Co-Organizer: Jon Ander Esnaola, Mondragon Universitatea, Mondragon, Guipuzcoa, Spain

8:00AM – Modelling and Simulation of Al/SiCp MMCs during Hot Machining
Technical Paper Publication. IMECE2016-66071 – *Mahesh Jadhav, Uday Dabade, Walchand College Of Engineering, Sangli, India*

8:21AM – On the Difference of Subsurface Deformation Obtained by Image Correlation Technique from That of Plane Strain Deformation in Orthogonal Metal Cutting
Technical Paper Publication. IMECE2016-65993 – *Dong Zhang, Xiao-Ming Zhang, Han Ding, School of Mechanical Science and Engineering, Huazhong University of Science and Technology, Wuhan, Hubei, China*

8:42AM – Finite Element Modeling and Experimental Study of Burr Formation in Drilling Processes
Technical Paper Publication. IMECE2016-66026 – *Chara Efstathiou, Technical University of Crete, Chania, Crete, Greece, Dimitrios Vakondios, University of the Aegean, Dept. of Product & Systems Design Engineering, Syros, South Aegean, Greece, Antonios Lyronis, Konstantinos Sofiakis, Aristomenis Antoniadis, Technical University of Crete, Micromachining and Manufacturing Modeling Lab, Chania, Crete, Greece*

9:03AM – Three-Dimensional Finite Element Dynamic Analysis For Micro Drilling Of Multi-Layered Printed Circuit Board
Technical Paper Publication. IMECE2016-65835 – *Muddu Allaparthi, Department of Industrial Design, National Institute of Technology Rourkela, Rourkela, Other/Unknown, India, Mohammed Rajik Khan, Department of Industrial Design, National Institute of Technology, Rourkela, Rourkela, Other/Unknown, India, Brahma Teja, Department of Industrial Design, National Institute of Technology Rourkela, Rourkela, Other/Unknown, India*

9:24AM – Novel direct model for machining regenerative chatter
Technical Paper Publication. IMECE2016-65265 – *Aaron Lalley, Mark D. Bedillion, South Dakota School of Mines and Technology, Rapid City, SD, United States*

2-11-1 ADVANCED MACHINING AND FINISHING: POLISHING AND TRIBLOGY

ROOM 121C

Session Organizer: Pawan Tyagi, University of the District of Columbia, Washington, DC, United States

Session Co-Organizer: Siddharthsinh Jadeja, B H Gardi College of Engineering & Technology, Rajkot Gujarat, India

8:00AM – Counter-rotating Electrochemical Machining Process For Revolving Thin-wall Parts With Convexity Structures
Technical Presentation. IMECE2016-68538 – *Zengwei Zhu, Dengyong Wang, Di Zhu, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu Province, China*

8:21AM – Nanofinishing of Copper Using Ball End Magnetorheological Finishing (BEMRF) Process
Technical Paper Publication. IMECE2016-65974 – *Dilshad Ahmad Khan, Zafar Alam, Sunil Jha, Indian Institute of Technology Delhi, New Delhi, Delhi, India*

8:42AM – Taguchi Design of Experiment for the Optimization of Electrochemical Polishing of Metal Additive Manufacturing Components
Technical Paper Publication. IMECE2016-67492 – *Denikka Brent, Tyler Saunders, University of the District of Columbia, Washington, DC, United States, Francisco Garcia-Moreno, Department of Energy's National Security Campus, Kansas City, MO, United States, Pawan Tyagi, University of the District of Columbia, Washington, DC, United States*

9:03AM – Comparison between efficient lubrication techniques and conventional coolant in contouring operations in Inconel 718
Technical Paper Publication. IMECE2016-65218 – *Octavio Pereira, Gorka Urbikain, Adrián Rodríguez, Asier Fernández-Valdivielso, University of the Basque Country, Bilbao, Vizcaya, Spain, Daniel Olvera, TEC Monterrey, Monterrey, Mexico, Roberto Polvorosa, Luis Norberto López de Lacalle, University of the Basque Country, Bilbao, Spain*

2-13-1 THREADED FASTENERS I

ROOM 121B

Session Organizer: Sayed Nassar, Oakland University, Rochester, MI, United States

Session Co-Organizer: Thomas Whitney, University of Dayton, Dayton, OH, United States

8:00AM – Analysis of Threaded Connections for Differential Gear Pinions
Technical Paper Publication. IMECE2016-65530 – *Dario Croccolo, DIN. University of Bologna, Bologna, Italy, Massimiliano De Agostinis, Stefano Fini, Giorgio Olmi, University of Bologna, Bologna, Italy*

8:21AM – SELF-TAPPING SCREW PERFORMANCE IN ALUMINUM-STEEL JOINTS
Technical Paper Publication. IMECE2016-65786 – *Zhijun Wu, Sayed Nassar, Kshitij Satav, Shraddha Jagatap, Oakland University, Rochester, MI, United States*

8:42AM – Mechanical Characteristics and Design Method for Bolted Circular Flange Joints Subjected to External Tensile Loads
Technical Paper Publication. IMECE2016-66562 – *Shunichiro SAWA, Hardlock Industry Co Ltd, Tokyo, Japan, Mitsutoshi Ishimura, Shonan Institute of Technology, Kanagawa, Japan, Yasuhisa Sekiguchi, Hiroshima university, Hiroshima, Japan, Toshiyuki Sawa, Hiroshima Univ, Tokyo, Japan*

9:03AM – Influence of Cyclic Thermal Loading on Loosening behavior of Bolted Joints
Technical Paper Publication. IMECE2016-67222 – *Yuya Omiya, Okayama University, Ohayama, Japan, Masahiro Fujii, Genki Okamura, Naoki TAMURA, Okayama university, Okayama, Japan*

9:24AM – Effect of Key Variable Combinations on the Vibration-Induced Loosening of Preloaded Fasteners
Technical Paper Publication. IMECE2016-67359 – *Joon Ha Lee, Hyundai Motor Company, Hwaseong-si, Gyeonggi-do, Korea (Republic), Sayed Nassar, Oakland University, Rochester, MI, United States, Khalid Mahmood, Oakland Univ., Rochester, MI, United States*

TIME

10:00AM–11:45AM

2-7-2 COMPUTATIONAL MODELING - ADVANCED MANUFACTURING I

ROOM 121A

Session Organizer: Aaron Lalley, South Dakota School of Mines and Technology, Rapid City, SD, United States

Session Co-Organizer: Chara Efstathiou, Technical University of Crete, Chania, Crete, Greece

10:00AM – Numerical Simulation of Jamming Transition in Granular System under Cyclic Compression using Smooth Particle Hydrodynamics
Technical Paper Publication. IMECE2016-67553 – *Raihan Tayeb, University of Missouri, Columbia, MO, United States, Yijin Mao, University of Missouri, University of Missouri, MO, United States, Yuwen Zhang, University Of Missouri, Columbia, MO, United States*

10:21AM – Optimizing Cutting Planes for Advanced Joining and Additive Manufacturing
Technical Paper Publication. IMECE2016-67495 – *Brandon Massoni, Matthew Campbell, Oregon State University, Corvallis, OR, United States*

10:42AM – Analysis of the Fatigue Performance of Thick T-joint Samples Considering Residual Stress
Technical Paper Publication. IMECE2016-68142 – *Jon Ander Esnaola, Ibai Ulacia, Done Ugarte, Arkaitz Lopez-Jauregi, Ireneo Torca, Jon Larranaga, Mondragon Universitatea, Mondragon, Guipuzcoa, Spain*

11:03AM – Effects of Defects on the Performance of Hierarchical Honeycomb Metamaterials Realized Through Additive Manufacturing
Technical Paper Publication. IMECE2016-66940 – *Kazi Moshiur Rahman, South Dakota State University, Brookings, SD, United States, Zhong Hu, South Dakota State Univ, Brookings, SD, United States, Todd Letcher, South Dakota State University, Brookings, SD, United States*

11:24AM – Finite Element Modeling and Simulation of Inconel 718 using WEDM
Technical Paper Publication. IMECE2016-66067 – *SUNIL KARIDKAR, Uday Dabade, WALCHAND COLLEGE OF ENGINEERING, SANGLI, MAHARASHTRA, India*

2-11-2 ADVANCED MACHINING AND FINISHING: DRILLING OPERATIONS

ROOM 121C

Session Organizer: M. Pradeep Kumar, Anna University, Chennai, India

Session Co-Organizer: Siddharthsinh Jadeja, B H Gardi College of Engineering & Technology, Rajkot Gujarat, India

10:00AM – Analytical Model of Progression of Flank Wear Land Width in Drilling
Technical Paper Publication. IMECE2016-68134 – *Ranjan Das, IIT Bombay, Mumbai 400076, India, Harish Barshilia, National Aerospace Laboratories, Bangalore, India, Suhas Joshi, Indian Inst Of Tech, Bombay, Mumbai 400076, Maharashtra, India*

10:21AM – Effect Of Micro Scale Textures On Drilling Performance Of Carbide Tools In Dry And Wet Machining Of Ti 6Al 4V
Technical Paper Publication. IMECE2016-66341 – *Samuel G L, NIKETH S, Indian Institute of Technology Madras, Chennai, India*

10:42AM – Investigation of Drilling of CFRP-Aluminum Stacks under Different Cooling Modes
Technical Paper Publication. IMECE2016-67039 – *Mouhab Meshreki, National Research Council Canada, Montreal, QC, Canada, Ahmed Damir, National research council Canada, Montréal, QC, Canada, Ahmad Sadek, National Research Council Canada, Montreal, QC, Canada, M.H. Attia, National research council Canada, Montréal, QC, Canada*

11:03AM – INFLUENCE OF ELECTROPULSES ON POWER CONSUMPTION DURING DRILLING PROCESS
Technical Presentation. IMECE2016-65328 – *SAQIB HAMEED, Hernan Alberto Gonzalez Rojas, Antonio Jose Sanchez Egea, Universitat Politècnica de Catalunya (UPC), BARCELONA, Spain, Amelia Napoles Alberro, Universitat Politecnica de Catalunya (UPC), BARCELONA, Spain*

11:24AM – INVESTIGATION OF CRYOGENIC COOLING MICRO EDM DRILLING PROCESS ON AISI 304 STAINLESS STEEL
Technical Paper Publication. IMECE2016-66584 – *M. Pradeep Kumar, Manivannan R, Hariharan P, Anna University, Chennai, India*

2-13-2 THREADED FASTENERS II

ROOM 121B

Session Organizer: Zhijun Wu, Oakland University, Rochester, MI, United States

Session Co-Organizer: Thomas Whitney, University of Dayton, Dayton, OH, United States

10:00AM – Analysis of Preload Loss with Corrosion Protection Layers within the Flow of Force
Technical Paper Publication. IMECE2016-66005 – *Dietmar Isele, Alfred Isele, Offenburg University, Offenburg, Baden-Württemberg, Germany, Christopher Friedrich, University Of Siegen, Siegen, Germany*

10:21AM – Principal Stress Model for Multi-Axial Fatigue of Preloaded Threaded Fasteners
Technical Paper Publication. IMECE2016-66266 – *Amir Kazemi, Oakland University, Auburn Hills, MI, United States, Sayed Nassar, Zhijun Wu, Oakland University, Rochester, MI, United States*

10:42AM – Experimental Study to Verify Elliptical Confidence Limit Method for Bolted Joint Tightening
Technical Paper Publication. IMECE2016-66336 – *Soichi Hareyama, TOKYO METROPOLITAN UNIVERSITY, Tokyo, Japan, Ken-Ichi Manabe, Tokyo Metropolitan University, Mechanical Engineer, Tokyo, Japan, Takayuki Shimodaira, Takashi Naganawa, Hitachi Construction Machinery Co.,Ltd., Tsuchiura-City, Ibaraki, Japan*

11:03AM – FEM Analysis on Creep Deformation and Axial Bolt Force Change in Bolted Joints at Elevated Temperature
Technical Paper Publication. IMECE2016-67381 – *Yuya Omiya, Okayama University, Ohayama, Japan, Tadatoshi Watanabe, Mazda Motor Corporation, Hiroshima, Japan, Masahiro Fujii, Okayama university, Okayama, Japan, Haruka Yamamoto, Okayama University, Okayaka, Japan*

TIME

1:15PM–3:00PM

2-7-3 COMPUTATIONAL MODELING - THERMAL SIMULATIONS

ROOM 121A

Session Organizer: Jose Teixeira, University of Minho, Guimaraes, Portugal

Session Co-Organizer: Yuwen Zhang, University Of Missouri, Columbia, MO, United States

1:15PM – Experimental Characterization and Finite Element Modeling of Film Capacitors for Automotive Applications
Technical Paper Publication. IMECE2016-65489 – *Dario Croccolo, DIN. University of Bologna, Bologna, Italy, Tommaso Maria Brugo, Massimiliano De Agostinis, Stefano Fini, Giorgio Olmi, University of Bologna, Bologna, Italy*

1:36PM – Influences of Microstructure Defect Size and Distribution for Performance Optimization of Thermal Barrier Coatings
Technical Paper Publication. IMECE2016-65684 – *Stephanie Wimmer, Naval Research Laboratory, Washington, DC, United States, Virginia Degiorgi, U.S. Naval Research Laboratory, Washington, DC, United States, Edward Gorzkowski, Naval Research Laboratory, Washington, DC, United States*

1:57PM – Piecewise Fifth Order Spline Interpolation for Line Heating Forming Process
Technical Paper Publication. IMECE2016-67296 – *Henri Champliaud, Zhengkun Feng, David Provencher, Danick Tousignant, Ecole de technologie superieure, Montreal, QC, Canada, Javad Gholipour, National Research Council Canada, Montreal, QC, Canada*

2:18PM – Predictive Modeling for Hardness and Residual Stresses in Multi-track Laser Hardening of Hypoeutectoid Steel including the Effects of Tempering
Technical Presentation. IMECE2016-67731 – *Suhash Ghosh, Mechanical Engineering, University of Hartford, West Hartford, CT, United States, Chittaranjan Sahay, University of Hartford, Glastonbury, CT, United States*

2:39PM – Design of Experiment Study to Optimize Surface Hardness by Modeling Phase Transformation Kinetics in Laser Hardening of Hypo-Eutectoid Steel
Technical Presentation. IMECE2016-67734 – *Suhash Ghosh, Mechanical Engineering, University of Hartford, West Hartford, CT, United States, Chittaranjan Sahay, University of Hartford, Glastonbury, CT, United States, James Watts, University of Hartford, Manchester, ME, United States*

2-11-3 ADVANCED MACHINING AND FINISHING: MILLING OPERATIONS

ROOM 121C

Session Organizer: Patricia Iglesias, Rochester Institute of Technology, Rochester, NY, United States

Session Co-Organizer: Siddharthsinh Jadeja, B H Gardi College of Engineering & Technology, Rajkot Gujarat, India

1:15PM – Study of Surface Quality and Cutting Parameter Optimization in Side Milling CFRP with Diamond Coated Carbide Tool
Technical Paper Publication. IMECE2016-66035 – *Weiwei Liu, Yuan Hu, Jianwu Zhou, Renjie Lu, Chengzhou Wang, Northwestern Polytechnical University, Xi?an, Shaanxi, China*

1:36PM – Effect of cutting conditions on dimensional accuracy and surface roughness in traditional milling of steel
Technical Paper Publication. IMECE2016-66154 – *Brian Stringer, Gleason Plastic Gears, Bergen, NY, United States, Rui Lui, Alfonso Fuentes Aznar, Patricia Iglesias, Rochester Institute of Technology, Rochester, NY, United States*

1:57PM – ANALYSIS OF THE TOOL DEFLECTION IN END MILLING OF TITANIUM
Technical Paper Publication. IMECE2016-66620 – *Christian Hasenfratz, Institute of Production Management, Technology and Machine Tool, Darmstadt, Germany, Eberhard Abele, Institut of Production Management, Technology and Machine Tools, Darmstadt, Hessen, Germany*

2:18PM – Analysing the effect of workpiece stiffness variation on the stability in flank milling of an impeller blade
Technical Paper Publication. IMECE2016-68074 – *Narendra Singh, Ankita Agrawal, Kapil Wanaskar, V Kartik, IIT Bombay, Mumbai 400076, India, Suhas Joshi, Indian Inst Of Tech, Bombay, Mumbai 400076, Maharashtra, India*

2:39PM – Measurement and evaluation of temperature change of water driven spindle
Technical Paper Publication. IMECE2016-66446 – *Akio Hayashi, Yohichi Nakao, Kanagawa University, Yokohama, Japan*

2-13-3 MATERIAL BONDING & PROCESSING

ROOM 121B

Session Organizer: Sayed Nassar, Oakland University, Rochester, MI, United States

Session Co-Organizer: Zhijun Wu, Oakland University, Rochester, MI, United States

1:15PM – A Coupled Shear Stress-Diffusion Model for Adhesively Bonded Single Lap joints
Technical Paper Publication. IMECE2016-66083 – *Sayed Nassar, Oakland University, Rochester, MI, United States, Emad Mazhari, Oakland University, Rochester Hills, MI, United States*

1:36PM – Temperature Chamber for Adhesive Bonding Properties from Mode Specific Testing Specimens
Technical Paper Publication. IMECE2016-66984 – *Jesus Meraz Jr, Nick Aerne, Taylor Rawlings, John P. Parmigiani, Oregon State University, Corvallis, OR, United States*

1:57PM – Effect of Cure Temperature and Pressure on Autoclave-Bonded Polycarbonate Single Lap Joints
Technical Paper Publication. IMECE2016-67427 – *Sayed Nassar, Shraddha Jagatap, Oakland University, Rochester, MI, United States, Marcello Tardito, Politecnico di Torino, Torino, Torino, Italy*

2:18PM – A finite element based thermal analysis of laser cladding of mild steel with P420 steel powder
Technical Paper Publication. IMECE2016-65654 – *Navid Nazemi, CAMufacturing Solutions Inc., La Salle, ON, Canada, Jill Urbanic, University of Windsor, Windsor, ON, Canada*

2:39PM – A Method of Fracture Toughness Measurement And Effect of partial Annealing on Monolithic Thick Cold Sprayed Aluminum 6061 Deposits
Technical Paper Publication. IMECE2016-67178 – *Bjornar Bangstein, South Dakota School of Mines & Technology, Houston, TX, United States, Marius Ellingsen, SDSMT - ME Dept, Rapid City, SD, United States, Nathan Scholl, South Dakota School of Mines and Technology, Rapid City, SD, United States*

TIME

3:30PM–5:15PM

2-7-4 COMPUTATIONAL MODELING - ADVANCED MANUFACTURING II

ROOM 121A

Session Organizer: Virginia Degiorgi, U.S. Naval Research Laboratory, Washington, DC, United States

Session Co-Organizer: Suhash Ghosh, Mechanical Engineering, University of Hartford, West Hartford, CT, United States

3:30PM – Variation Simulation of Dissimilar Materials Using Clip Fasteners
Technical Paper Publication. IMECE2016-66551 – *Kristina Warmefjord, Chalmers Tekniska Hogskola AB, SE-412 96 Goteborg, Sweden, Rikard Soderberg, Chalmers Univ Of Tech, Se41296 Goteborg, NA, Sweden, Lars Lindkvist, Chalmers Univ Of Tech, Se-41296 Goteborg, NA, Sweden*

3:51PM – Investigation of Riveting Parameters Influence on the Riveted Joints Deformation during Slug Rivet Installation
Technical Paper Publication. IMECE2016-66618 – *Zhengping Chang, Zhongqi Wang, Jinming Zhang, Yuan Yang, Yonggang Kang, Northwestern Polytechnical University, Xi'an, China*

4:12PM – CFD Modeling of the Cooling Stage of Reflow Soldering Process
Technical Paper Publication. IMECE2016-66447 – *Ana Ferreira, Senhorinha Teixeira, Ricardo Oliveira, Nelson Rodrigues, Jose Teixeira, Delfim Soares, University of Minho, Guimaraes, Portugal*

4:33PM – Improved surface roughness evaluation of ground components using illumination compensated image- A machine vision approach
Technical Paper Publication. IMECE2016-66514 – *Jibin G John, IIT Madras, Chennai, Tamilnadu, India, ARUNACHALAM Narayanaperumal, IITM, Chennai, Tamilnadu, India*

4:54PM – Fixture layout design of sheet metal parts based on genetic algorithm for optimization toolbox
Technical Paper Publication. IMECE2016-65413 – *Yanfeng Xing, Fang Wang, Qing Ji, Shanghai University of Engineering Science, Shanghai, China*

2-11-4 ADVANCED MACHINING AND FINISHING: NON-TRADITIONAL MACHINING ADVANCES

ROOM 121C

Session Organizer: Zhiyong (John) Wang, University of Nevada, Las Vegas, Las Vegas, NV, United States

Session Co-Organizer: Siddharthsinh Jadeja, B H Gardi College of Engineering & Technology, Rajkot Gujarat, India

3:30PM – Trial study on single point diamond turning of Zr-based bulk metallic glass
Technical Paper Publication. IMECE2016-66289 – *Shu Sakata, Akio Hayashi, Takeshi Terajima, Yohichi Nakao, Kanagawa University, Yokohama, Kanagawa Prefecture, Japan*

3:51PM – Analysis and Optimization of Robotized Grinding of Titanium High Pressure Compressor Blades
Technical Paper Publication. IMECE2016-67064 – *Mouhab Meshreki, Zhongde Shi, National Research Council Canada, Montreal, QC, Canada, Francois Arrien, AV&R, Montreal, QC, Canada, M.H. Attia, National research council Canada, Montréal, QC, Canada*

4:12PM – OPTIMIZATION OF REAMING PROCESS PARAMETERS FOR TITANIUM Ti-6Al-4V ALLOY USING GREY RELATIONAL ANALYSIS
Technical Paper Publication. IMECE2016-66574 – *M. Pradeep Kumar, Shakeel Ahmed L, Anna University, Chennai, India*

4:33PM – Abrasive Waterjet Profile Cutting of Thick Titanium/ Graphite Fiber Metal Laminate
Technical Paper Publication. IMECE2016-67136 – *Rishi Pahuja, Mamidala Ramulu, University of Washington, Seattle, WA, United States, Mohamed Hashish, Flow International, Kent, WA, United States*

4:54PM – Atom Ionization in Metal Cutting
Technical Paper Publication. IMECE2016-65434 – *Zhiyong (John) Wang, University of Nevada, Las Vegas, Las Vegas, NV, United States, James Jacobs, Pengtao Sun, University of Nevada Las Vegas, Las Vegas, NV, United States*

2-13-4 WELDING

ROOM 121B

Session Organizer: Thomas Whitney, University of Dayton, Dayton, OH, United States

Session Co-Organizer: Sayed Nassar, Oakland University, Rochester, MI, United States

3:30PM – INVESTIGATION AND THERMAL ANALYSIS OF FRICTION STIR WELDING PROCESS PARAMETERS OF AA6061 PLATES
Technical Paper Publication. IMECE2016-65156 – *Jalay Shukla, VGEC Engineering College, Ahmedabad, Gujarat, India, Rupal Vyasa, V.G.E.C., Ahmedabad, Gujarat, India, Raghu Echempati, Kettering Univ, Flint, MI, United States, Vishvesh Badheka, PDPU University, Raisan, Gujarat, India*

3:51PM – Multi Response Optimization of Submerged Friction Stir Welding Process Parameters using grey Relational Analysis.
Technical Paper Publication. IMECE2016-65797 – *Senthil Kumar Velukkudi Santhanam, COLLEGE OF ENGINEERING, GUINDY, CHENNAI-25, India, Ramaiyan Sankar, Rathina Raj Lokesh, Chandran Rathinasuriyan, Anna University, Chennai, Tamil Nadu, India*

4:12PM – Vibration Assisted Hot-wire Gas-Tungsten Arc Welding of Duplex Stainless Steel 2205
Technical Paper Publication. IMECE2016-67665 – *Michael Santangelo, Bishal Silwal, GSU, Statesboro, GA, United States*

4:33PM – Field Improvised Electric Arc Welder
Technical Paper Publication. IMECE2016-67890 – *Kyle Geiser, William Maier, Nicholas Ives, Jared Van Curen, Gunnar Tamm, United States Military Academy, West Point, United Republic Cameroon, Harry Moore, U.S. Army, Picatinny, NJ, United States, Brodie Hoyer, United States Military Academy, West Point, NY, United States*

4:54PM – Study on the effect of weld speed and tool rotation speed on the quality of Friction Stir Welded joints by using XRD and EBSD
Technical Paper Publication. IMECE2016-68156 – *Jaishree Sanjeevi Maran, Pratyush kumar Patro, Sai Krishna S, College of Engineering Guindy- Anna University, Chennai, Tamil Nadu, India, Ilangovan Murugesan, Anna University, Chennai, Tamil Nadu, India, Sidhaarth B. T., College of Engineering Guindy- Anna University, Chennai, Tamil Nadu, India*

TIME

10:30AM–12:15PM

3-22-1 RECENT ADVANCES IN COMPOSITES RESEARCH IN USA

ROOM 121B

Session Organizer: Wenbin Yu, Purdue University, West Lafayette, IN, United States

10:30AM – Research Challenges in Aircraft Composite Structures Certification and Analysis
Track Plenary Presentation. IMECE2016-68326 – *Steve Engelstad, Lockheed Martin, Atlanta, GA, United States*

11:22AM – Expanded Design Options for Composite Laminates*
Track Plenary Presentation. IMECE2016-68769 – *Stephen Tsai, Stanford University, CA, CA, United States*

1:30PM–3:15PM

3-1-1 GENERAL PROBLEMS IN AEROSPACE SCIENCE AND APPLICATIONS I

ROOM 122B

Session Organizer: Wenbin Yu, Purdue University, West Lafayette, IN, United States

Session Co-Organizer: Alfonso Pagani, Politecnico Di Torino, Torino, Italy

1:30PM – Buckling Load Maximization of Composite Laminates using Particle Swarm Optimization with Various Constraints
Technical Paper Publication. IMECE2016-65312 – *Tae-uk Kim, Korea Aerospace Research Inst, Daejeon, Korea (Republic)*

1:51PM – Adhesion Mechanism of Space Climbing Robot Feet with Microarray Structure for On-orbit Servicing
Technical Paper Publication. IMECE2016-65816 – *Yilin Su, Xuyan Hou, Pingping Xue, Harbin Institute of Technology, Harbin, Heilongjiang, China, Kailiang Zhang, Harbin Institute of Technology, Harbin City, China, Long Li, Shanghai University, Shanghai, China, Tao Chen, Soochow University, Soochow, China*

2:12PM – Simulation and Testing on Performance of the Woven Brush Seal in Vacuum Environment
Technical Paper Publication. IMECE2016-66356 – *DU Farong, XU ZHENG, JI FENZHU, ZHOU YU, BEIHANG UNIVERSITY, BEIJING, China*

2:33PM – Structure Design and Performance Simulation on Liquid Lubricated Bearing System in Microgravity Environment
Technical Paper Publication. IMECE2016-66381 – *JI FENZHU, ZHANG MENGJIE, DU Farong, XU ZHENG, BEIHANG UNIVERSITY, BEIJING, China*

2:54PM – On the Use of Improved Radial Basis Functions Methods in Fluid-Structure Interaction Simulations
Technical Paper Publication. IMECE2016-66412 – *Giorgos A. Strofylas, Georgios I. Mazanakis, Sotirios S. Sarakinos, Georgios N. Lygidakis, Ioannis Nikolos, Technical University Of Crete, Chania, Greece*

3-2-1 ADVANCES IN AERODYNAMICS

ROOM 122C

Session Organizer: Jose Pascoa, Universidade Da Beira Interior, Covilha, Portugal

Session Co-Organizer: Carlos Xisto, Chalmers University of Technology, Göteborg, Sweden, Michele Trancossi, Sheffield Hallam University, Sheffield, United Kingdom

1:30PM – Numerical computations of MHD flow on re-entry and hypersonic vehicles
Technical Paper Publication. IMECE2016-65676 – *Filipe Dias, Universidade da Beira Interior, Covilhã, Portugal, Carlos Xisto, Chalmers University of Technology, Göteborg, Sweden, Jose Pascoa, Universidade Da Beira Interior, Covilha, Portugal*

1:51PM – Assessment of the Academic CFD Code Galatea-I With the DLR-F11 Model in High Lift Configuration
Technical Paper Publication. IMECE2016-66405 – *Sotirios S. Sarakinos, Georgios N. Lygidakis, Ioannis Nikolos, Technical University Of Crete, Chania, Greece*

2:12PM – Analysis of innovative plasma actuator geometries for boundary layer control
Technical Paper Publication. IMECE2016-66495 – *Frederico Rodrigues, University of Beira Interior, Covilha, Portugal, Jose Pascoa, Universidade Da Beira Interior, Covilha, Portugal, Michele Trancossi, Sheffield Hallam University, Sheffield, United Kingdom*

2:33PM – On aerodynamic performance of wavy airfoils
Technical Presentation. IMECE2016-67797 – *Seyed Mohammad Hasheminejad, National University of Singapore, Singapore, Singapore*

2:54PM – Optimized Magnus Airfoil for Enhancing the Efficiency of the Treadmill Airfoils in the Motor?s Blades of Airplanes
Technical Presentation. IMECE2016-68327 – *Iman Samani, Abdollah A. Afjeh, University of Toledo, Toledo, OH, United States*

TIME

1:30PM–3:15PM

3-3-1 ADVANCES IN BEAM, PLATE, AND SHELL THEORIES

ROOM 123

Session Organizer: Zahra Sotoudeh, Cal Poly Pomona, Pomona, CA, United States

Session Co-Organizer: Xin-Lin Gao, Southern Methodist University, Dallas, TX, United States

1:30PM – A New Model for Circular Mindlin Plates Incorporating Microstructure and Surface Energy Effects
Technical Presentation. IMECE2016-65526 – *Gongye Zhang, Xin-Lin Gao, Southern Methodist University, Dallas, TX, United States*

1:51PM – Analysis of curved composite structures through refined 1D finite elements with aerospace applications
Technical Paper Publication. IMECE2016-65644 – *Erasmo Carrera, Politecnico di Torino, Torino, Italy, Alberto Garcia de Miguel, Politecnico di Torino, Turin, Piemonte, Italy, Alfonso Pagani, Politecnico Di Torino, Torino, Italy, Marco Petrolo, Politecnico di Torino, Turin, Piemonte, Italy*

2:12PM – High-Fidelity One-Dimensional Models for Tapered Structures Analyses
Technical Paper Publication. IMECE2016-66681 – *Andrea Viglietti, Enrico Zappino, Erasmo Carrera, Politecnico di Torino, Torino, TO, Italy*

2:33PM – A New Trigonometric Higher-Order Shear And Normal Deformation Theory For Functionally Graded Plates
Technical Paper Publication. IMECE2016-66771 – *Ankit gupta, iit mandi, mandi, India, Mohammad Talha, Indian Institute of technology mandi, mandi, India*

2:54PM – Thermal shock buckling of functionally graded circular plate
Technical Paper Publication. IMECE2016-67885 – *Jinghua Zhang, Lanzhou University of Technology, Lanzhou, Gansu, China, Xingxing Zhao, Taiyuan Boiler Group Co.,Ltd, Taiyuan, Shanxi, China*

3-9-1 HIGH TEMPERATURE MATERIALS AND STRUCTURES I

ROOM 129A

Session Organizer: Olesya Zhupanska, University of Arizona, Tucson, AZ, United States

Session Co-Organizer: Natasha Vermaak, Lehigh University, Bethlehem, PA, United States, Evan Pineda, NASA Glenn Research Center, Cleveland, OH, United States, Pavana Prabhakar, University of Wisconsin-Madison, Madison, TX, United States

1:30PM – THERMO-MECHANICAL CREEP BUCKLING OF SOFT CORE SADNWICH PANELS
Technical Presentation. IMECE2016-66309 – *Ehab Hamed, UNSW Australia, Sydney, Australia, Yeoshua Frostig, Technion Israel Inst Of Tech, Haifa 36000, Israel*

1:51PM – Characterization of Nanoparticle Enhanced Multifunctional Sandwich Composites Subjected to Space Radiation
Technical Paper Publication. IMECE2016-66774 – *Nasim Abuali Galehdari, North Carolina A&T State University, Greensboro, NC, United States, Ajit Kelkar, North Carolina A&T, Greensboro, NC, United States*

2:12PM – Atomistic Simulation Studies of the Effects of Defects on Thermal Properties of Ultra High Temperature Ceramics
Technical Paper Publication. IMECE2016-65389 – *Sergey Medyanik, MES, Ann Arbor, MI, United States, Nickolas Vlahopoulos, University of Michigan, Ann Arbor, MI, United States*

2:33PM – Simulation of Lightning-Strike-Induced Thermal Ablation in Unprotected Carbon Fiber Polymer Matrix Composite Laminates
Technical Paper Publication. IMECE2016-65728 – *Yeqing Wang, University of Iowa, Iowa City, IA, United States, Olesya Zhupanska, University of Arizona, Tucson, AZ, United States, Crystal Pasiliao, Air Force Research Lab, Munitions Directorate, Eglin AFB, Fort Walton Beach, FL, United States*

2:54PM – Mechanical Properties and Fatigue Behavior of 2D Woven PMC and Unitized Composite Airframe Structures at Elevated Temperature
Technical Paper Publication. IMECE2016-65763 – *Michael Wilkinson, USAF Academy, USAF Academy, CO, United States, Marina Ruggles-Wrenn, AFIT, WPAFB, OH, United States*

3-18-1 STRUCTURAL HEALTH MONITORING

ROOM 129B

Session Organizer: Yiska Goldfeld, Technion - Israel Institute of Technology, Haifa, Israel

Session Co-Organizer: George Kardomateas, Georgia Inst. of Technology, Atlanta, GA, United States

1:30PM – Failure Prognosis Based on Adaptive State Space Models
Technical Paper Publication. IMECE2016-66167 – *Guangxing Bai, Amirmahyar Abdolsamadi, Pingfeng Wang, Wichita State University, Wichita, KS, United States*

1:51PM – Fatigue Life Prediction Using Strain Intensity Factor and Equivalent Initial Flaw Size
Technical Paper Publication. IMECE2016-66505 – *Wei Zhang, Huili Liu, Qiang Wang, Shan Jiang, Beihang University, Beijing, China*

2:12PM – Detection of major internal damage in aerospace structures by ultrasonic guided waves
Technical Presentation. IMECE2016-66872 – *Francesco Lanza di Scalea, University of California San Diego, La Jolla, CA, United States, Hyonny Kim, UC San Diego, La Jolla, CA, United States, Margherita Capriotti, Eric Kim, Stefano Mariani, University of California San Diego, La Jolla, CA, United States*

2:33PM – Structural Health Monitoring in Carbon based Textile Reinforced Concrete (TRC) Structures
Technical Presentation. IMECE2016-66883 – *Yiska Goldfeld, Technion - Israel Institute of Technology, Haifa, Israel, Till Quadflieg, Thomas Gries, Institut fuer Textiltechnik (ITA) of RWTH Aachen University, Aachen, Germany*

2:54PM – Monitoring Infiltration Capabilities of Stainless Steel Yarns Knitted Within Textile Reinforcement
Technical Presentation. IMECE2016-67143 – *Yiska Goldfeld, Oded Rabinovitch, Technion - Israel Institute of Technology, Haifa, Israel, Till Quadflieg, Thomas Gries, Institut fuer Textiltechnik (ITA) of RWTH Aachen University, Aachen, Germany*

TIME	
3:45PM–5:30PM	

3-1-2 GENERAL PROBLEMS IN AEROSPACE SCIENCE AND APPLICATIONS II

ROOM 122B

Session Organizer: Erkan Oterkus, University of Strathclyde, Glasgow, United Kingdom

Session Co-Organizer: Olesya Zhupanska, University of Arizona, Tucson, AZ, United States

3:45PM – Simulation of the Flow Over the CAARC Standard Tall Building Using Different LES Turbulence Models
Technical Paper Publication. IMECE2016-66399 – *Georgios N. Lygidakis, Sotirios S. Sarakinos, Ioannis Nikolos, Technical University Of Crete, Chania, Greece*

4:06PM – Multi-Objective Optimal Airfoil Design for Cargo Aircrafts
Technical Paper Publication. IMECE2016-67930 – *Yousef Naranjani, Jian-Qiao Sun, University of California Merced, Merced, CA, United States*

4:27PM – Optimization on High Adhesive Ability of Lunar Rover Wheel Based on Discrete Element Method
Technical Paper Publication. IMECE2016-65807 – *Kailiang Zhang, Harbin Institute of Technology, Harbin City, China, Xuyan Hou, Pingping Xue, Kaidi Zhang, Ping Liang, Zongquan Deng, Harbin Institute of Technology, Harbin, Hei longjiang province, China*

4:48PM – Three Dimensional Flow Investigation in One and a Half Stage Axial Turbine
Technical Paper Publication. IMECE2016-66703 – *Imran Aziz, Imran Akhtar, Usama Bin Perwez, Auwais Ahmed, National University of Sciences and Technology, Islamabad, Federal Capital, Pakistan*

5:09PM – Nonlinear dynamic analysis of a rotor-labyrinth seal-bearing-foundation system
Technical Paper Publication. IMECE2016-65586 – *Enjie Zhang, Yinghou Jiao, Harbin Institute of Technology, Harbin, China, Zhaobo Chen, Harbin Inst Of Tech, Harbin, Heilongjiang, China, Wenchao Mo, Harbin Inst of Tech, Harbin, China*

3-7-1 DYNAMICS AND CONTROL OF AEROSPACE STRUCTURES

ROOM 122C

Session Organizer: Uttam K. Chakravarty, University of New Orleans, New Orleans, LA, United States

Session Co-Organizer: Ahsan Mian, Wright State University Dept. Of Mechanical & Materials Engineering, Dayton, OH, United States

3:45PM – An Investigation of the Aerodynamic Performance of a Biomimetic Insect-Sized Wing for Micro Air Vehicles
Technical Paper Publication. IMECE2016-65303 – *Jose Rubio, Uttam K. Chakravarty, University of New Orleans, New Orleans, LA, United States*

4:06PM – Thermo-Fluid Characterizations of Ti-6Al-4V Melt Pool in Powder-Bed Electron Beam Additive Manufacturing
Technical Paper Publication. IMECE2016-65854 – *M Shafiqur Rahman, University of New Orleans, New Orleans, LA, United States, Paul J. Schilling, Univ Of New Orleans, New Orleans, LA, United States, Paul D. Herrington, Uttam K. Chakravarty, University of New Orleans, New Orleans, LA, United States*

4:27PM – Rotordynamic Analysis using 3D elements in Fixed and Rotating Reference Frame
Technical Paper Publication. IMECE2016-67043 – *Devesh Kumar, MSC Software, Pasadena, CA, United States*

4:48PM – Direct Sensing of Wing Flapping and Rotation Parameters for a Hawkmoth-sized Flapping Wing Micro Air Vehicle
Technical Paper Publication. IMECE2016-67416 – *Ranjana Sahai, Ten to the Minus Six Systems, Somerville, MA, United States*

5:09PM – Sending instructions and receiving the data from a stabilized Quad-rotor using telecommunication networks
Technical Presentation. IMECE2016-68594 – *Iman Samani, Abdollah A. Afjeh, University of Toledo, Toledo, OH, United States*

3-11-1 COMPOSITES AND LAYERED STRUCTURES

ROOM 123

Session Organizer: Yeoshua Frostig, Technion Israel Inst Of Tech, Haifa 36000, Israel

Session Co-Organizer: George Kardomateas, Georgia Inst. of Technology, Atlanta, GA, United States

3:45PM – First Order Shear Deformation Theory Approaches for Curved Sandwich Panels and Comparison with Elasticity
Technical Presentation. IMECE2016-67504 – *George Kardomateas, Nunthadech Rodcheuy, Georgia Inst. of Technology, Atlanta, GA, United States, Yeoshua Frostig, Technion Israel Inst Of Tech, Haifa 36000, Israel*

4:06PM – FREE VIBRATIONS RESPONSE OF CURVED SANDWICH PANELS - ELASTICITY VERSUS HIGH-ORDER APPROACHES
Technical Presentation. IMECE2016-66013 – *Yeoshua Frostig, Technion Israel Inst Of Tech, Haifa 36000, Israel, George Kardomateas, Nunthadech Rodcheuy, Georgia Inst. of Technology, Atlanta, GA, United States*

4:27PM – Arctic Exposure Studies of Vinyl Foams for Sandwich Composites
Technical Paper Publication. IMECE2016-66294 – *Carlos D. Garcia, Raudel Avila, University of Texas at El Paso, El Paso, TX, United States, Pavana Prabhakar, University of Wisconsin-Madison, Madison, TX, United States*

4:48PM – Stability and Nonlinear Postbuckling Behavior of Sandwich Panels
Technical Presentation. IMECE2016-67456 – *Zhangxian Yuan, Georgia Institute of Technology, Atlanta, GA, United States, George Kardomateas, Georgia Inst. of Technology, Atlanta, GA, United States, Yeoshua Frostig, Technion Israel Inst Of Tech, Haifa 36000, Israel*

5:09PM – Non-Linear Geometrical Behavior of a Sandwich Panel with an FGM Core - Extended High Order Approach
Technical Presentation. IMECE2016-67466 – *Yeoshua Frostig, Technion Israel Inst Of Tech, Haifa 36000, Israel, Victor Birman, Missouri University of Science and Technology, St. Louis, MO, United States, George Kardomateas, Georgia Inst. of Technology, Atlanta, GA, United States*

3-12-1 MULTISCALE MODELS AND EXPERIMENTAL TECHNIQUES FOR COMPOSITE MATERIALS

ROOM 129A

Session Organizer: Dianyun Zhang, University of Connecticut, Storrs, CT, United States

3:45PM – Atomistically Informed Method Of Cells Based Multiscale Approach for Analysis of CFRP Composites
Technical Paper Publication. IMECE2016-65447 – *Ashwin Rai, Nithya Subramanian, Arizona State University, Tempe, AZ, United States, Aditi Chattopadhyay, Arizona State Univ, Tempe, AZ, United States*

4:06PM – Mesoscale modeling of the coupled mechanical-thermal response of HTPB-AP energetic material under transient load
Technical Presentation. IMECE2016-65762 – *Ruize Hu, Caglar Oskay, Vanderbilt University, Nashville, TN, United States*

4:27PM – Experimental Study on the Meso-Scale Deformation Response of Orthotropic Woven Composites Subjected to Tensile Loading
Technical Presentation. IMECE2016-65632 – *Behrad Koohbor, Addis Kidane, University of South Carolina, Columbia, SC, United States*

4:48PM – The Effects of In-service Induced Reduction of Bonding Quality on the Mode I, II, and I-II Fracture Toughness of CNT Nanocomposites
Technical Paper Publication. IMECE2016-66907 – *Masoud Yekani Fard, Arizona State University, Tempe, AZ, United States, Brian Raji, Pipe Reconstruction, Scottsdale, AZ, United States, John Woodward, Arizona State University, Tempe, AZ, United States, Aditi Chattopadhyay, Arizona State Univ, Tempe, AZ, United States*

TIME	
3:45PM–5:30PM	**3-17-1 RECENT ADVANCES IN MECHANICS OF COMPOSITES I** **ROOM 129B** *Session Organizer: H. Sam Huang, State University of New York at Stony Brook, NY, Stony Brook, NY, United States* **3:45PM – Influence of stochastic microstructures on the progressive failure of textile composites** **Technical Presentation.** IMECE2016-65347 – *H. Sam Huang, State University of New York at Stony Brook, NY, Stony Brook, NY, United States*, *Evan Pineda, NASA Glenn Research Center, Cleveland, OH, United States* **4:06PM – The Best 3D Properties of Composites Laminates** **Technical Presentation.** IMECE2016-67009 – *Orzuri Rique Garaizar, Purdue University, Lafayette, IN, United States*, *Wenbin Yu, Purdue University, West Lafayette, IN, United States* **4:27PM – An Enhanced Continuum Damage and Discrete Crack Approach for Fatigue Damage Characterization of Composite Structures** **Technical Presentation.** IMECE2016-67434 – *Jim Lua, Global Eng. & Mat., Inc., Princeton, NJ, United States*, *Jian Xiao, Eugene Fang, Global Engineering and Materials, Inc., Princeton, NJ, United States*, *Dianyun Zhang, Rui Li, University of Connecticut, Storrs, CT, United States* **4:48PM – The Efficient Multi-objective Optimization of Finite Element Analysis Model Using ModelCenter** **Technical Paper Publication.** IMECE2016-65574 – *Iyu Wang, Yuan Yun, Bin Zhang, Tao Zhang, Technology and Engineering Center for Space Utilization, Beijing, China*

TIME

8:00AM–9:45AM

3-22-2 OPPORTUNITIES AND CHALLENGES IN AEROSPACE APPLICATIONS OF SMART MATERIALS AND STRUCTURES: FROM MECHANICS, MATERIALS TO STRUCTURES

ROOM 122A

Session Organizer: Wenbin Yu, Purdue University, West Lafayette, IN, United States

8:00AM – Opportunities and challenges in aerospace applications of smart materials and structures: from mechanics, materials to structures
Track Plenary Presentation. IMECE2016-68629 – *Jinsong Leng, Harbin Institute of Technology, Harbin, China*

10:00AM–11:45AM

3-8-1 DYNAMIC BEHAVIOR OF COMPOSITES

ROOM 122A

Session Organizer: Weiyi Lu, Michigan State University, East Lansing, MI, United States

Session Co-Organizer: Baoxing Xu, University of Virginia, Charlottesville, VA, United States

10:00AM – Effect of High-Temperature on the Compressive Behavior of Quasi-isotropic IM7/BMI Composite at High Strain Rates
Technical Presentation. IMECE2016-65521 – *Huiyang Luo, University of Texas at Dallas, Richardson, TX, United States, Zhenxing Hu, the University of Texas at Dallas, Richardson, TX, United States, Samit Roy, Univ Of Alabama, Tuscaloosa, AL, United States, Hongbing Lu, University of Texas, Richardson, TX, United States*

10:21AM – Enhanced Energy Absorption Capacity of Liquid Nanofoam
Technical Presentation. IMECE2016-66066 – *Weiyi Lu, Michigan State University, East Lansing, MI, United States*

10:42AM – Life Prediction And Stiffness Degradation Modeling Of Glass/Epoxy Composites Subjected To Flexural Fatigue Loading
Technical Paper Publication. IMECE2016-67664 – *Ajit Kelkar, North Carolina A&T, Greensboro, NC, United States, Vinod Suryawanshi, Joint School of Nanoscience and Nanoengineering,North Carolina A&T State University, Greensboro, Greensboro, NC, United States, Evan T. Kimbro, Joint School of Nanoscience and Nanoengineering, North Carolina Agricultural and Technological Unive, Greensboro, NC, United States*

11:03AM – Vibration Analysis of a Composite Helicopter Rotor Blade at Hovering Condition
Technical Paper Publication. IMECE2016-65859 – *Pratik Sarker, University of New Orleans, New Orleans, LA, United States, Colin R Theodore, NASA Ames Research Center, Mountain View, CA, United States, Uttam K. Chakravarty, University of New Orleans, New Orleans, LA, United States*

11:24AM – Experimental Investigation on Liquid Infiltration Speed in Liquid Nanofoam
Technical Paper Publication. IMECE2016-66252 – *Mingzhe Li, Weiyi Lu, Michigan State University, East Lansing, MI, United States*

3-15-1 AIRCRAFT PROPULSION AND FLOW MEASUREMENTS

ROOM 122B

Session Organizer: Lea-Der Chen, Texas A&M University - Corpus Christi, Corpus Christi, TX, United States

Session Co-Organizer: Joseph Schetz, Virginia Tech, Blacksburg, VA, United States

10:00AM – Analysis of Base-cooled Total Temperature Probes with Radiation
Technical Paper Publication. IMECE2016-65130 – *Joseph Schetz, Tyler Vincent, K.T. Lowe, Virginia Tech, Blacksburg, VA, United States*

10:21AM – A new propelled wing aircraft configuration
Technical Paper Publication. IMECE2016-65373 – *Michele Trancossi, Sheffield Hallam University, Sheffield, United Kingdom, Jill Stewart, Sheffield Hallam University - ACES, Sheffield, United Kingdom, Jose Pascoa, Universidade Da Beira Interior, Covilha, Portugal*

10:42AM – Study on Aerodynamic Design Inverse Approach for Contra-Rotating Propfan Based on Compressible Lifting Surface Theory
Technical Paper Publication. IMECE2016-65011 – *Yicheng Zhou, Peng Shan, Beihang University, Beijing, China*

11:03AM – Validation of the PTM Transition Model on a 3D Flow through a Turbine Cascade
Technical Paper Publication. IMECE2016-65001 – *Sergiy Yershov, Institute for Mechanical Engineering Problems of National Academy of Sciences of Ukraine (formerly), Kharkiv, Kharkiv region, Ukraine, Viktor Yakovlev, Institute for Mechanical Engineering Problems of National Academy of Sciences of Ukraine, Kharkiv, Kharkiv region, Ukraine*

11:24AM – Design of a highly loaded Turbine Exit Case Airfoil with Active Flow Control
Technical Paper Publication. IMECE2016-66008 – *Julia Kurz, Reinhard Niehuis, University of the German Federal Armed Forces Munich, Neubiberg, Germany, Martin Hoeger, MTU Aero Engines, Munich, Germany*

TIME		
10:00AM–11:45AM	**3-16-1 ADVANCES IN AEROSPACE STRUCTURES AND MATERIALS I** **ROOM 122C** *Session Organizer: Dianyun Zhang, University of Connecticut, Storrs, CT, United States* **10:00AM – Dynamic Characterization and Modeling of Carbon Composite Ballistic Behavior** **Technical Paper Publication.** IMECE2016-65545 – *Chian-Fong Yen, Robert P. Kaste, Jian H. Yu, US Army Research Laboratory, Aberdeen Proving Ground, MD, United States, Charles Chih-Tsai Chen, Nelson Carey, US Department of Homeland Security, Atlantic City International Airport, NJ, United States* **10:21AM – A Multiscale Approach for Characterization of Discrete and Diffuse Damage in Notched Composite Structures** **Technical Presentation.** IMECE2016-67450 – *Eugene Fang, Jian Xiao, Global Engineering and Materials, Inc., Princeton, NJ, United States, Jim Lua, Global Eng. & Mat., Inc., Princeton, NJ, United States, Rui Li, Dianyun Zhang, University of Connecticut, Storrs, CT, United States* **10:42AM – An Integrated Multi-scale Processing Model for Predicting Spring-in Angles of Composite Parts** **Technical Presentation.** IMECE2016-66902 – *Weijia Chen, Dianyun Zhang, University of Connecticut, Storrs, CT, United States* **11:03AM – A Component-Wise Approach To Analyse A Composite Launcher Structure Subjected To Loading Factors** **Technical Paper Publication.** IMECE2016-66696 – *Tommaso Cavallo, Alfonso Pagani, Enrico Zappino, Erasmo Carrera, Politecnico di Torino, Torino, TO, Italy* **11:24AM – Investigation of the Fracture Mechanism and Micro-Mechanical Strength Prediction of Composite Laminates** **Technical Presentation.** IMECE2016-67677 – *Xu Wu, Huazhong University of Science and Technology, Wuhan, China*	**3-17-2 RECENT ADVANCES IN MECHANICS OF COMPOSITES II** **ROOM 123** *Session Organizer: H. Sam Huang, State University of New York at Stony Brook, NY, Stony Brook, NY, United States* **10:00AM – Generalized Free Edge Stress Analysis Using Mechanics of Structure Genome** **Technical Presentation.** IMECE2016-66938 – *Bo Peng, Purdue, West Lafayette, IN, United States, Wenbin Yu, Purdue University, West Lafayette, IN, United States* **10:21AM – The nonlinear inplane behavior and progressive damage modeling for laminate by peridynamics** **Technical Paper Publication.** IMECE2016-65821 – *Yin Yu, Susu Liu, Shuli Zhao, Shanghai Jiao Tong University, Shanghai, China, Zhefeng Yu, Shanghai Jiaotong University, Shanghai, China* **10:42AM – Conventional Finite Element Method Versus Peridynamic Theory In Study of Damage in Solids** **Technical Presentation.** IMECE2016-67258 – *Parisa Khodabakhshi, J.N. Reddy, Arun Srinivasa, Texas A&M University, College Station, TX, United States* **11:03AM – Prediction of unidirectional composites under three point bending by 3D Schapery's theory** **Technical Presentation.** IMECE2016-67497 – *Shaoyu Hou, SUNY at STONY Brook, Stony Brook, NY, United States, H. Sam Huang, State University of New York at Stony Brook, NY, Stony Brook, NY, United States, Evan Pineda, NASA Glenn Research Center, Cleveland, OH, United States*
1:15PM–3:00PM	**3-10-1 IMPACT, DAMAGE AND FRACTURE OF COMPOSITE STRUCTURES I** **ROOM 122A** *Session Organizer: Kwek Tze Tan, University of Akron, Akron, OH, United States* *Session Co-Organizer: Ali Najafi, ANSYS Inc., Houston, TX, United States* **1:15PM – Measurement of High Velocity Impact Responses of Composite Panels** **Technical Presentation.** IMECE2016-67306 – *Andrew Vanderklok, Michigan State University, Lowell, MI, United States, Andrew Stamm, Michigan State University, East Lansing, MI, United States, Eryi Hu, China University of Mining & Technology, Xuzhou, China, Xinran Xiao, Michigan State University, Lansing, MI, United States* **1:36PM – Investigation of Hydrophobic Nanoporous Particle Liquids for Impact Protection** **Technical Paper Publication.** IMECE2016-67342 – *Yi Hsu, Yingtao Liu, University of Oklahoma, NORMAN, OK, United States* **1:57PM – Measurement on damage resistance of composite laminate to impact based on displacement response** **Technical Presentation.** IMECE2016-66695 – *Zhefeng Yu, Baojun Ning, Wenxu Ye, Jiaying Xia, Shanghai Jiaotong University, Shanghai, China, Yin Yu, Shanghai Jiao Tong University, Shanghai, China* **2:18PM – Progressive failure models for composite laminates under impact loading** **Technical Presentation.** IMECE2016-67732 – *Zhou Cheng Su, Dinh Chi Pham, Sridhar Narayanaswamy, Institute of High Performance Computing, Singapore, Singapore* **2:39PM – Damage Sequence Analysis for Low Velocity Impacted Composite Laminates using Acoustic Emission Technique** **Technical Presentation.** IMECE2016-66128 – *Jalal Yousefi, Ali Mahdian, Mehdi Ahmadi, Amirkabir university of technology, Tehran, Tehran, Iran, Navid Zarif Karimi, Giangiacomo Minak, University of Bologna, Bologna, BO, Italy*	**3-14-1 PERIDYNAMICS MODELING I** **ROOM 122B** *Session Organizer: Erdogan Madenci, University of Arizona, Tucson, AZ, United States* *Session Co-Organizer: Erkan Oterkus, University of Strathclyde, Glasgow, United Kingdom* **1:15PM – On the Consistency Between Nearest-Neighbor Peridynamic Discretizations and Discretized Classical Elasticity Models** **Technical Presentation.** IMECE2016-66821 – *Pablo Seleson, Oak Ridge National Laboratory, Oak Ridge, TN, United States, Qiang Du, Columbia University, New York, NY, United States, Michael Parks, Sandia National Laboratories, Albuquerque, NM, United States* **1:36PM – Fracture Modelling of Marine Lithium-Ion Batteries by Using Peridynamics** **Technical Presentation.** IMECE2016-65897 – *Hanlin Wang, Erkan Oterkus, Selda Oterkus, University of Strathclyde, Glasgow, United Kingdom* **1:57PM – Peridynamic solution of free boundary problems** **Technical Presentation.** IMECE2016-65744 – *Erdogan Madenci, Mehmet Dorduncu, University of Arizona, Tucson, AZ, United States* **2:18PM – On the Coupling of Peridynamics with a Meshless Method Based on Classical Elasticity for dynamic fracture analysis** **Technical Paper Publication.** IMECE2016-65340 – *Arman Shojaei, Mirco Zaccariotto, Ugo Galvanetto, University of Padua, Padova, Padova, Italy*

TIME

1:15PM–3:00PM

3-16-2 ADVANCES IN AEROSPACE STRUCTURES AND MATERIALS II

ROOM 122C

Session Organizer: Dianyun Zhang, University of Connecticut, Storrs, CT, United States

1:15PM – Stress Analysis of Smart Beam Energy Harvesters
Technical Paper Publication. IMECE2016-65548 – *Nathan Hosking, Rensselaer Polytechnic Institute, Troy, NY, United States, Zahra Sotoudeh, Cal Poly Pomona, Pomona, CA, United States*

1:36PM – Strain Sensing using Hybrid Nanocomposite Membrane
Technical Paper Publication. IMECE2016-67646 – *Wanru Shang, Yingtao Liu, University of Oklahoma, Norman, OK, United States*

1:57PM – Elastoplastic design of aircraft surfaces subjected to cyclic thermomechanical loads
Technical Presentation. IMECE2016-68512 – *Ismail Soner Cinoglu, Natasha Vermaak, Lehigh University, Bethlehem, PA, United States*

2:18PM – Structural Analysis and Optimization of Flexible Rockets with Reference Strain Structures
Technical Presentation. IMECE2016-68050 – *Natsuki Tsushima, Weihua Su, The University of Alabama, Tuscaloosa, AL, United States*

3-21-1 ADVANCED NUMERICAL METHODS FOR AEROSPACE STRUCTURES AND MATERIALS

ROOM 123

Session Organizer: Jay Oswald, Arizona State University, Tempe, AZ, United States

Session Co-Organizer: Hailong Chen, DOE INL, Idaho Falls, ID, United States

1:15PM – A Nonlocal Lattice Particle Framework for Modeling of Solids
Technical Paper Publication. IMECE2016-65557 – *Hailong Chen, Idaho National Laboratory, Idaho Falls, ID, United States, Yongming Liu, Arizona State University, Tempe, AZ, United States*

1:36PM – Buckling Analysis of Stiffened Panels Using Mechanics of Structure Genome
Technical Presentation. IMECE2016-66725 – *Ning Liu, Purdue, Purdue, IN, United States, Wenbin Yu, Purdue University, West Lafayette, IN, United States*

1:57PM – Component-wise models for the accurate dynamic and buckling analysis of composite wing structures
Technical Paper Publication. IMECE2016-65645 – *Erasmo Carrera, Alfonso Pagani, Politecnico di Torino, Torino, Italy, Pedro H. Cabral, Alex Prado, Gustavo Silva, Embraer, Sao José dos Campos, Brazil*

2:18PM – Method of fundamental solutions in micromechanics of random structure composites
Technical Paper Publication. IMECE2016-65842 – *Valeriy Buryachenko, Micromechanics & Composites LLC, Dayton, OH, United States*

2:39PM – A New Analysis Model of Creep for Thin-Walled Structures
Technical Paper Publication. IMECE2016-68187 – *Qiuye Hu, Zhijin Wang, Anatolii Kretov, Tianjiao Hou, Nanjing University of Aeronautics and Astronautics, Nanjing, Jiangsu, China*

3:30PM–5:15PM

3-10-2 IMPACT, DAMAGE AND FRACTURE OF COMPOSITE STRUCTURES II

ROOM 122A

Session Organizer: Ali Najafi, ANSYS Inc., Houston, TX, United States

Session Co-Organizer: Kwek Tze Tan, University of Akron, Akron, OH, United States

3:30PM – Impact Mitigation and Protection using Metacomposites with Negative Effective Mass
Technical Presentation. IMECE2016-66291 – *Kwek Tze Tan, University of Akron, Akron, OH, United States, Md. Mahfujul Khan, Bing Li, The University of Akron, Akron, OH, United States*

3:51PM – Evaluation of Impact Induced Deformations and Damage in Composite Plates using Digital Gradient Sensing Technique
Technical Presentation. IMECE2016-65871 – *Chengyun Miao, Auburn University, Auburn, AL, United States, Hareesh Tippur, Auburn Univ, Auburn, AL, United States*

4:12PM – Mesoscale Modeling of the Transverse Failure of Carbon/Epoxy Composites: Effect of Microstructural Statistics
Technical Presentation. IMECE2016-67627 – *Scott Zacek, Department of Aerospace Engineering, University of Illinois, Urbana, IL, United States, Chris Montgomery, Department of Materials Science and Engineering, University of Illinois, Urbana, IL, United States, Masoud Safdari, Department of Aerospace Engineering, University of Illinois, Urbana, IL, United States, Nancy Sottos, Department of Materials Science and Engineering, University of Illinois, Urbana, IL, United States, Philippe Geubelle, University of Illinois, Urbana, IL, United States*

4:33PM – Selection and Validation of Experimental Specimens for Determining Model Inputs for Matrix Compression Damage Propagation in Fiber Reinforced Composites
Technical Paper Publication. IMECE2016-65682 – *Mitchell A Daniels, Taylor Rawlings, John P. Parmigiani, Oregon State University, Corvallis, OR, United States*

4:54PM – Analytical analysis of drilling-associated damage in composites
Technical Paper Publication. IMECE2016-65608 – *Navid Zarif Karimi, University of Bologna, Bologna, BO, Italy, Hossein Heidary, University of Tafresh, Tafresh, Iran, Jalal Yousefi, Amirkabir university of technology, Tehran, Tehran, Iran, Giangiacomo Minak, University of Bologna, Bologna, BO, Italy*

3-13-1 NEXT GENERATION AEROSPACE TECHNOLOGIES: MODELLING AND EXPERIMENTS

ROOM 123

Session Organizer: H. Sam Huang, State University of New York at Stony Brook, NY, Stony Brook, NY, United States

3:30PM – Wind Tunnel Testing of a Blended Wing Aircraft with Active Flow Control in Ground Effect
Technical Paper Publication. IMECE2016-65683 – *Michael Mayo, Georgia Tech Research Institute, Smyrna, GA, United States, Jonathan Carroll, Nicholas Motahari, Georgia Institute of Technology, Atlanta, GA, United States, Warren Lee, Robert Englar, Georgia Tech Research Institute, Smyrna, GA, United States*

3:51PM – AEROTHERMODYNAMIC OPTIMIZATION OF A TSTO CONCEPT WITH A LIQUID AIR CYCLE
Technical Paper Publication. IMECE2016-65846 – *Takahiko Toki, The University of Tokyo, Tokyo, Japan, Nandeesh Hiremath, Narayanan Komerath, Georgia Institute of Technology, Atlanta, GA, United States*

4:12PM – Incremental Modeling and Simulation of Mechanical Power Transmission for More Electric Aircraft Flight Control Electromechanical Actuation System Application
Technical Paper Publication. IMECE2016-66436 – *Jian FU, Beihang University, Beijing, Beijing, China, Jean-Charles MARE, Institut Clément Ader, INSA-Toulouse, Toulouse, France, Yongling FU, Beihang University, Beijing, China*

4:33PM – TERA: Thermoelectric Energy Recuperation for Aviation - Project Overview and Potentials
Technical Paper Publication. IMECE2016-66650 – *Christoph Bode, Technische Universitaet Braunschweig, Braunschweig, Germany, Jens Friedrichs, TU Braunschweig Inst of Aircraft Propulsion & Turbomachinery, Braunschweig, Germany, Ragnar Somdalen, Jürgen Köhler, TU Braunschweig, Braunschweig, Germany, Kai-Daniel Büchter, Bauhaus Luftfahrt E.V., Taufkirchen, Germany, Christoph Falter, Ulrich Kling, Bauhaus Luftfahrt e.V, Taufkirchen, Germany, Pawel Ziolkowski, Knud Zabrocki, Eckhard Müller, German Aerospace Centre, Cologne, Germany, Dragan Kozulovic, HAW Hamburg, Hambrug, Germany*

4:54PM – An Experimental Investigation of the Effects of Gamma Radiation on 3D printed ABS for In-Space Manufacturing Purposes
Technical Paper Publication. IMECE2016-67745 – *Behzad Rankouhi, SDSU, Brookings, SD, United States, Fereidoon Delfanian, Robert McTaggart, Todd Letcher, South Dakota State University, Brookings, SD, United States*

TIME

3:30PM–5:15PM

3-14-2 PERIDYNAMICS MODELING II

ROOM 122B

Session Organizer: Erdogan Madenci, University of Arizona, Tucson, AZ, United States

Session Co-Organizer: Erkan Oterkus, University of Strathclyde, Glasgow, United Kingdom

3:30PM – Fatigue Life Prediction of Electronic Packages using Combined FEA and Peridynamics
Technical Presentation. IMECE2016-66272 – *Forrest Baber, Ibrahim Guven, Virginia Commonwealth University, Richmond, VA, United States*

3:51PM – Peridynamic simulation of static and cyclic delamination growth
Technical Presentation. IMECE2016-65749 – *Erdogan Madenci, University of Arizona, Tucson, AZ, United States, Yile Hu, The University of Arizona, Tucson, AZ, United States*

4:12PM – REFINEMENT AND SCALING EFFECTS ON PERIDYNAMIC NUMERICAL SOLUTIONS
Technical Paper Publication. IMECE2016-67317 – *Daniele Dipasquale, University of Padua, Padova, Padova, Italy, Erkan Oterkus, University of Strathclyde, Glasgow, United Kingdom, Giulia Sarego, Mirco Zaccariotto, University of Padua, Padova, Padova, Italy, Ugo Galvanetto, University of Padova, Padova, Italy*

4:33PM – Ice Fracture Modelling by Using Peridynamics
Technical Presentation. IMECE2016-65902 – *Bozo Vazic, Xu Ji, Selda Oterkus, Erkan Oterkus, University of Strathclyde, Glasgow, United Kingdom*

4:54PM – Micromechanics of random structure thermoperistatic composites
Technical Paper Publication. IMECE2016-65841 – *Valeriy Buryachenko, Micromechanics & Composites LLC, Dayton, OH, United States*

3-19-1 TURBINE BLADE BEHAVIOR AND AERODYNAMICS

ROOM 122C

Session Organizer: Albert Ratner, Univ Of Iowa, Iowa City, IA, United States

3:30PM – Experimental Investigations of a High Frequency Master-Slave Fluidic Oscillator to Achieve Independent Frequency and Mass Flow Characteristics
Technical Paper Publication. IMECE2016-66782 – *Valentin Bettrich, Reinhard Niehuis, University of the German Federal Armed Forces Munich, Neubiberg, Germany*

3:51PM – Experimental Study of the Effect of Serrations on Axial Flow Fan Blade Trailing Edge
Technical Paper Publication. IMECE2016-65978 – *DHYANJYOTI DEB NATH, K Viswanath, ANKIT BHAI PATEL, IIT MADRAS, CHENNAI, TAMIL NADU, India*

4:12PM – Numerical Investigation on Slot Casing Treatment in a Transonic Axial Compressor Stage: Part 1 - Casing Treatment Design
Technical Paper Publication. IMECE2016-65260 – *Mingmin Zhu, Xiaoqing Qiang, Jinfang Teng, Shanghai Jiao Tong University, Shanghai, China*

4:33PM – Numerical Investigation on Slot Casing Treatment in a Transonic Axial Compressor Stage: Part 2 - Unsteady simulations and analysis
Technical Paper Publication. IMECE2016-65261 – *Mingmin Zhu, Xiaoqing Qiang, Jinfang Teng, Shanghai Jiao Tong University, Shanghai, China*

4:54PM – Effect of Axial Sweep and Tip Extension on Performance of an Axial FAn
Technical Paper Publication. IMECE2016-65967 – *ANKIT BHAI PATEL, K Viswanath, DHYANJYOTI DEB NATH, IIT MADRAS, CHENNAI, INDIA, India*

TIME	
10:30AM–12:15PM	**4-1-1 BIOMEDICAL PLENARY PRESENTATIONS** **ROOM 121C** *Session Organizer: Ahmed Al-Jumaily, Auckland University of Technology, Institute of Biomedical Technologies, Auckland, New Zealand* **10:30AM – Microfluidic Technologies for Cancer Diagnosis & Personalized Medicine: From Bench to Bedside & Market** **Track Plenary Presentation.** IMECE2016-68307 – *C Lim, National Univ of Singapore, Singapore, Singapore* **11:22AM – The Artificial Heart** **Track Plenary Presentation.** IMECE2016-68496 – *Richard Smith, Banner University Medical Center in Tucson, Tucson, AZ, United States*
1:30PM–3:15PM	**4-2-1 DAMAGE BIOMECHANICS I: BRAIN INJURY ANALYSIS I** **ROOM 231B** *Session Organizer: Reuben Kraft, The Pennsylvania State University, University Park, PA, United States* *Session Co-Organizer: Yuan Ting Wu, University of Texas Arlington, Plano, TX, United States* **1:30PM – 3D Strain and Rate-dependent Neuronal Injury in Compressive Impacts** **Invited Presentation.** IMECE2016-65569 – *Eyal Bar-Kochba, Mark Scimone, Jonathan Estrada, Christian Franck, Brown University, Providence, RI, United States* **2:12PM – Validation of Two Porcine Models Against Low and High Rate Data** **Technical Presentation.** IMECE2016-65664 – *Robert Saunders, LEIDOS/NRL, Washington, DC, United States, Siddiq Qidwai, U.S. Naval Research Lab, Washington, DC, United States, Amit Bagchi, U.S. Naval Research Laboratory, Rockville, MD, United States* **2:33PM – A Computational Study to Correlate Traumatic Brain Injury in Humans and Pigs** **Technical Presentation.** IMECE2016-67413 – *Robert Saunders, LEIDOS/NRL, Washington, DC, United States, Siddiq Qidwai, National Science Foundation, Arlington, VA, United States* **2:54PM – A Sensitivity Study of the Porcine Head Subjected to Bump Impact** **Technical Paper Publication.** IMECE2016-68178 – *Kimberly Thompson, Adam Sokolow, Army Research Lab, APG, MD, United States, Juliana Ivancik, US Army Research Lab, Aberdeen Proving Ground, MD, United States, Timothy Zhang, TKC Global Inc, Bel Air, MD, United States, William Mermagen Jr., US Army Research Lab, Aberdeen Proving Ground, MD, United States, Sikhanda Satapathy, U.S. Army Research Lab, APG, MD, United States* **4-5-1 SYNTHESIS AND CHARACTERIZATION OF BIOMATERIALS** **ROOM 231C** *Session Organizer: Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States* *Session Co-Organizer: Zhenhai Xia, University of North Texas, Denton, TX, United States* **1:30PM – Modeling of Diffusive Behavior of Macromolecules Encapsulated in Electrospun Fibers** **Technical Paper Publication.** IMECE2016-67770 – *Karen Chang Yan, Aren Moy, Michael Sebok, The College of New Jersey, Ewing, NJ, United States* **1:51PM – Design of a multifunctional porous coaxial electrospun mesh using Polycaprolactone (PCL) & Poly butylene adipate-co-terephthalate (PBAT)** **Technical Paper Publication.** IMECE2016-67534 – *Hussain Rizvi, Nandika D'Souza, University of North Texas, Denton, TX, United States* **2:12PM – Development of IKVAV Modified PLLA Guide Tube having Unidirectional Fibers on Inner Surface to Enhance Axonal Extension** **Technical Paper Publication.** IMECE2016-66458 – *Yasuo Akizawa, Yusuke Morita, Doshisha University, Kyotanabe, Kyoto, Japan, Yu-I Hsu, Tetsuji Yamaoka, Department of biomedical engineering, nationl cerebral and cardiovascular center research institute., Suita, Osaka, Japan, Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan* **2:33PM – Measuring Compressive Modulus of Elasticity Across Cortical Bone Thickness of Mid-diaphysis Bovine Femur** **Technical Paper Publication.** IMECE2016-66383 – *Ilige Hage, Charbel Y. Seif, American University of Beirut, Beirut, Lebanon, Ramsey Hamade, American University Of Beirut, Beirut, Riad El Solh, Lebanon* **2:54PM – Characterization of tissue thermal conductivity during a tissue joining process** **Technical Paper Publication.** IMECE2016-66932 – *Che-Hao Yang, Washington State University, Pullman, WA, United States, Yang Liu, University of Michigan, Ann Arbor, MI, United States, Wei Li, Univ of Texas at Austin, Austin, TX, United States, Roland Chen, Washington State University, Pullman, WA, United States*

TIME	
1:30PM–3:15PM	**4-6-1 BIOMEDICAL DEVICES I** **ROOM 232C** *Session Organizer: Mariappan Jawaharlal, California State Polytechnic University, Pomona, Pomona, CA, United States* *Session Co-Organizer: Ramsey Hamade, American University Of Beirut, Beirut, Riad El Solh, Lebanon* **1:30PM – Performance Assessment of a Noninvasive Swallowable Biosensor Deployment System in Microgravity** **Technical Paper Publication.** IMECE2016-65039 – *Piotr Slawinski, Vanderbilt University, Nashville, TN, United States, Weston Lewis, Benjamin Terry, University of Nebraska-Lincoln, Lincoln, NE, United States* **1:51PM – Reducing Wear Debris and Increasing Lower-Limp Amputees - Comfort by Optimizing Prosthetic Socket Design Using Local Contact Pressure Relief and Implementing Appropriate Hole.** **Technical Paper Publication.** IMECE2016-65209 – *Gabi Nehme, University of Balamand, El-Koura, Lebanon, Lebanon, Micheline Dib, University of Balamand Dept of Mathematics, Deir El-balamand, Lebanon* **2:12PM – Development of a Force Sensing Instrument Assisted Soft Tissue Mobilization Device** **Technical Paper Publication.** IMECE2016-65268 – *Ahmed M. Alotaibi, Indiana Univ Purdue Univ Indianapolis, Indianapolis, IN, United States, Sohel Anwar, Indiana University Purdue University Indianapolis, Carmel, IN, United States, Stanley Y. Chien, M. Terry Loghmani, Indiana Univ Purdue Univ Indianapolis, Indianapolis, IN, United States* **2:33PM – Gait-Monitoring Wearable Technology for Transtibial Prosthetics** **Technical Paper Publication.** IMECE2016-66226 – *Kolby Hebert, Rachel Keen, Derek King, Wentworth Institute of Technology, Boston, MA, United States, Sally Shady, Wentworth Institute of Technology, Windham, NH, United States*
3:45PM–5:30PM	**4-2-2 DAMAGE BIOMECHANICS II: BRAIN INJURY ANALYSIS II** **ROOM 231A** *Session Organizer: Sikhanda Satapathy, U.S. Army Research Lab, APG, MD, United States* *Session Co-Organizer: Karim H. Muci-Kuchler, South Dakota School of Mines and Technology, Rapid City, SD, United States* **3:45PM – Macro-Micro Biomechanics Finite Element Modeling of Brain Injury under Concussive Loadings** **Technical Paper Publication.** IMECE2016-66218 – *X.G. Tan, CFD Research Corp, Huntsville, AL, United States, Andrzej Przekwas, CFD Research Corp., Huntsville, AL, United States, Raj K. Gupta, US Army Medical Research and Materiel Command, Fort Detrick, MD, United States* **4:06PM – A Parametric Study of Fractional Anisotropic Representation in the Brain** **Technical Presentation.** IMECE2016-67523 – *Robert Saunders, LEIDOS/NRL, Washington, DC, United States, Siddiq Qidwai, National Science Foundation, Arlington, VA, United States, Amit Bagchi, U.S. Naval Research Laboratory, Rockville, MD, United States* **4:27PM – Computational Micromechanics of Trabecular Porcine Skull Bone using the Material Point Method** **Technical Paper Publication.** IMECE2016-67748 – *Ziwen Fang, Allison N. Ranslow, The Pennsylvania State University, State College, PA, United States, Reuben Kraft, The Pennsylvania State University, University Park, PA, United States* **4:48PM – Validation of Embedded Element Method in the Prediction of White Matter Disruption in Concussions.** **Technical Paper Publication.** IMECE2016-67785 – *Harsha T. Garimella, The Pennsylvania State University, State College, PA, United States, Reuben Kraft, The Pennsylvania State University, University Park, PA, United States* **5:09PM – Comparison of Brain Tissue Material Finite Element Models Based On Threshold for Traumatic Brain Injury** **Technical Paper Publication.** IMECE2016-67505 – *Ashkan Eslaminejad, North Dakota State University, Fargo, ND, United States, Hesam Sarvghad Moghaddam, University of California San Francisco, San Francisco, CA, United States, Asghar Rezaei, North Dakota State University, Rochester, MN, United States, Mariusz Ziejewski, Ghodrat Karami, North Dakota State University, Fargo, ND, United States* **4-4-1 BIOMEDICAL IMAGING** **ROOM 231C** *Session Organizer: Mostafa Fatemi, Mayo Clinic College of Medicine, Rochester, MN, United States* *Session Co-Organizer: Xiaoning Jiang, NC State University, Raleigh, NC, United States* **3:45PM – Automated regional vascular characterization of ectatic coronary arteries from fluoroscopy** **Technical Paper Publication.** IMECE2016-65510 – *Prahlad Menon, University of Pittsburgh, Pittsburgh, PA, United States, Srilakshmi Adhyapak, Kiron Varghese, St Johns Medical College Hospital, Bangalore, Karnataka, India* **4:06PM – Magnetic Resonance Elastography of White Matter Brain Tissue Ex-Vivo** **Technical Presentation.** IMECE2016-66264 – *John L. Schmidt, Washington University in St. Louis, Saint Louis, MO, United States, Dennis J. Tweten, Andrew A. Badachhape, Ruth J. Okamoto, Joel R. Garbow, Philip Bayly, Washington University in St. Louis, St. Louis, MO, United States* **4:27PM – Multiscale Finite Element Techniques for Brain Elastography** **Technical Presentation.** IMECE2016-68184 – *Daniel Sullivan, Rutgers University, Highland Park, NJ, United States, John Georegiadis, Illinois Institute of Technology, Chicago, IL, United States, Assimina Pelegri, Rutgers, East Brunswick, NJ, United States* **4:48PM – Enhancing Human Bone Marrow Mesenchymal Stem Cell Osteogenesis via Low Intensity Pulsed Ultrasound and 3D Bioprinting Biomimetic Scaffolds** **Technical Presentation.** IMECE2016-65505 – *Xuan Zhou, The George Washington University, Washington, DC, DC, United States, Nathan J. Castro, The George Washington University, Washington,DC, DC, United States, Wei Zhu, Haitao Cui, Kausik Sarkar, Lijie Zhang, The George Washington University, Washington, DC, DC, United States* **5:09PM – Registration, Regional Identification and Transfer of data from MRI to finite element models** **Technical Presentation.** IMECE2016-67344 – *Shankarjee Krishnamoorthi, US Naval Research Laboratory, Washington, DC, United States, Siddiq Qidwai, U.S. Naval Research Lab, Washington, DC, United States, Amit Bagchi, U.S. Naval Research Laboratory, Rockville, MD, United States, Robert Saunders, LEIDOS/NRL, Washington, DC, United States*

TIME

3:45PM–5:30PM

4-5-2 ADVANCES IN ENGINEERED TISSUES

ROOM 231B

Session Organizer: Karen Chang Yan, The College of New Jersey, Ewing, NJ, United States

Session Co-Organizer: Seyed Allameh, Northern Kentucky Univ, Highland Heights, KY, United States, Anil Saigal, Tufts Univ, Medford, MA, United States

3:45PM – Hand-spinning Crosslinkable fibers with micron to nanometer-range diameters: Manufacturing and Application to Cartilage Tissue Engineering
Technical Presentation. IMECE2016-67366 – *Li-Hsin Han, Mingkun Wang, Chunxiao Cui, Drexel University, Philadelphia, PA, United States*

4:06PM – Effects of Vinyl Acetate Content and Extrusion Temperatures on Ethylene Vinyl Acetate (EVA) Tetracycline HCl Fibers used for Periodontal Applications
Technical Paper Publication. IMECE2016-66216 – *Sally Shady, Wentworth Institute of Technology, Windham, NH, United States, Stephen McCarthy, University of Massachusetts Lowell, Lowell, MA, United States*

4:27PM – Development of Surface Treatment Technique with Photolytic Macromolecule Including RGDS Peptide
Technical Paper Publication. IMECE2016-66466 – *Yukiko Taki, Doshisha univ., Kyotanabe, Kyoto, Japan, Yusuke Morita, Doshisha University, Kyotanabe, Kyoto, Japan, Shinnosuke Nishimura, Ayaha Hirata, Tomoyuki Koga, Doshisha univ., Kyotanabe, Kyoto, Japan, Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan*

4:48PM – 3D Bioprinting of Gradient Osteochondral Scaffolds using Soy Oil Resin
Technical Paper Publication. IMECE2016-66680 – *Margaret Nowicki, The George Washington University, Washington, DC, United States, Michael Plesniak, George Washington University, Washington, DC, United States, Lijie Zhang, The George Washington University, Washington, DC, DC, United States*

4-6-2 BIOMEDICAL DEVICES II

ROOM 232C

Session Organizer: Ahmed Sherif El-Gizawy, University of Missouri, Columbia, MO, United States

Session Co-Organizer: Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan

3:45PM – A new GUI device for monitoring cardiovascular status
Technical Paper Publication. IMECE2016-65361 – *Lulu Wang, Hefei University of Technology, School of Instrument Science and Opto-electronics Engineering, Hefei, China, Ahmed Al-Jumaily, Auckland University of Technology, Institute of Biomedical Technologies, Auckland, New Zealand*

4:06PM – Thermal Drift and Dynamic Response of Micro Flow Sensors for Smart VP Shunts
Technical Paper Publication. IMECE2016-65401 – *Gergo Edes, Eniko Enikov, Rein Anton, University of Arizona, Tucson, AZ, United States*

4:27PM – Development of Hybrid Electromagnetic and Mechanical Stimulation System for Enhancement of Nerve Axonal Extension
Technical Paper Publication. IMECE2016-65593 – *Kazuya Matsumoto, Dosihsha univercity, Kyotanabe, Kyoto, Japan, Yusuke Morita, Doshisha University, Kyotanabe, Kyoto, Japan, Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan*

4:48PM – Assisted Mobility Gait Training System
Technical Paper Publication. IMECE2016-65635 – *Erik Shaw, Wentworth Institute of Technology, Hooksett, NH, United States, Mansour Zenouzi, Wentworth Inst Of Tech, Boston, MA, United States, Kevin Ung, Pablo Vasquez, Jack Baker, Evan Fagerberg, Zachary Farrer, Bryan Yergeau, Matthew Harrison, James McCusker, Ryosuke Kondo, Wentworth Institute of Technology, Boston, MA, United States*

5:09PM – Development of a Microfabricated Sensor System to Measure Lumbar Spinal Fusion
Technical Paper Publication. IMECE2016-65703 – *Deborah S. Munro, University of Portland, Portland, OR, United States, Eric C. Tsai, Biotronik, Lake Oswego, OR, United States, Andrew R. Lingley, Ph.D., Michael T. Khbeis, Ph.D., University of Washington, Seattle, WA, United States*

4-10-1 MODELING IN BIOMEDICAL APPLICATIONS I

ROOM 232A

Session Organizer: Yi Hua, University of Nebraska-Lincoln, Lincoln, NE, United States

Session Co-Organizer: Linxia Gu, University of Nebraska-Lincoln, Lincoln, NE, United States

3:45PM – Application of Hyperelastic Models in Mechanical Properties prediction of Mouse Oocyte and Embryo Cells at Large Deformations
Technical Paper Publication. IMECE2016-65034 – *Ali A. Abbasi, Mohammad Taghi Ahmadian, Ali Alizadeh, Sina Tarighi, Sharif University of Technology, Tehran, Iran*

4:06PM – Stress Evaluation of Articular Cartilage Chondrocyte Cell by Using Multi-scale Finite Element Method and and Smoothed Particle Hydrodynamics Method
Technical Paper Publication. IMECE2016-66416 – *Kaito Nakahara, Yusuke Morita, doshisha university, Kyotanabe, Kyoto, Japan, Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan, Yoshihiro Tomita, Kobe University, Kobe 651 2277, Japan*

4:27PM – Multiscale modeling of red blood cell biomechanics in spleen physiology and pathology
Technical Presentation. IMECE2016-67422 – *Zhangli Peng, University of Notre Dame, Notre Dame, IN, United States, Igor Pivkin, University of Lugano, Lugano, Switzerland, George Karniadakis, Brown University, Providence, RI, United States, Pierre Buffet, Faculté de Médecine Université Paris Descartes, Institut National de la Transfusion Sanguine, Paris, France, Ming Dao, Massachusetts Institute of Technology, Cambridge, MA, United States*

4:48PM – Study of Mechanical Properties of Left Ventricle using Finite Element
Technical Paper Publication. IMECE2016-65338 – *Joshua Seidel, J. Michael Kabo, Vidya Nandikolla, Dept Mechanical Engineering, Cal State University Northridge, Northridge, CA, United States*

5:09PM – Sensitivity Of A Human Head Finite Element Model To Anatomical Features
Technical Presentation. IMECE2016-67334 – *Nicholas Vavalle, Johns Hopkins University Applied Physics Lab, Laurel, MD, United States, Robert Armiger, Johns Hopkins Applied Physics Lab, Laurel, MD, United States*

4-11-1 SPORT BIOMECHANICS

ROOM 232B

Session Organizer: Ali Sadegh, The City College of the City University of New York, New York, NY, United States

Session Co-Organizer: Sara Wilson, Univ Of Kansas, Lawrence, KS, United States, Maruti Ram Gudavalli, Palmer Ctr Chiropractic Res, Davenport, IA, United States

3:45PM – Is Race Walking Lower Impact than Running?
Technical Paper Publication. IMECE2016-65126 – *Jaclyn Norberg, Salem State University, Salem, MD, United States, Anne Schmitz, Gannon University, Erie, PA, United States*

4:06PM – Football Helmet Energy Absorption Degredation and Impact Performance Resulting From High Humidity and Temperature
Technical Paper Publication. IMECE2016-65226 – *Kenneth J. Saczalski, Mark N. West, Environmental research & Safety Technologists, Inc., Newport Beach, CA, United States, Todd K. Saczalski, TKS Consulting, Inc., Sedona, AZ, United States, Joseph L. Burton, Burton & Associates, Alphretta, GA, United States, Mark C. Pozzi, Sandia Safety Sciences, Edgewood, NM, United States*

4:27PM – Investigating Center-of-Pressure Based Parameters to Quantify Athlete and Non-Athlete Balance
Technical Paper Publication. IMECE2016-65642 – *Lara Thompson, Mehdi Badache, University of the District of Columbia, Washington, DC, United States*

4:48PM – The effect of stiffness of padding layers on the brain strain during impact
Technical Paper Publication. IMECE2016-66702 – *Shahab Mansoorbaghaei, City College of New York, New York, NY, United States, Ali Sadegh, The City College of the City University of New York, New York, NY, United States*

TIME		
8:00AM–9:45AM	**4-5-3 BREAKTHROUGHS IN ORTHOPEDIC REPAIR** **ROOM 228B** *Session Organizer: Yuan Feng, Soochow University, Suzhou, China* *Session Co-Organizer: Hai-Chao Han, University of Texas/San Antonio, San Antonio, TX, United States* **8:00AM – Adhesive Sutures** **Technical Paper Publication.** IMECE2016-67522 – *Stephen W. Linderman, Ioannis Kormpakis, Richard Gelberman, Washington University School of Medicine, St. Louis, MO, United States, Victor Birman, Missouri University of Science and Technology, St. Louis, MO, United States, Ulrike G.K. Wegst, Dartmouth College, Hanover, NH, United States, GM Genin, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Stavros Thomopoulos, Columbia University, New York, NY, United States* **8:21AM – IDENTIFYING THE AP RESTRAINING FORCES OF THREE BUNDLES WITHIN THE ACL** **Technical Presentation.** IMECE2016-67777 – *Ryo Takeda, Mayu Kawamoto, Yuki Hirano, Hokkaido University, Sapporo, Hokkaido, Japan, Katsuhiko Sasaki, Hokkaido Univ, Sapporo 0608628, Hokkaido, Japan* **8:42AM – Effect of the Gradient Magnetic Field Stimulation on Extracellular Matrix Synthesis of Chondrocytes** **Technical Paper Publication.** IMECE2016-66419 – *Tomoko Saito, Yusuke Morita, Doshisha University, Kyotanabe, Kyoto, Japan, Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan* **9:03AM – A method to improve the biomechanical functions of titanium implants** **Technical Presentation.** IMECE2016-68432 – *Morshed Khandaker, Shahram Riahinezhad, University of Central Oklahoma, Edmond, OK, United States*	**4-6-3 BIOMEDICAL DEVICES III** **ROOM 229B** *Session Organizer: Eniko Enikov, University of Arizona, Tucson, AZ, United States* *Session Co-Organizer: Sohel Anwar, Indiana University Purdue University Indianapolis, Carmel, IN, United States* **8:00AM – RELIABILITY BASED DESIGN OF FEMORAL LOCKING PLATE SYSTEMS** **Technical Paper Publication.** IMECE2016-65834 – *Ahmed Sherif El-Gizawy, Laurent Eap, Ma Xuewei, University of Missouri, Columbia, MO, United States* **8:21AM – Development of the Working Fluid with Blood Viscosity for Evaluating Ablation Catheter in in-vitro System** **Technical Paper Publication.** IMECE2016-65975 – *Kaihong Yu, Ren Takahashi, Makoto Ohta, Tohoku University, Sendai, Miyagi, Japan* **8:42AM – Examining Relationships Between Device Complexity and Failure Modes of Minimally Invasive Surgical Staplers** **Technical Paper Publication.** IMECE2016-66750 – *Marie Riggs, Philip Mountain, Matt Bohm, University of Louisville, Louisville, KY, United States* **9:03AM – Thermal analysis of casting process of PDMS in 3D printed mold for fabrication of cell culture devices** **Technical Paper Publication.** IMECE2016-67335 – *Mohamad Hossein Banazadeh, kevin Chang, University of Maryland Baltimore County, Baltimore, MD, United States, Stephen Andrew Gadsden, University of Maryland, Baltimore County, Baltimore, MD, United States, Liang Zhu, Univ Of Maryland Baltimore County, Baltimore, MD, United States, Ronghui Ma, Univ Of Maryland, Baltimore, MD, United States, Hongbing Wang, William Hedrich, University of Maryland Baltimore, Baltimore, MD, United States* **9:24AM – Flow simulations to establish the relationship between the inflow zone in the neck of a cerebral aneurysm and the positions of struts** **Technical Paper Publication.** IMECE2016-67804 – *Kazuhiro Watanabe, Tohoku University, Sendai-shi, Miyagi-ken, Japan, Hitomi Anzai, Makoto Ohta, Tohoku University, Sendai, Japan*
	4-8-1 CLINICAL APPLICATIONS OF BIOENGINEERING **ROOM 229A** *Session Organizer: Karen Chang Yan, The College of New Jersey, Ewing, NJ, United States* *Session Co-Organizer: Li-Hsin Han, Drexel University, Philadelphia, PA, United States, Douglas Dow, Wentworth Institute of Technology, Sharon, MA, United States, Ramsey Hamade, American University Of Beirut, Beirut, Riad El Solh, Lebanon* **8:00AM – Is the Maturation of Arteriovenous Fistulas a Mechanical or Biological Problem?** **Technical Paper Publication.** IMECE2016-65655 – *Daniel Jodko, Damian Obidowski, Piotr Reorowicz, Krzysztof Stanislaw Jozwik, Lodz University of Technology, Lodz, Poland* **8:21AM – Enhancing the sport performance and quality life of athletes by applying of WBV method** **Technical Paper Publication.** IMECE2016-66098 – *Petru A. Pop, University Of Oradea, Oradea 410087, Bihor, Romania, Liviu Lazar, Florin M. Marcu, University of Oradea, Oradea, Bihor, Romania* **8:42AM – Design of a an efficient Vaccine cold chain box** **Technical Paper Publication.** IMECE2016-65858 – *Shitanshu Devrani, sudhanshu Pandey, Shantanu Patil, K Sridhar, SRM University, Kancheepuram District, India, shubham chaturvedi, krishnakumar sankar, SRM univeristy, chennai, tamil nadu, India* **9:03AM – EFFECTS OF PROCESS PARAMETERS ON DIRECT DEPOSITION HYDROGEL MOLDING FOR THE FABRICATION MICROFLUIDIC DEVICES** **Technical Paper Publication.** IMECE2016-67301 – *Karen Chang Yan, John Sperduto, Alison McCarthy, The College of New Jersey, Ewing, NJ, United States, Christopher Civitello, The College of New Jersey, Robbinsville, NJ, United States, Aren Moy, The College of New Jersey, Ewing, NJ, United States*	

TIME

8:00AM–9:45AM

4-9-1 TRANSPORT PHENOMENA IN BIOMEDICAL APPLICATIONS

ROOM 228A

Session Organizer: Cahit Evrensel, Univ Of Nevada Reno, Reno, NV, United States

Session Co-Organizer: Milind Rao, BD Medical, Franklin Lakes, NJ, United States

8:00AM – Effects of Nasal Cavity and Pharyngeal Regions on Airflow Simulation and Particle Depositions in Lower Generations of the Airways
Technical Paper Publication. IMECE2016-65305 – *shahab taherian, CSULB, Long Beach, CA, United States, Hamid Rahai, California St Univ-long Beach, Long Beach, CA, United States, Diego Aguilar, California State University, Long Beach, Long Beach, CA, United States*

8:21AM – Mathematical and Numerical Modeling of RBCs Induced Platelets Near Wall Enrichment Based on a Two-Fluid Method
Technical Paper Publication. IMECE2016-65578 – *Wei-Tao Wu, Carnegie Mellon University, Pittsburgh, PA, United States, Nadine Aubry, Northeastern University, Boston, MA, United States, Mehrdad Massoudi, National Energy Technology Laboratory (NETL), Pittsburgh, PA, United States, James Antaki, Carnegie Mellon Univ, Pittsburgh, PA, United States*

8:42AM – Computational fluid dynamics analysis of the bone marrow in cancellous bone as a non-Newtonian fluid
Technical Paper Publication. IMECE2016-67006 – *Makoto Ohta, Wataru Sakuma, Tohoku University, Sendai, Miyagi, Japan, Toshio Nakayama, National Institute of Technology, Tsuruoka College, Tsuruoka, Yamagata, Japan, Hitomi Anzai, Makoto Ito, Tohoku University, Sendai, Japan, Katsuyuki Sado, Shuji Nakamura, JIMRO, Takasaki, Japan*

9:03AM – Vitreous Humor Diffusion Coefficient Measurement with MRI Visualization
Technical Presentation. IMECE2016-67965 – *Komsan Rattanakijsuntorn, Anita Penkova, University of Southern California, Los Angeles, CA, United States, Satwindar Sadhal, Univ Of Southern California, Los Angeles, CA, United States*

4-10-2 MODELING IN BIOMEDICAL APPLICATIONS II

ROOM 230

Session Organizer: Junfei Tong, University of Nebraska Lincoln, Lincoln, NE, United States

Session Co-Organizer: Yi Hua, University of Nebraska-Lincoln, Lincoln, NE, United States

8:00AM – The Effects of Graft Size and Insertion Site Location during Anterior Cruciate Ligament Reconstruction on Intercondylar Notch Impingement
Technical Paper Publication. IMECE2016-65152 – *Hamid Nayeb Hashemi, Northeastern Univ, Boston, MA, United States, Alexander D. Orsi, Northeastern University, Dept. of Mechanical Eng., Boston, MA, United States, Masoud Olia, Wentworth Institute of Technology, Boston, MA, United States, Ashkan Vaziri, Northeastern University, Dept. of Mechanical Eng., Cambridge, MA, United States*

8:21AM – Implication of Auditory Dysfunction in Blast-Induced Mild Traumatic Brain Injury
Technical Presentation. IMECE2016-67379 – *Yi Hua, Praveen Akula, Linxia Gu, University of Nebraska-Lincoln, Lincoln, NE, United States*

8:42AM – Modeling and Simulation of Shoulder-Humerus Complex via Multibody Dynamics for a Walking Elder Using a Cane
Technical Paper Publication. IMECE2016-67173 – *Shanzhong (shawn) Duan, Saint Martin's University, Lacey, WA, United States*

9:03AM – Mechanical Response of the Brain under Blast: The Effect of Blast Direction and the Head Protection
Technical Paper Publication. IMECE2016-67513 – *Hesam Sarvghad Moghaddam, University of California San Francisco, San Francisco, CA, United States, Asghar Rezaei, North Dakota State University, Rochester, MN, United States, Ashkan Eslaminejad, Mariusz Ziejewski, Ghodrat Karami, North Dakota State University, Fargo, ND, United States*

10:00AM–11:45AM

4-2-3 DAMAGE BIOMECHANICS III: BRAIN INJURY MECHANISMS

ROOM 228B

Session Organizer: X.G. Tan, CFD Research Corp, Huntsville, AL, United States

Session Co-Organizer: Siddiq Qidwai, National Science Foundation, Arlington, VA, United States

10:00AM – Role of skull fracture on load transfer to brain
Technical Paper Publication. IMECE2016-68185 – *Timothy Zhang, TKC Global Inc, Bel Air, MD, United States, Kimberly Thompson, Army Research Lab, APG, MD, United States, Sikhanda Satapathy, U.S. Army Research Lab, APG, MD, United States*

10:21AM – Skull Deformation has no Impact on the Variation of Brain Intracranial Pressure
Technical Paper Publication. IMECE2016-67518 – *Asghar Rezaei, North Dakota State University, Rochester, MN, United States, Hesam Sarvghad Moghaddam, University of California San Francisco, San Francisco, CA, United States, Ashkan Eslaminejad, Mariusz Ziejewski, Ghodrat Karami, North Dakota State University, Fargo, ND, United States*

10:42AM – A Computational Study of Intracranial Cavitation in White Matter Axon Fiber Bundles as it relates to Blast-Induced Traumatic Brain Injury
Technical Presentation. IMECE2016-67526 – *Shivonne Haniff, Paul Taylor, Ryan Terpsma, Candice F. Cooper, Sandia National Laboratories, Albuquerque, NM, United States*

11:03AM – STABILITY AND COLLAPSING MECHANISM OF CAVITATION-INDUCED NANOBUBBLES IN SIMULATED EXTRA-CELLULAR MATRIX (ECM) NEAR NEURON
Technical Paper Publication. IMECE2016-67806 – *Yuan Ting Wu, University of Texas Arlington, Plano, TX, United States, Ashfaq Adnan, University of Texas Arlington, Arlington, TX, United States*

11:24AM – Molecular Dynamics Simulations Of Neuronal Membrane Mechanoporation Damage
Technical Presentation. IMECE2016-67857 – *Michael Murphy, R. Prabhu, Mississippi State University, Mississippi State, MS, United States, Mark F. Horstemeyer, Mississippi State University, Mississippi State University, MS, United States, L. N. Williams, mississippi state university, ag and bio eng, Starkville, MS, United States, S. Mun, M.I. Baskes, Mississippi State University, Mississippi State, MS, United States*

TIME	
10:00AM–11:45AM	

4-3-1 VIBRATIONS AND ACCOUSTICS IN BIOMEDICAL APPLICATIONS-THERAPY

ROOM 229A

Session Organizer: Toshihiko Shiraishi, Yokohama National University, Yokohama, Japan

Session Co-Organizer: Hiroko Kadowaki, Yamaguchi University, Ube, Yamaguchi, Japan

10:00AM – Interaction of Viscoleastic Mucus with Air in Pulmunory Airways and enhancement of its Clearance with Cough
Invited Presentation. IMECE2016-68250 – *Cahit Evrensel, Univ Of Nevada Reno, Reno, NV, United States, Peter E Krumpe, University of Nevada, Reno, Reno, U S Minor Island*

10:42AM – Preventing Upper Airway Collapse using CPAP with and without Pressure Oscillations
Technical Paper Publication. IMECE2016-65449 – *Sherif Ashaat, Auckland University of Technology (AUT), Auckland, New Zealand, Ahmed Al-Jumaily, Auckland University of Technology, Institute of Biomedical Technologies, Auckland, New Zealand, Loulin Huang, Auckland University of Technology (AUT), Auckland, New Zealand*

11:03AM – Study on Model Parameters of Focal Cooling Device Using a Peltier Element for a Living Body
Technical Paper Publication. IMECE2016-67387 – *Kenyu Uehara, Japan/Yamaguchi University, Ubecity, Japan, Takashi Saito, Yamaguchi university, Ube / Yamaguchi, Japan, Koji Mori, Kentaro Miyago, Japan/Yamaguchi University, Ube / Yamaguchi, Japan*

11:24AM – Correlating Tri-Accelerometer Swallowing Vibrations and Hyoid Bone Movement in Patients with Dysphagia
Technical Paper Publication. IMECE2016-66133 – *Etienne J Zahnd, Faezeh Movahedi, James L. Coyle, Ervin Sejdic, Prahlad Menon, University of Pittsburgh, Pittsburgh, PA, United States*

4-6-4 BIOMEDICAL DEVICES IV

ROOM 229B

Session Organizer: Anil Saigal, Tufts Univ, Medford, MA, United States

Session Co-Organizer: Hong Seok Park, University of Ulsan, Ulsan, Korea (Republic)

10:00AM – DEVELOPMENT OF STRESS STIMULATION DEVICE TO EVALUATE STRAIN RATE EFFECT ON NIH-3T3 CELL ACTIVATION
Technical Presentation. IMECE2016-65178 – *Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan, Kazuya Matsumoto, Yusuke Morita, Doshisha University, Kyotanabe, Kyoto, Japan, Toshihiko Yamaguchi, Doshisha University, Osaka, Japan*

10:21AM – Correlation of Strain on Instrumentation to Simulated Posterolateral Lumbar Fusion in a Sheep Model
Technical Paper Publication. IMECE2016-65696 – *Deborah S. Munro, University of Portland, Portland, OR, United States, Munish C. Gupta, M.D., Washington University in St. Louis, School of Medicine, St. Louis, MO, United States*

10:42AM – Electromagnets as actuators for a Novel 3D-Printed Musculoskeletal Prosthesis
Technical Paper Publication. IMECE2016-66396 – *Ramsey Hamade, American University Of Beirut, Beirut, Riad El Solh, Lebanon, Magdalena Assaad, Diana El Hajj, Julie El Jurdi, American University Of Beirut, Beirut, Lebanon*

11:03AM – Wireless, Stretchable Intraoral Electronics for pH Monitoring
Technical Presentation. IMECE2016-67866 – *Yongkuk Lee, James P. Coffey, Richard M. Costanzo, Woon-Hong Yeo, Virginia Commonwealth University, Richmond, VA, United States*

4-10-3 MODELING IN BIOMEDICAL APPLICATIONS III

ROOM 230

Session Organizer: Shanzhong (shawn) Duan, Saint Martin's University, Lacey, WA, United States

10:00AM – Numerical analysis of texture tactics on skin by using of the model of periodic micro unit
Technical Paper Publication. IMECE2016-66273 – *Takayuki Ishino, Atsushi Sakuma, Kyoto Institute of Technology, Kyoto, Kyoto, Japan*

10:21AM – INFLUENCE OF INTRACRANIAL PRESSURE ON THE LAMINA CRIBROSA
Technical Paper Publication. IMECE2016-67114 – *Junfei Tong, University of Nebraska Lincoln, Lincoln, NE, United States, Yi Hua, University of Nebraska-Lincoln, Lincoln, NE, United States, Deepta Ghate, Stanley Truhlsen Eye Institute University of Nebraska Medical Center, Omaha, NE, United States, Sachin Kedar, Department of Neurological Sciences University of Nebraska Medical Center, Omaha, NE, United States, Linxia Gu, University of Nebraska-Lincoln, Lincoln, NE, United States*

10:42AM – On the Significance and Predicted Functional Effects of the Crown-to-Implant Ratio: a Finite Element Study of Long-Term Implant Stability Using High-Resolution, Nonlinear Numerical Analysis
Technical Paper Publication. IMECE2016-67654 – *T.J. Sego, Department of Mechanical Engineering, Indiana University-Purdue University Indianapolis, Indianapolis, IN, United States, Yung-Ting Hsu, University of Detroit Mercy School of Dentistry, Detroit, MI, United States, Tien-Min Gabriel Chu, Department of Restorative Dentistry, Indiana University School of Dentistry, Indianapolis, IN, United States, Andres Tovar, Indiana University-Purdue University Indianapolis, Indianapolis, IN, United States*

11:03AM – FINITE ELEMENT MODELING OF TIBIOFEMORAL JOINT AND COMPARATIVE ANALYSIS OF VARIED PARAMETERS AT DIFFERENT BODY WEIGHTS
Technical Paper Publication. IMECE2016-67959 – *Syeda Wajiha Zaidi, Maheen Arif, Madeeha Sadia, NED University of Engineering & Technology, Karachi, Pakistan, Rashid Khan, Al Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia, Umair Bin Asim, University of Aberdeen, Aberdeen, Scotland*

TIME	
1:15PM–3:00PM	**4-2-4** **DAMAGE BIOMECHANICS IV: MILITARY APPLICATIONS** **ROOM 228B** *Session Organizer: Catherine Florio, US Army ARDEC, Picatinny Arsenal, NJ, United States* *Session Co-Organizer: Amit Bagchi, U.S. Naval Research Laboratory, Rockville, MD, United States* **1:15PM – Non-destructive and damage mechanics of cervical spine artificial discs for military applications** **Technical Paper Publication.** IMECE2016-66705 – *Narayan Yoganandan, VA Medical Center and MCW, Milwaukee, WI, United States, Jason Moore, VA Medical Center, Milwaukee, WI, United States, Jamie Baisden, Medical College of Wisconsin, Colgate, WI, United States, Frank Pintar, Med College Of Wisconsin, Milwaukee, WI, United States, B. Joseph McEntire, Valeta Carol Chancey, US Army Aeromedical Research Laboratory, Fort Rucker, AL, United States* **1:36PM – Combat Helmet Design Incorporating Multiple Ballistic Threats, Brain Functional Areas and Injury Considerations** **Technical Paper Publication.** IMECE2016-67364 – *Peter Matic, Naval Research Laboratory, Washington, DC, United States, Alex Moser, Nova Research, Washington, DC, United States, Robert Saunders, LEIDOS/ NRL, Washington, DC, United States* **1:57PM – Assessment of Fabric Damage due to Overpressure Effects** **Technical Presentation.** IMECE2016-67540 – *Joseph Schaefer, Boeing Research and Technology, Berkeley, MO, United States, John Christopher, Leidos, Inc., Reston, VA, United States, Ronald Holtz, US Naval Research Laboratory, Washington, DC, United States, Andrew Geltmacher, Naval Research Laboratory, Washington, DC, United States, Amit Bagchi, U.S. Naval Research Laboratory, Rockville, MD, United States* **2:18PM – Damage Prediction for a Cervical Spine Intervertebral Disc** **Technical Paper Publication.** IMECE2016-67711 – *Shruti Motiwale, Pennsylvania State University, State College, PA, United States, Adhitya V. Subramani, The Pennsylvania State University, University Park, PA, United States, Xianlian Zhou, CFD Research Corporation, Huntsville, AL, United States, Reuben Kraft, The Pennsylvania State University, University Park, PA, United States* **2:39PM – Novel Measurement of Intradiscal Pressure in Underbody Blast Simulation** **Technical Paper Publication.** IMECE2016-67426 – *Connor Bradfield, Constantine Demetropoulos, Connor Pyles, Eyal Bar-Kochba, Alexander Iwaskiw, Edwin Gienger, Johns Hopkins Applied Physics Lab, Laurel, MD, United States, Andrew Merkle, Jhu/Applied Physics Laboratory, Laurel, MD, United States, Robert Armiger, Johns Hopkins Applied Physics Lab, Laurel, MD, United States* **4-3-2 VIBRATIONS AND ACOUSTICS IN BIOMEDICAL APPLICATIONS-DIAGNOSTICS AND CHARACTERISATION** **ROOM 229A** *Session Organizer: Takashi Saito, Yamaguchi university, Ube / Yamaguchi, Japan* *Session Co-Organizer: Prahlad Menon, University of Pittsburgh, Pittsburgh, PA, United States* **1:15PM – Characterization of lumbar-level spinal fusion on the whole human spine under vibrations** **Technical Paper Publication.** IMECE2016-66384 – *Kristen Lipscomb, Univ of California Davis, Davis, CA, United States, Nesrin Sarigul-Klijn, UCDavis, Davis, CA, United States, Eric Klineberg, University of California Davis HS, Sacramento, CA, United States* **1:36PM – Cell Response to Cyclic Strain at Focal Adhesions** **Technical Paper Publication.** IMECE2016-66843 – *Toshihiko Shiraishi, Tomohiro Fukuno, Yokohama National University, Yokohama, Japan* **1:57PM – Investigation of the Dynamic Characteristics of Bovine Tibia Using The Impulse Response Method** **Technical Paper Publication.** IMECE2016-66554 – *Israa Choucair, Samir Mustapha, American University Of Beirut, Beirut, Riad El Solh, Lebanon, Ali Fakhreddine, Mohamad Sayegh, American University of Beirut, Beiruit, Lebanon, Ramsey Hamade, American University Of Beirut, Beirut, Riad El Solh, Lebanon* **2:18PM – Temporal variation characteristics of analysis accuracy in two-dimensional ultrasonic- measurement-integrated blood flow analysis** **Technical Paper Publication.** IMECE2016-67661 – *Hiroko Kadowaki, Yamaguchi University, Ube, Yamaguchi, Japan*

TIME	
1:15PM–3:00PM	**4-7-1 DYNAMICS AND CONTROL OF BIOMECHANICAL SYSTEMS I** **ROOM 229B** *Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States* *Session Co-Organizer: Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States, Sohel Anwar, Indiana University Purdue University Indianapolis, Carmel, IN, United States* **1:15PM – Finite Element Analysis of an Electro-Mechanical Knee Loading Device** **Technical Paper Publication.** IMECE2016-65270 – *Sai K. Prabhala, Indiana Univ Purdue Univ Indianapolis, Indianapolis, IN, United States, Sohel Anwar, Indiana University Purdue University Indianapolis, Carmel, IN, United States, Hiroki Yokota, Iupui, Indianapolis, IN, United States, Stanley Y. Chien, Indiana Univ Purdue Univ Indianapolis, Indianapolis, IN, United States* **1:36PM – FINITE ELEMENT ANALYSIS OF AN UNDER-ACTUATED ROBOTIC DEVICE FOR KNEE LOADING APPLICATIONS** **Technical Paper Publication.** IMECE2016-65271 – *Sandeep Korupolu, Indiana Univ Purdue Univ Indianapolis, Indianapolis, IN, United States, Sohel Anwar, Indiana University Purdue University Indianapolis, Carmel, IN, United States, Hiroki Yokota, Iupui, Indianapolis, IN, United States, Stanley Y. Chien, Indiana Univ Purdue Univ Indianapolis, Indianapolis, IN, United States* **1:57PM – Knee Internal Forces in Moderate Squat Exercise** **Technical Paper Publication.** IMECE2016-66626 – *Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States, Jose M. Salinas, UT-RGV, Edinburg, TX, United States* **2:18PM – Deformation of Stenotic Blood Vessel Model Made from Poly(Vinyl Alcohol) Hydrogel by Hydrostatic Pressure** **Technical Paper Publication.** IMECE2016-66657 – *Yasutomo Shimizu, Tohoku University, Sendai, Miyagi, Japan, Lei Liu, The Japan Research Institute, Limited, Shinagawa, Tokyo, Japan, Hiroyuki Kosukegawa, Kenichi Funamoto, Toshiyuki Hayase, Tohoku University, Sendai, Miyagi, Japan, Toshio Nakayama, National Institute of Technology, Tsuruoka College, Tsuruoka, Yamagata, Japan, Makoto Ohta, Tohoku University, Sendai, Miyagi, Japan* **2:39PM – Development of an Active Biomimetic-Controlled Transfemoral Knee Prosthesis** **Technical Paper Publication.** IMECE2016-67211 – *Hugo Ivan Medellin Castillo, UNIVERSIDAD AUTONOMA DE SAN LUIS POTOSI, San Luis Potosi, Mexico, Mario Gerardo Bernal Torres, Universidad Autónoma De San Luis Potosí, San Luis Potosí, Mexico, Juan Carlos Arellano González, UNIVERSIDAD AUTONOMA DE SAN LUIS POTOSI, SAN LUIS POTOSI, SAN LUIS POTOSI, Mexico* **4-10-4 MODELING IN BIOMEDICAL APPLICATIONS IV** **ROOM 230** *Session Organizer: Shanzhong (shawn) Duan, Saint Martin's University, Lacey, WA, United States* **1:15PM – Prediction of Thrombus Formation on the Wall by High Shear Blood Flows with Considering Concentration Transportation** **Technical Presentation.** IMECE2016-66689 – *Masaaki Tamagawa, Kyushu Inst. of Tech., Kitakyushu, Fukuoka, Japan* **1:36PM – Computational Model of Vestibular Fluid Response to Human Body Rotation** **Technical Paper Publication.** IMECE2016-67035 – *Marie-Urlima Okeke, Sonya Smith, Howard University, Washington, DC, United States, Werner M. Graf, Howard University College of Medicine, Washington, DC, United States* **1:57PM – Promoting Suitable Hemodynamic Conditions for Thrombus Formation in Abdominal Aortic Aneurysms with Multilayer Stents** **Technical Paper Publication.** IMECE2016-67460 – *Juan Stockle, University of Toronto, Toronto, ON, Canada, David A. Romero, Cristina H. Amon, Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, ON, Canada* **2:18PM – Numerical Simulations Of Peristalsis In Unobstructed Human Ureters** **Technical Paper Publication.** IMECE2016-65999 – *Ahmed Tasnub Takaddus, The University of Akron, Akron, OH, United States, Prashanta Gautam, Abhilash J. Chandy, University of Akron, Akron, OH, United States*

TIME

3:30PM–5:15PM

4-2-5 DAMAGE BIOMECHANICS V: EXPERIMENTAL ASSESSMENTS

ROOM 228A

Session Organizer: Ghatu Subhash, Univ of Florida - Gainesville, Gainesville, FL, United States

Session Co-Organizer: Reuben Kraft, The Pennsylvania State University, University Park, PA, United States

3:30PM – Effects of anatomical site and loading rate on tensile behavior of fiber bundles isolated from nerve roots
Technical Paper Publication. IMECE2016-66016 – *Atsutaka Tamura, Mizuki Sakaya, Takao Koide, Tottori University, Tottori, Japan*

3:51PM – Development of an Experiment to Visualize Air Flow in Surrogate Ballistic Wounds
Technical Presentation. IMECE2016-67967 – *Karim H. Muci-Kuchler, John L. Ziadat, Aaron Bost, South Dakota School of Mines and Technology, Rapid City, SD, United States*

4:12PM – Buckling Analysis of Hollow Microneedle in Transdermal Drug Delivery
Technical Paper Publication. IMECE2016-65083 – *N Raja Rajeswari, Saveetha Engineering College, Chennai, India, P Malliga, Anna University, Chennai, India, B K Gnanavel, Saveetha Engineering College, Anna University, Chennai, Tamil Nadu, India*

4:33PM – Full depth cartilage change detection in wear process using Raman spectroscopy
Technical Presentation. IMECE2016-66117 – *Lingying Tong, Tsinghua University, beijing, beijing, China, Zhixiu Hao, Chao Wan, Tsinghua Univer, beijing, China, Shizhu Wen, liying xiao, Tsinghua University, beijing, China*

4:54PM – Behavior Evaluation of Deformation, Damage and Fracture of Biological Soft Tissue by using Indentation Test
Technical Paper Publication. IMECE2016-66672 – *Atsushi Sakuma, Kyoto Institute of Technology, Kyoto, Kyoto, Japan, Katsuya IGARASHI, Tokyo University of Agriculture and Technology, Koganei-shi, Tokyo, Japan*

4-7-2 DYNAMICS AND CONTROL OF BIOMECHANICAL SYSTEMS II

ROOM 229B

Session Organizer: Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States

Session Co-Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States, Davide Piovesan, Gannon University, Erie, PA, United States, Anne Schmitz, Gannon University, Erie, PA, United States

3:30PM – Association between Impact Peak and Hip Flexor Activity during Running
Technical Paper Publication. IMECE2016-65374 – *Anne Schmitz, Gannon University, Erie, PA, United States, Jaclyn Norberg, Salem State University, Salem, MD, United States, Kristen Snarski, Davide Piovesan, Gannon University, Erie, PA, United States*

3:51PM – Powering a Lower Limb Exoskeleton using Pneumatic Actuator Muscles
Technical Paper Publication. IMECE2016-65298 – *Jonathan Chambers, Craig R. Carignan, University of Maryland, College Park, MD, United States, Norman Wereley, Univ Of Maryland, College Park, MD, United States*

4:12PM – Sensor-Fusion Approach for the Characterization of Human Walking
Technical Paper Publication. IMECE2016-66049 – *Felipe Martinez, UASLP, San Luis Potosí, SLP, Mexico, Lillian A. Blum, Gannon University, ERIE, PA, United States, Mauro Maya, Antonio Cardenas, UASLP, San Luis Potosí, SLP, Mexico, Davide Piovesan, Gannon University, Erie, PA, United States, Roberto Bortoletto, University of Padova, Padova, Italy*

4:33PM – On Squat Jump Exercise
Technical Paper Publication. IMECE2016-66854 – *Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States, Ricardo Moreno, UT-RGV, Edinburg, TX, United States*

4-10-5 MODELING IN BIOMEDICAL APPLICATIONS V

ROOM 230

Session Organizer: Yi Hua, University of Nebraska-Lincoln, Lincoln, NE, United States

Session Co-Organizer: Shanzhong (shawn) Duan, Saint Martin's University, Lacey, WA, United States

3:30PM – A Correlative CFD Study Between Recirculation Area and FPM in VHC Design
Technical Paper Publication. IMECE2016-67329 – *Ricardo Oliveira, Senhorinha Teixeira, University of Minho, Guimaraes, Portugal, Helena C. Marques, University of Lisbon, Lisbon, Portugal, Jose Teixeira, University of Minho, Guimaraes, Portugal*

3:51PM – Influence of Cerebral Vasculatures on the Dynamic Response of Brain Tissues
Technical Presentation. IMECE2016-67428 – *Yi Hua, Shengmao Lin, Linxia Gu, University of Nebraska-Lincoln, Lincoln, NE, United States*

4:12PM – Coupled RapidCell and Lattice Boltzmann Models to Simulate Motility of Engineered Chemotactic Particles in Geometrically Complex Flow Domains
Technical Presentation. IMECE2016-67489 – *Hakan Basagaoglu, Southwest Research Institute, San Antonio, TX, United States, Hoa Nguyen, Trinity University, San Antonio, TX, United States*

4:33PM – Numerical Simulation of Arterial Pressure Variation Due to Atherosclerosis and its Effects Using Fluid Structure Interaction
Technical Paper Publication. IMECE2016-67968 – *Rimsha Binte Jamal, Urooba Zubairi, Madeeha Sadia, NED University of Engineering & Technology, Karachi, Pakistan, Umair Bin Asim, University of Aberdeen, Aberdeen, Scotland, Rashid Khan, Al Imam Mohammad Ibn Saud Islamic University, Riyadh, Saudi Arabia*

4-14-1 BIOTECHNOLOGY AND BIOENGINEERING

ROOM 228B

Session Organizer: Douglas Dow, Wentworth Institute of Technology, Sharon, MA, United States

Session Co-Organizer: Milind Rao, BD Medical, Franklin Lakes, NJ, United States

3:30PM – Modeling and Measurement of Temperature Distributions in Bone Drilling
Technical Paper Publication. IMECE2016-66129 – *JuEun Lee, University of the Pacific, Stockton, CA, United States, Yoed Rabin, Carnegie Mellon University, Pittsburgh, PA, United States, Burak Ozdoganlar, Carnegie Mellon Univ, Pittsburgh, PA, United States*

3:51PM – Hierarchical Engineering Model of the Human Body
Technical Paper Publication. IMECE2016-66253 – *Somayajulu Karamchetty, Independent Consultant (Self Employed), Potomac, MD, United States*

4:12PM – Nonlinear Characterization of Heart Rate Variability in Normal Sinus Rhythm, Atrial Fibrillation and Congestive Heart Failure
Technical Paper Publication. IMECE2016-66836 – *Syed Hasan Zaidi, Centre for Advanced Studies in Engineering, Islamabad, Pakistan, Imran Akhtar, National University of Sciences & Technology, Rawalpindi, Pakistan, Syed Imran Majeed, National University of Medical Sciences (NUMS), Rawalpindi, Pakistan, Tahir Zaidi, Muhammad Saif Ullah Khalid, National University of Sciences & Technology, Rawalpindi, Pakistan*

4:33PM – Engineering of Friction and Adhesion in Hemocompatible Devices by Micro-patterning of Nonplanar Soft Surfaces
Technical Presentation. IMECE2016-67749 – *Seyedhamidreza Alaie, Sanlin Robinson, Amit Datye, Amir Ali Amiri Moghadam, Jiaqi Yao, James Min, Bobak Mosadegh, Simon Dunham, Weill Cornell Medicine, New York, NY, United States*

4:54PM – Multiple Sclerosis Symptom Analyzer
Technical Paper Publication. IMECE2016-66217 – *Brittany Guerrera, Samantha Farrow, Gloria Zeng, Wentworth Institute of Technology, Boston, MA, United States, Sally Shady, Wentworth Institute of Technology, Windham, NH, United States*

TIME		
10:30AM–12:15PM	**5-1-2 PLENARY PRESENTATION PROFESSOR LAWRIE VIRGIN, DUKE UNIVERSITY** **ROOM 121B** *Session Organizer: Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States* *Session Co-Organizer: Marco Amabili, McGill University, Montreal, QC, Canada, Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States* **10:30AM – The Dynamics of Very Flexible Structures** **Track Plenary Presentation.** IMECE2016-68764 – *Lawrie Virgin, Duke University, Durham, NC, United States*	
1:30PM–3:15PM	**5-2-1 GENERAL TOPICS I** **ROOM 123** *Session Organizer: Vidya Nandikolla, Dept Mechanical Engineering, Cal State University Northridge, Northridge, CA, United States* *Session Co-Organizer: Ying Huang, North Dakota State University, Fargo, ND, United States* **1:30PM – Modeling of an Inertially Stabilized Camera System using Gimbal Platform** **Technical Paper Publication.** IMECE2016-65343 – *Vidya Nandikolla, Gary Haggart, Dept Mechanical Engineering, Cal State University Northridge, Northridge, CA, United States, Ruting Jia, Electrical and Computer Engineering, Cal State University Northridge, Northridge, CA, United States* **1:51PM – An Analytical and Geometrical Study of the Dzhanibekov and Tennis Racket Phenomena** **Technical Paper Publication.** IMECE2016-65570 – *Oscar Rios, Takeyuki Ono, University of California, San Diego, La Jolla, CA, United States, Hidenori Murakami, University of California, San Diego, San Diego, CA, United States, Thomas J. Impelluso, Bergen University College, Bergen, Norway* **2:12PM – Study on the Random Loads and Random Vibration Response of Ring Die Pellet Mill** **Technical Paper Publication.** IMECE2016-65981 – *KAI WU, YU SUN, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, chunping cao, Nanjing University of Science and Technology, Nanjing city, Jiangsu Province, China, Dong Yang, Nanjing University of Science and Technology, Nanjing, China* **2:33PM – Aircraft turbine vibration and sound signatures for Synthetic Kerosene Fuel** **Technical Paper Publication.** IMECE2016-67000 – *Valentin Soloiu, Emerald Simons, Aliyah Knowles, Martin Muinos, Georgia Southern University, Statesboro, GA, United States*	**5-3-1** **NONLINEAR DYNAMICS, CONTROL, AND STOCHASTIC MECHANICS I** **ROOM 122B** *Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States* *Session Co-Organizer: Marco Amabili, McGill University, Montreal, QC, Canada, Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States* **1:30PM – Frequency Response of Electrostatically Actuated MEMS Resonator Under Superharmonic Resonance Using MMS** **Technical Paper Publication.** IMECE2016-66816 – *Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States, Christian Reyes, UT-RGV, Edinburg, TX, United States* **1:51PM – EXPERIMENTS AND SIMULATIONS IN TRAVELLING WAVE AND NON-STATIONAY NONLINEAR VIBRATIONS OF CIRCULAR CYLINDRICAL SHELLS** **Technical Paper Publication.** IMECE2016-66315 – *Marco Amabili, Prabakaran Balasubramanian, Giovanni Ferrari, McGill University, Montreal, QC, Canada* **2:12PM – Chaotic behavior in the double pendulum under parametric resonance** **Technical Paper Publication.** IMECE2016-65711 – *Rafael Henrique Avanço, University of Sao Paulo, Sao Carlos, Brazil, Helio Aparecido Navarro, University of São Paulo, São Carlos, SP, Brazil, Airton Nabarrete, Instituto Tecnológico de Aeronáutica - ITA, São José dos Campos, Brazil, Jose Manoel Balthazar, Aeronautic Institute of Technology, São José dos CAmpos, Brazil, Angelo Marcelo Tusset, UTFPR, Ponta Grossa, Brazil* **2:33PM – ANALYTICAL BIFURCATION TREES OF A PERIODICALLY EXCITED PENDULUM** **Technical Paper Publication.** IMECE2016-65916 – *Yu Guo, Midwestern State University, Wichita Falls, TX, United States, Albert Luo, Southern Illinois Univ, Edwardsville, IL, United States* **2:54PM – Non-parametric Identification of Asymmetric Signals and Characterization of a Class of Non-linear Systems based on Frequency Modulation** **Technical Paper Publication.** IMECE2016-65229 – *Vaclav Ondra, Imperial College London, London, United Kingdom, Ibrahim Sever, Rolls-royce Plc, Derby De24 8bj, United Kingdom, Christoph Schwingshackl, Imperial College, London, United Kingdom*

TIME

1:30PM–3:15PM

5-4-1 DESIGN AND CONTROL OF ROBOTS, MECHANISMS AND STRUCTURES I

ROOM 122C

Session Organizer: Ho-Hoon Lee, Southeastern LA University, Hammond, LA, United States

Session Co-Organizer: Akin Tatoglu, University of Hartford, West Hartford, CT, United States

1:30PM – ADAPTIVE GIMBAL CONTROL APPROACH TO ACCOUNT FOR POWER CONSUMPTION AND LANDMARK TRACKING QUALITY
Technical Paper Publication. IMECE2016-65718 – *Akin Tatoglu, Claudio Campana, University of Hartford, West Hartford, CT, United States*

1:51PM – A Bionic Test-Bed for Sensing and Balance Augmentation in Biological Applications
Technical Paper Publication. IMECE2016-67673 – *Nazita Taghavi, Iowa State University of Science and Technology, Ames, IA, United States, Greg R. Luecke, Iowa State Univ, Ames, IA, United States, Nicholas D. Jeffery, Iowa State University of Science and Technology, Ames, IA, United States*

2:12PM – Mode transition control for a multimode power-split hybrid electric vehicle
Technical Paper Publication. IMECE2016-66926 – *Xiang Changle, Beijing Intsitute Of Technology, Beijing 100081, Beijing, China, Wei He, Yue Ma, Weida Wang, Bin Xu, Beijing Institute of Technology, Beijing, Beijing, China*

2:33PM – Control of an Aerial Manipulator with an On-Board Balancing Mechanism
Technical Paper Publication. IMECE2016-66976 – *Jameson Lee, Zachary Cook, Alexander Barzilov, Woosoon Yim, University of Nevada Las Vegas, Las Vegas, NV, United States*

2:54PM – A Leader-Following Formation Control of a Group of Mixed-Type Mobile Robots
Technical Paper Publication. IMECE2016-66233 – *Ho-Hoon Lee, Southeastern LA University, Hammond, LA, United States, Cris Koutsougeras, Southeastern Louisiana University, Hammond, LA, United States*

5-8-1 NOVEL NOISE AND VIBRATION CONTROL IN VEHICLES

ROOM 129B

Session Organizer: Huancai Lu, Zhejiang University of Technology, Hangzhou, Zhejiang Province, China

Session Co-Organizer: Sudhir Kaul, Western Carolina University, Cullowhee, NC, United States, Ahmad Kashani, University of Dayton, Dayton, OH, United States, Chin-an Tan, Wayne State Univ, Detroit, MI, United States

1:30PM – Design and simulation of semi active suspension of road vehicle for rollover prevention
Technical Paper Publication. IMECE2016-65468 – *Lalitkumar Jugulkar, Rajarambapu Institute of Technology, Sakharale, India, Shankar Singh, Sant Longowal Institute of Engineering and Technology,, Sangrur, India, Suresh Sawant, Rajarambapu Institute of Technology, Sakharale, India*

1:51PM – Analysis and Control of the 1st Order Interior Noise and Vibration Induced by Driveline Imbalance for 4WD Vehicle
Technical Paper Publication. IMECE2016-65427 – *Yuanfeng Xia, Chongqing University and ChangAn Automobile Co., Ltd, Chongqing, China, Jian Pang, Rui Liu, Wenjuan Li, Jianchun Xu, Changan Automobile Co., Ltd, Chongqing, Chongqing, China*

2:12PM – Influence of fractional damping and time delay on Maxwell-Voigt model for vibration isolation
Technical Paper Publication. IMECE2016-65100 – *Sudhir Kaul, Western Carolina University, Cullowhee, NC, United States*

2:33PM – Active Control of Rear Subframe Vibration in Rear and All-Wheel Drive Vehicles
Technical Paper Publication. IMECE2016-66667 – *Jie Deng, Ahmad Kashani, University of Dayton, Dayton, OH, United States*

2:54PM – Design and Characterization of Energy Harvesting Shock Absorber with Linear Generator and Fluid Damper
Technical Presentation. IMECE2016-66828 – *Nitin Satpute, VIT, Pune, Pune, India, Lalitkumar Jugulkar, Suresh Sawant, Rajarambapu Institute of Technology, Sakharale, India, Shankar Singh, Sant Longowal Institute of Engineering and Technology,, Sangrur, India*

5-10-1 CONTROL OF SMART STRUCTURES AND STRUCTRONIC SYSTEMS

ROOM 131A

Session Organizer: Xinjie Wang, Nanjing University of Science and Technology, Nanjing, Jiangsu, China

1:30PM – Analytical and Experimental Studies of Flexoelectric Beam Control
Technical Paper Publication. IMECE2016-66527 – *Xufang Zhang, Zhejiang University, Hangzhou, China, Huiyu Li, Zhejiang Institute of Mechanical & Electrical Engineering, Hangzhou, China, Hornsen(HS) TZOU, Univ Of Kentucky, Lexington, KY, United States*

1:51PM – EXPERIMENTAL RESEARCH ON DEFLECTION CONTROL OF CANTILEVER BEAM BASED ON HYBRID PHOTOVOLTAIC/PIEZOELECTRIC ACTUATION MECHANISM
Technical Paper Publication. IMECE2016-65629 – *Fei Lu, Nanjing University of Science and Technology, JiangSu, China, Xinjie Wang, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, YaFeng Liu, NanJing University of Science and Technology, NanJing, JiangSu, China*

2:12PM – Control of Parabolic Cylindrical Shell Panels with Light-activated Shape Memory Actuators
Technical Paper Publication. IMECE2016-66477 – *Huiyu Li, Zhejiang Institute of Mechanical & Electrical Engineering,, Hangzhou, China, Xufang Zhang, Zhejiang University, Hangzhou, China, Hornsen(HS) TZOU, Univ Of Kentucky, Lexington, KY, United States*

2:33PM – CLOSED-LOOP CONTROL OF PHOTOVOLTAGE FOR PHOTOVOLTAIC-ELECTROSTATIC DRIVEN SERVO SYSTEM
Technical Paper Publication. IMECE2016-65628 – *Xinjie Wang, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, Fei Lu, Nanjing University of Science and Technology, JiangSu, China, J.H. Huang, Nanjing University of Science and Technology, Nanjing, China*

2:54PM – Experiments on Quasi-Static and Dynamic Control of a PVDF Laminated Membrane-Like Mirror
Technical Paper Publication. IMECE2016-66265 – *Yifan Lu, Honghao Yue, Zongquan Deng, Harbin Institute of Technology, Harbin, Heilongjiang, China, Hornsen(HS) TZOU, Univ Of Kentucky, Lexington, KY, United States*

5-12-1 MULTIBODY DYNAMIC SYSTEMS AND APPLICATIONS I

ROOM 129A

Session Organizer: Shanzhong (shawn) Duan, Saint Martin's University, Lacey, WA, United States

Session Co-Organizer: William Prescott, Siemens Product Lifecycle Management, Coralville, IA, United States

1:30PM – Real-time Simulation of Flexible Multibody Models
Technical Paper Publication. IMECE2016-67060 – *William Prescott, Siemens Product Lifecycle Management, Coralville, IA, United States*

1:51PM – Combined Finite Element and Multi-body Dynamics Analysis of Effects of Hydraulic Cylinder Movement on Plough-breast of Horizontally Reversible Plough
Technical Paper Publication. IMECE2016-65058 – *Zhu Lin, Anhui Agriculture University, Hefei City, Anhui Provence, China, Shuang-Shuang Peng, Xi Cheng, AnHui Agricultural University, He Fei, China, Tien-Chien Jen, University of Johannesburg, Johannesburg, Gauteng, South Africa*

2:12PM – Experimental and theoretical modeling of cargo sloshing during braking
Technical Paper Publication. IMECE2016-65698 – *Jose Antonio Romero Navarrete, Queretaro Autonomous University, San Juan Del Rio, Aro., Mexico, Frank Otremba, Federal Institute For Material Research and Testing, Berlin, Germany*

2:33PM – Multibody Dynamics Model of a Diesel Engine and Timing Gear Train with Experimental Validation
Technical Paper Publication. IMECE2016-65900 – *Adam D. Foltz, Indiana University Purdue University Indianapolis, Indianapolis, IN, United States, Tamer Wasfy, Advanced Science and Automation Corp., Indianapolis, IN, United States, Erik Ostergaard, Ilya L Piraner, Cummins Inc., Columbus, IN, United States*

2:54PM – RESEARCH ON THE SIMULATION METHOD OF DYNAMIC RESPONSE OF HIGH VOLTAGE CIRCUIT BREAKER DURING OPERATION
Technical Paper Publication. IMECE2016-66357 – *Jinggang Yang, Ke Zhao, Jiangsu Electric Power Company Research Institute of State Grid, Nanjing, China, Yue Pan, Xiandong Liu, Beihang University, Beijing, China*

TIME	
3:45PM–5:30PM	

5-2-2 GENERAL TOPICS II

ROOM 123

Session Organizer: Dan Zhang, York University, Toronto, ON, Canada

Session Co-Organizer: Ying Huang, North Dakota State University, Fargo, ND, United States

3:45PM – OPTIMIZATION AND STIFFNESS PERFORMANCE ANALYSIS FOR 3-DOF SPATIAL AND SPHERICAL PARALLEL MECHANISMS
Technical Paper Publication. IMECE2016-66682 – *Dan Zhang, York University, Toronto, ON, Canada, Bin Wei, University of Ontario Institute of Technology, Oshawa, ON, Canada*

4:06PM – Performance evaluation of thrust washer bearings using a customized bench scale test rig
Technical Paper Publication. IMECE2016-67053 – *Muhammad Ali, Khairul Alam, Ohio University, Athens, OH, United States, Junghun Choi, Georgia Southern University, Statesboro, GA, United States, Jay Wilhelm, Kyle Myers, Sean Jenson, Mike Brooksbank, Ohio University, Athens, OH, United States, Joseph Gillespie, Miba Bearings Us Llc, Mcconnelsville, OH, United States, Richard Walker, Miba Bearings US, LLC, McConnelsville, OH, United States*

4:27PM – ACTIVE CONTROL OF VISCOELASTIC SYSTEMS BY THE METHOD OF RECEPTANCE
Technical Paper Publication. IMECE2016-67725 – *Kumar Singh, Xiaoxuan Ling, Miami University, Oxford, OH, United States*

4:48PM – A Stochastic Multivariate Validation Method for Dynamic Systems
Technical Paper Publication. IMECE2016-67690 – *Jun Lu, Zhenfei Zhan, State Key Laboratory of Mechanical Transmission, Chongqing University, Chongqing, China, Pan Wang, College of Automotive Engineering, Chongqing University, Chongqing, China, Yudong Fang, Junqi Yang, State Key Laboratory of Mechanical Transmission, Chongqing University, Chongqing, Chongqing, China*

5:09PM – Simulation of Single Cutter Experiments through Finite Element Method
Technical Presentation. IMECE2016-65787 – *Xu Wang, China university of petroleum (Beijing), Beijing, China, Zhenquan Wang, China University of Petroleum(BeiJing), Beijing, China, Deguo Wang, China University of Petroleum, unk., China*

5-3-2 NONLINEAR DYNAMICS, CONTROL, AND STOCHASTIC MECHANICS II

ROOM 122B

Session Organizer: Marco Amabili, McGill University, Montreal, QC, Canada

Session Co-Organizer: Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States, Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States

3:45PM – THEORETICAL AND EXPERIMENTAL STUDY ON LARGE AMPLITUDE VIBRATIONS OF CLAMPED VISCOELASTIC PLATES
Technical Paper Publication. IMECE2016-67560 – *Prabakaran Balasubramanian, Marco Amabili, Giovanni Ferrari, McGill University, Montreal, QC, Canada, Zenon J. Guzman N. del Prado, Federal University of Goias, Goias, Brazil*

4:06PM – ON DYNAMIC MODELLING OF A COMPRESSED AIR ENGINE WITH CONNECTING-ROD-CRANK TO CONTROL ANGULAR POSITION OF OSCILLATING ROTATION
Technical Paper Publication. IMECE2016-66192 – *Alexandre C. Alves, Faculty of Mechanical Engineering UNESP Bauru, Bauru, São Paulo, Brazil, Jose Manoel Balthazar, Aeronautic Institute of Technology, São José dos CAmpos, Brazil, Angelo Marcelo Tusset, Department of Eletronics of Federal Technological University of Paraná, Ponta Grossa, Paraná, Brazil, Brazil, Rodrigo Tumolin Rocha, Faculty of Mechanical Engineering UNESP Bauru, Bauru, São Paulo, Brazil, Atila M. Bueno, Sao Paulo State University - UNESP, Sorocaba, Brazil*

4:27PM – GALLOPING VIBRATION OF A NONLINEAR CABLE THROUGH A TWO DEGREE-OF-FREEDOM OSCILLATOR
Technical Paper Publication. IMECE2016-66173 – *Bo YU, Southern Illinois University Edwardsville, Edwardsville, IL, United States, Albert Luo, Southern Illinois Univ, Edwardsville, IL, United States*

4:48PM – The Fluid-solid Coupling Aerodynamic Calculation and Nonlinear Dynamics Research of the Telescopic Wing
Technical Paper Publication. IMECE2016-65307 – *XiangYing Guo, Lulu Chen, Beijing University Of Technology, Beijing, China, Wei Zhang, College of Mechanical Engineering,Beijing University Of Technology, Beijing, China, Shuping Chen, Xiamen University of Technology, Xiamen, China*

5:09PM – Nonlinear Vibration of Rigid-flexible Coupling System of a Rotating Blade
Technical Paper Publication. IMECE2016-65475 – *Gen Liu, Beijing University of Technology, Beijing, China, Wei Zhang, Qian Wang, College of Mechanical Engineering,Beijing University Of Technology, Beijing, China, Jieyu Ding, Qingdao University, Qingdao, China*

5-4-2 DESIGN AND CONTROL OF ROBOTS, MECHANISMS AND STRUCTURES II

ROOM 122C

Session Organizer: Greg R. Luecke, Iowa State Univ, Ames, IA, United States

Session Co-Organizer: Praveen Shankar, California State University - Long Beach, Long Beach, CA, United States

3:45PM – Modeling of a Small Remotely Operated Underwater Vehicle for Autonomous Navigation and Control
Technical Paper Publication. IMECE2016-65520 – *Wilmer Rustrian, California State University of Long Beach, Hawthorne, CA, United States, Praveen Shankar, California State University - Long Beach, Long Beach, CA, United States*

4:06PM – Advance Model For Capturing Real Life Human Gait Process
Technical Paper Publication. IMECE2016-66893 – *Ranjita Dash, IIT Gandhinagar, Gandhinagar, Gujarat, India, Arash Tourki Samaei, Ramuel Safarkoolan, University of California, Merced, Merced, CA, United States, Anurag Chandnani, IIT Gandhinagar, Gandhinagar, Gujurat, India*

4:27PM – Utilization of Modal Test Techniques for Quality Control of Mass Manufactured Parts
Technical Paper Publication. IMECE2016-65908 – *Caner Gencoglu, Middle East Technical University, Ankara, Ankara, Turkey, Asli A., Gürel, Ege C., Koc, Roketsan Inc, Ankara, Ankara, Turkey*

4:48PM – Computed Torque Control of a Two-DOF Cable-suspended Parallel Mechanism
Technical Paper Publication. IMECE2016-66015 – *Zexiao Xie, Ben Ma, Ping Ren, Ocean University of China, Qingdao, Shandong, China*

5:09PM – Classical Control Design for a Gyroscopically Stabilized Inverted Pendulum
Technical Paper Publication. IMECE2016-65721 – *Greg R. Luecke, Iowa State Univ, Ames, IA, United States, Christopher Walck, Tayzu UAV Robotics, Urbandale, IA, United States*

TIME	
3:45PM–5:30PM	

5-7-1 FSI 1

ROOM 129A

Session Organizer: Marco Amabili, McGill University, Montreal, QC, Canada

Session Co-Organizer: Kostas Karazis, Areva NP, Lychburg, VA, United States

3:45PM – Nonlinear response of shells conveying pulsatile flow with pulse-wave propagation
Technical Paper Publication. IMECE2016-66840 – *Eleonora Tubaldi, Marco Amabili, Michael P. Paidoussis, McGill University, Montreal, QC, Canada*

4:06PM – IDENTIFICATION OF NONLINEAR DAMPING OF NUCLEAR REACTOR COMPONENTS IN CASE OF ONE-TO-ONE INTERNAL RESONANCE
Technical Paper Publication. IMECE2016-66311 – *Joachim Delannoy, Marco Amabili, McGill University, Montreal, QC, Canada, Brian Painter, Brett Matthews, AREVA, Inc., Lynchburg, VA, United States, Kostas Karazis, AREVA Inc., Lynchburg, VA, United States*

4:27PM – Comparison of tests and lattice-Boltzmann method simulations for the flow dynamics downstream a spacer grid subjected to axial flow
Technical Presentation. IMECE2016-66709 – *Todd H. Weisgraber, Lawrence Livermore National Laboratory, Livermore, CA, United States, Stuart Walsh, Lawrence Livermore Laboratory, Livermore, CA, United States, Anca Hatman, AREVA Inc., Lynchburg, VA, United States, Celine Lascar, AREVA GmbH, Erlangen, Germany, Dennis Gottuso, AREVA, Forest, VA, United States, Kostas Karazis, AREVA Inc., Lynchburg, VA, United States*

4:48PM – Study of Dynamic Liquid Motion and Pressure Forces Applied on the Walls of Partially Filled Moving Tank
Technical Paper Publication. IMECE2016-65170 – *Omar Noui, UQAC, Chicoutimi, QC, Canada, Mohamed Bouazara, University Of Quebec at Chicoutimi, Chicoutimi, QC, Canada, Marc Richard, Laval University, Quebec, QC, Canada*

5-8-2 NOVEL VIBRATION CONTROL AND DAMPING IN MACHINERY

ROOM 129B

Session Organizer: Huancai Lu, Zhejiang University of Technology, Hangzhou, Zhejiang Province, China

Session Co-Organizer: Robley Gordon Kirk, Virginia Tech, Christiansburg, VA, United States, Sudhir Kaul, Western Carolina University, Cullowhee, NC, United States, Chin-an Tan, Wayne State Univ, Detroit, MI, United States

3:45PM – First Order Perturbation Technique for Squeeze Film Dampers Executing Small Amplitude Circular Centered Orbits with Aero-Engine Application
Technical Paper Publication. IMECE2016-65784 – *Sina Hamzehlouia, Kamran Behdinan, University of Toronto, Toronto, ON, Canada*

4:06PM – Calibration of a Design Tool for Dynamic Characteristics of Gas Labyrinth Seals
Technical Paper Publication. IMECE2016-65221 – *Robley Gordon Kirk, Virginia Tech, Christiansburg, VA, United States, Wen Jeng Chen, Eigen Technologies, Inc.,, Davidson, NC, United States*

4:27PM – Vibration Reduction and Propulsion Efficiency Improvement of TBM through Optimized Shield Stiffness Control
Technical Paper Publication. IMECE2016-65462 – *YongZhen Mi, Han Hu, Hui Zheng, Shanghai Jiao Tong University, Shanghai, China*

4:48PM – Improving the Computational Efficiency of Stability Prediction in Milling Employing the Two-dimensional Bisection Method
Technical Paper Publication. IMECE2016-66512 – *Yakun Xie, Xiaojian Zhang, Sijie Yan, Han Ding, Huazhong University of Science and Technology, Wuhan City, Hubei Province, China*

5:09PM – A Vibration Compensation Method for Absolute Gravimeters
Technical Paper Publication. IMECE2016-66719 – *Guan Wang, Hua Hu, Kang Wu, Lijun Wang, Tsinghua University, Beijing, China*

5-10-2 DESIGN AND ANALYSIS OF SMART STRUCTURES AND STRUCTRONIC SYSTEMS

ROOM 131A

Session Organizer: Hua Li, Zhejiang University, Hangzhou, China

3:45PM – Research on Optical-Electrostatic Driving Micro-Mirror Based on PLZT Ceramic
Technical Paper Publication. IMECE2016-65319 – *YaFeng Liu, NanJing University of Science and Technology, NanJing, JiangSu, China, Xinjie Wang, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, Fei Lu, Nanjing University of Science and Technology, JiangSu, China, Dong Sun, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, Jiong Wang, Nanjing University of Science and Technology, JiangSu, China*

4:06PM – Study on Hot Forging Intelligent Production System for a Automotive Components
Technical Paper Publication. IMECE2016-66242 – *YU SUN, KAI WU, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, chunping cao, Nanjing University of Science and Technology, Nanjing city, Jiangsu Province, China*

4:27PM – Variable Airfoil Thickness Concept Based on a Pneumatic Flexible Cellular Wingbox
Technical Presentation. IMECE2016-68034 – *Jian Sun, Harbin Insitute of Technology, Harbin, China, Fabrizio Scarpa, Univ Of Bristol, Bristol Bs8 1tr, United Kingdom, Cristian Lira, Univ Of Bristol, Bristol, United Kingdom, Yanju Liu, Harbin Insitute of Technology, Harbin, China, Jinsong Leng, Harbin Institute of Technology, Harbin, China*

4:48PM – Strain-Mediated Electromagnetic Coupling in Magnetoelastic and Piezoelectric Materials: Mechanical Dipole Antennas
Technical Presentation. IMECE2016-68640 – *John Domann, Greg Carman, University of California, Los Angeles, Los Angeles, CA, United States*

5:09PM – DIAGONAL PIEZOELECTRIC SENSOR ON CYLINDRICAL SHELLS EXCITED BY PIEZOELECTRIC ACTUATOR
Technical Paper Publication. IMECE2016-66545 – *Nawei Shen, Shanghai jiaotong University, Shanghai, China, Xufang Zhang, Hua Li, Zhejiang University, Hangzhou, China*

5-12-2 MULTIBODY DYNAMIC SYSTEMS AND APPLICATIONS II

ROOM 131B

Session Organizer: Shanzhong (shawn) Duan, Saint Martin's University, Lacey, WA, United States

Session Co-Organizer: William Prescott, Siemens Product Lifecycle Management, Coralville, IA, United States

3:45PM – Model of a Gyroscopic Roll Stabilizer with Preliminary Experiments
Technical Paper Publication. IMECE2016-67840 – *Oscar Rios, Ardavan Amini, University of California, San Diego, La Jolla, CA, United States*

4:06PM – The Contact Dynamic Modeling and Analysis Based on Spline Assembly Feature Information
Technical Paper Publication. IMECE2016-66229 – *Yu Wang, Shouwen Yao, Qingdong Yan, Jilin Liu, Qinghua Zhang, Beijing Institute of Technology, Beijing, Beijing, China*

4:27PM – A Multibody Dynamics Approach for Vibration Analysis of Horizontal Axis Wind Turbine Blades
Technical Paper Publication. IMECE2016-66365 – *Songyi Jiang, Martinrea Automotive Parts Co., Ltd., Shanghai, China, Shanzhong (shawn) Duan, Saint Martin's University, Lacey, WA, United States*

4:48PM – A simplified exact compliance normal directional contact model
Technical Paper Publication. IMECE2016-66492 – *Arnab Banerjee, Avishek Chanda, The University of Auckland, Auckland, Auckland, New Zealand, Raj Das, University of Auckland; Dept of Mechanical Engrg, Auckland, New Zealand*

5:09PM – UNCERTAITNY ANLYSIS OF NONDETERMINISTIC MULTYBODY SYSTEMS
Technical Paper Publication. IMECE2016-67362 – *Sahand Sabet, The University of Arizona, Toucson, AZ, United States, Mohammad Poursina, University of Arizona, Tucson, AZ, United States*

TIME	
10:30AM–12:15PM	**5-1-1 PLENARY PRESENTATION PROFESSOR DEWEY H. HODGES, GEORGIA INSTITUTE OF TECHNOLOGY** **ROOM 123** *Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States* *Session Co-Organizer: Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States, Marco Amabili, McGill University, Montreal, QC, Canada* **10:30AM – Unified Approach to Accurate and Efficient Modeling of Composite Beams and Plates** **Track Plenary Presentation.** IMECE2016-68763 – *Dewey H. Hodges, Georgia Inst Of Tech, Atlanta, GA, United States*
1:30PM–3:15PM	**5-2-3 GENERAL TOPICS III** **ROOM 129B** *Session Organizer: Xiangqing Tangpong, North Dakota State University, Fargo, ND, United States* *Session Co-Organizer: Ying Huang, North Dakota State University, Fargo, ND, United States* **1:30PM – A Generalized Solution on the Static Characteristics of Short Hydrodynamic Journal Bearings Using Harmonic Components** **Technical Paper Publication.** IMECE2016-65509 – *Baisong Yang, JIALE TIAN, Jian Zhou, Lie Yu, Xi'an Jiaotong University, Xi'an, China* **1:51PM – SELF-POWERED AND BIO-INSPIRED DYNAMIC SYSTEMS: RESEARCH AND EDUCATION** **Technical Paper Publication.** IMECE2016-65276 – *Farbod Khoshnoud, Ibrahim Esat, Richard H.C. Bonser, Brunel University London, London, United Kingdom, Clarence De Silva, University of British Columbia, Vancouver, BC, Canada, Michael M. McKerns, Houman Owhadi, California Institute of Technology, Pasadena, CA, United States* **2:12PM – Experimental and Finite Element Analysis for Bending of HDPE Pallets** **Technical Presentation.** IMECE2016-65290 – *Enayat Mahajerin, Saginaw Valley State Univ, Saginaw, MI, United States, Gary Burgess, Michigan State University, East Lansing, MI, United States* **2:33PM – Dynamic Response of a Railcar Due to Unsupported Tracks** **Technical Presentation.** IMECE2016-65291 – *Enayat Mahajerin, Saginaw Valley State Univ, Saginaw, MI, United States, Gary Burgess, Michigan State University, East Lansing, MI, United States* **2:54PM – A Survey On Approach For Fault Diagnosis In Axial Piston Pumps** **Technical Paper Publication.** IMECE2016-66789 – *Jessica Gissella Maradey Lázaro, Universidad Autónoma de Bucaramanga, Bucaramanga, Santander, Colombia, Carlos Borrás Pinilla, Universidad Industrial de Santander, Bucaramanga, Colombia, Sebastian Roa Prada, Universidad Autónoma De Bucaramanga, Santander, Santander, Colombia* **5-3-3 NONLINEAR DYNAMICS, CONTROL, AND STOCHASTIC MECHANICS III** **ROOM 123** *Session Organizer: Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States* *Session Co-Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States, Jose Manoel Balthazar, Aeronautic Institute of Technology, São José dos CAmpos, Brazil* **1:30PM – ON PERIODIC MOTIONS IN THE FIRST-ORDER NONLINEAR SYSTEMS** **Technical Paper Publication.** IMECE2016-66219 – *Albert Luo, Southern Illinois Univ, Edwardsville, IL, United States, YEYIN XU, Harbin Institute of Technology, Harbin, Heilongjiang, China, Zhaobo Chen, Harbin Inst Of Tech, Harbin, Heilongjiang, China* **1:51PM – ON TIME-DELAY EFFECTS ON PERIOD-1 MOTIONS IN A PERIODICALLY FORCED, TIME-DELAYED, DUFFING OSCILLATOR** **Technical Paper Publication.** IMECE2016-66198 – *Albert Luo, Southern Illinois Univ, Edwardsville, IL, United States, Siyuan Xing, Southern Illinois University Edwardsville, Edwardsville, IL, United States* **2:12PM – ANALYSIS OF THE ATTITUDE OF A GYROSCOPE CONTROLLED WITH JOINT ACTUATION** **Technical Paper Publication.** IMECE2016-65757 – *Marcelo Pereira, Hans I. Weber, PUC-Rio, Rio de Janeiro, Rio de Janeiro, Brazil, Danny Hernán Z. Carrera, INPE, São José dos Campos, SP, Brazil* **2:33PM – A Novel Parameter Identification Method for Tire Models** **Technical Paper Publication.** IMECE2016-68202 – *Junzhao Jiang, Jianwei Lu, Jinhui Li, Hefei University of Technology, Hefei, China, Lei Li, AnHui Jianghuai Automobile Co.,Ltd, Hefei, China* **2:54PM – Position Control of a Manipulator Robotic Arm considering Flexible Joints driven by a DC Motor and a Controlled Torque by a MR-Brak** **Technical Paper Publication.** IMECE2016-66235 – *Jeferson J. Lima, Department of Eletronics of UTFPR - Federal Technological University of Parana, Ponta Grossa, Parana, Brazil, Rodrigo Tumolin Rocha, Faculty of Mechanical Engineering UNESP Bauru, Bauru, São Paulo, Brazil, Frederich C. Janzen, UTFPR - Federal Technological University of Parana, Ponta Grossa, Parana, Brazil, Angelo Marcelo Tusset, Department of Eletronics of Federal Technological University of Paraná, Ponta Grossa, Paraná, Brazil, Brazil, Dailhane G. Bassinello, Department of Electrical Engineering UNESP - São Paulo State University, Bauru, SP, SP, Brazil, Jose Manoel Balthazar, Aeronautic Institute of Technology, São José dos CAmpos, Brazil*

TIME

1:30PM–3:15PM

5-4-3 DESIGN AND CONTROL OF ROBOTS, MECHANISMS AND STRUCTURES III

ROOM 129A

Session Organizer: Julie Reyer, Bradley University, Peoria, IL, United States

Session Co-Organizer: Hong Zhou, Texas A&M University-Kingsville, Kingsville, TX, United States

1:30PM – Optimal Linkage Shapes Of Planar Mechanisms Using Topology Optimization
Technical Paper Publication. IMECE2016-65186 – *Nathan Berge, Matthew Campbell, Oregon State University, Corvallis, OR, United States*

1:51PM – Optimization on Layout and Processing Route of Dual-robot Machining Center for Large Car Dashboard
Technical Paper Publication. IMECE2016-65579 – *chunping cao, Nanjing University of Science and Technology, Nanjing city, Jiangsu Province, China, KAI WU, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, Jun Wang, XX, XX, WI, United States, YU SUN, Nanjing University of Science and Technology, Nanjing, Jiangsu, China*

2:12PM – Modelling of a Magnetorheological Fluid Knee in a Prosthetic Leg
Technical Paper Publication. IMECE2016-67798 – *The Nguyen, Saurabh Bapat, Xinli Wang, California State University Fresno, Fresno, CA, United States*

2:33PM – Development of Active Mechanical Models for Flexible Robots to Duplicate the Motion of Inch Worms and Snakes
Technical Paper Publication. IMECE2016-65550 – *Oscar Rios, Takeyuki Ono, University of California, San Diego, La Jolla, CA, United States, Hidenori Murakami, University of California, San Diego, San Diego, CA, United States*

2:54PM – Design, Development, and Analysis of a Hemispherical Singularity Drive System for Instantaneously Omnidirectional Motion and Kinematic Isotropy
Technical Paper Publication. IMECE2016-67834 – *Elliott C. Clarke, Bryan J. Fite, Julie Reyer, Bradley University, Peoria, IL, United States*

5-7-2 FSI 2

ROOM 131A

Session Organizer: Marco Amabili, McGill University, Montreal, QC, Canada

Session Co-Organizer: Kostas Karazis, Areva NP, Lychburg, VA, United States

1:30PM – Analysis Of Umbilical In Steep Wave Conficuration For A Deepwater Miner System
Technical Paper Publication. IMECE2016-65159 – *Akash Nair, Panneer Selvam Rajamanickam, Indian Institute of Technology Madras, Chennai, India, Gnanaraj A.A, Gopakumar K, Ramadass G.A., National Institute of Ocean Technology, Chennai, India*

1:51PM – A Study of Adams-Bashforth method in the Finite Element Based Model for Nonlinear Water Waves
Technical Paper Publication. IMECE2016-66006 – *Sunny Kumar P., Krishnankutty P., Vendhan C. P., Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

2:12PM – NATURAL FREQUENCIES AND MODE SHAPES OF STATICALLY DEFORMED INCLINED RISERS
Technical Paper Publication. IMECE2016-66009 – *Feras Alfosail, KAUST, Dhahran 31261, Saudi Arabia, Ali Nayfeh, Virginia Polytechnic Institute & State University, Sterling, VA, United States, MOHAMMAD Younis, King Abdullah University of Science and Technology, THUWAL, Saudi Arabia*

2:33PM – Vibration reduction by active boundary control of flexible marine riser angle subjected to time-varying distributed force
Technical Paper Publication. IMECE2016-66974 – *Arasto Azimi, Amirkabir University Technology, Tehran, Iran, Firooz Bakhtiari-Nejad, Amirkabir University of Technology, Tehran, Iran*

2:54PM – Quantifying the Linearity of the Fluid Dynamics for Non-Contacting Annular Seals
Technical Paper Publication. IMECE2016-66804 – *Cori Watson, Unviersity of Virginia, Charlottesville, VA, United States, Wisher Paudel, University of Virginia, Chantilly, VA, United States, Brian Weaver, Houston G. Wood, University of Virginia, Charlottesville, VA, United States*

5-9-1 DYNAMICS AND CONTROL IN MICRO/NANO ENGINEERING I

ROOM 131B

Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States

Session Co-Organizer: Marco Amabili, McGill University, Montreal, QC, Canada, Farbod Alijani, Technical University of Delft, Delft, Netherlands

1:30PM – Dynamic Focusing of Electrospinning Process with Quadrupole Traps
Technical Paper Publication. IMECE2016-65405 – *Rudolf Kyselica, Eniko Enikov, University of Arizona, Tucson, AZ, United States*

1:51PM – Voltage Response of Primary Resonance of Coaxial Vibrations of Electrostatically Actuated DWCNT
Technical Paper Publication. IMECE2016-66220 – *Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States, Ezequiel Juarez, UT-RGV, Edinburg, TX, United States*

2:12PM – CLOSED-LOOP SUBSPACE IDENTIFICATION OF MIMO MOTION SYSTEM WITH FLEXIBLE STRUCTURES FOR MOTION CONTROL
Technical Paper Publication. IMECE2016-66430 – *Tao Huang, Kaiming Yang, Rong Cheng, Haihua Mu, Yu Zhu, Tsinghua University, Beijing, China*

2:33PM – Dynamic Pull-in of Electrically Actuated Micro Circular Membranes
Technical Paper Publication. IMECE2016-67336 – *Banafsheh Sajadi, Farbod Alijani, Hans/ J.F.L Goosen, Fred Van Keulen, Technical University of Delft, Delft, Zuid Holand, Netherlands*

2:54PM – Analysis of the Quality Factor and Response Time of Resonant Biosensor
Technical Paper Publication. IMECE2016-67439 – *Pezhman A. Hassanpour, Loyola Marymount University, Los Angeles, CA, United States*

5-11-1 NOVEL CONTROL OF DYNAMIC SYSTEM AND DESIGN I

ROOM 131C

Session Organizer: C. Steve Suh, Texas A&M University, College Station, TX, United States

Session Co-Organizer: Weidong Zhu, University of Maryland, Baltimore, MD, United States

1:30PM – A Smooth Multimode Command Shaping Considering the Effect of Hoisting
Technical Paper Publication. IMECE2016-65665 – *Khaled Alhazza, Kuwait University, Kuwait City, Kuwait*

1:51PM – UTILIZING REACTION WHEELS TO INCREASE MANEUVERABILITY AND LOCALIZATION ACCURACY OF A HOVERING ROBOT
Technical Paper Publication. IMECE2016-66164 – *Akin Tatoglu, Sean Greenhalge, Kevin Windheuser, University of Hartford, West Hartford, CT, United States*

2:12PM – Network Performance of Wireless Cloud-Based Robots with Local Processing
Technical Paper Publication. IMECE2016-66959 – *Biswanath Samanta, Christopher Reid, Christopher Kadlec, Georgia Southern University, Statesboro, GA, United States*

2:33PM – The Optimization of Time-Frequency Control ? Using Non-autonomous Time-Delay Feedback Systems as Example
Technical Paper Publication. IMECE2016-67170 – *Chi-Wei Kuo, C. Steve Suh, Texas A&M University, College Station, TX, United States*

2:54PM – Wavelet-Based Time-Frequency Control of a Flywheel Energy Storage System
Technical Paper Publication. IMECE2016-67682 – *Colby Lewallen, Texas A&M University, College Station, TX, United States*

TIME	
3:45PM–5:30PM	**5-3-4 NONLINEAR DYNAMICS, CONTROL, AND STOCHASTIC MECHANICS IV** **ROOM 123** *Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States* *Session Co-Organizer: Marco Amabili, McGill University, Montreal, QC, Canada, Albert Luo, Southern Illinois Univ, Edwardsville, IL, United States, Jose Manoel Balthazar, Aeronautic Institute of Technology, São José dos CAmpos, Brazil* **3:45PM – ANALYTICAL PERIOD-1 MOTIONS OF ONE ORDER DYNAMICAL SYSTEM WITH TWO PERIODICALLY FORCED OSCILLATOR AND QUADRATIC NONLINEARITY** **Technical Paper Publication.** IMECE2016-66812 – *guopeng zhou, hubei university of science and technology, xianning, Hubei, China, Albert Luo, Southern Illinois Univ, Edwardsville, IL, United States, naiding zhou, feng liang, Huazhong University of Science and Technology, wuhan, Hubei, China* **4:06PM – Analysis of Nonlinear Dynamics of a Rotor-Active Magnetic Bearing System with 16-Pole Legs** **Technical Paper Publication.** IMECE2016-65474 – *ruiqin Wu, Beijing University of Technology, Beijing, China, Wei Zhang, Qian Wang, College of Mechanical Engineering,Beijing University Of Technology, Beijing, China, Jieyu Ding, Qingdao University, Qingdao, China* **4:27PM – The effects of multi-mesh tooth profile modifications on planetary gear vibration** **Technical Paper Publication.** IMECE2016-65780 – *Chao Xun, Xinhua Long, Hongxing Hua, Shanghai Jiao Tong University, Shanghai, Shanghai, China* **4:48PM – Effect of Uncertainties in the Estimation of the Dynamic Coefficients on Tilting Pad Journal Bearings** **Technical Paper Publication.** IMECE2016-67252 – *Rafael O. Ruiz, Universidad de Chile, Santiago, Chile, Sergio Diaz, Universidad Simon Bolivar, caracas, Venezuela* **5:09PM – On Nonlinear Dynamics and Flight Control at High Angles of Attack with Uncertain Aerodynamics** **Technical Paper Publication.** IMECE2016-67108 – *Mateus de Freitas Virgilio Pereira, Igor A. A. Prado, Davi F. Castro, Instituto Tecnologico de Aeronautica, Sao Jose dos Campos, SP, Brazil, Jose Manoel Balthazar, Aeronautic Institute of Technology, São José dos CAmpos, Brazil, ROBERTO SILVA, ITA - Technological Institute of Aeronautics, São José dos Campos, SP, Brazil, Airton Nabarrete, Instituto Tecnológico de Aeronáutica - ITA, São José dos Campos, Brazil* **5-4-4 DESIGN AND CONTROL OF ROBOTS, MECHANISMS AND STRUCTURES IV** **ROOM 129A** *Session Organizer: Hong Zhou, Texas A&M University-Kingsville, Kingsville, TX, United States* *Session Co-Organizer: Alberto Borboni, Universita degli Studi di Brescia, Brescia, Italy* **3:45PM – Modeling and Optimal Control of a Variable-Speed Centrifugal Pump with a Pipeline** **Technical Paper Publication.** IMECE2016-67992 – *Cristian F. Jaimes Saavedra, Universidad Autónoma de Bucaramanga, Bucaramanga, Santander, Colombia, Sebastian Roa Prada, Universidad Autónoma De Bucaramanga, Santander, Santander, Colombia, Jessica Gissella Maradey Lázaro, Universidad Autónoma de Bucaramanga, Bucaramanga, Santander, Colombia* **4:06PM – Motion analysis of robot arm with movement restriction** **Technical Paper Publication.** IMECE2016-65513 – *Celeste Poley, University of Maryland College Park, College Park, MD, United States, Balakumar Balachandran, Univ Of Maryland, College Park, MD, United States* **4:27PM – Kinematic Calibration of a 2-Dof Parallel Orientation Manipulator: Theory and Simulation Results** **Technical Paper Publication.** IMECE2016-65614 – *Andrea Gabrielli, Alberto Borboni, Universita degli Studi di Brescia, Brescia, Italy, Luca Carbonari, Universita Politecnica delle Marche, Ancona, Italy, Matteo Palpacelli, Università Politecnica delle Marche, Ancona, AN, Italy* **4:48PM – Musculoskeletal System For Bio-inspired Robotic Systems Based on Ball and Socket Joints** **Technical Paper Publication.** IMECE2016-67394 – *Lianjun Wu, The University of Texas at Dallas, Richardson, TX, United States, Yonas Tadesse, The University of Texas At Dallas (UTD), Richardson, TX, United States* **5:09PM – Synthesis of Variable-Diameter Helical Extension Springs** **Technical Paper Publication.** IMECE2016-66096 – *Riyaz Mohammed, Hong Zhou, Texas A&M University-Kingsville, Kingsville, TX, United States* **5-7-3 FSI 3** **ROOM 131A** *Session Organizer: Marco Amabili, McGill University, Montreal, QC, Canada* *Session Co-Organizer: Kostas Karazis, Areva NP, Lychburg, VA, United States* **3:45PM – Impact of different operating conditions on the dynamic excitation of a high head Francis turbine** **Technical Paper Publication.** IMECE2016-65625 – *Markus Eichhorn, Eduard Doujak, Vienna University of Technology, Vienna, Austria* **4:06PM – Divergence Prediction for Practical Helicopter Slung Loads** **Technical Paper Publication.** IMECE2016-66119 – *Nicholas Motahari, Thomas Kim, Dhwanil Shukla, Nandeesh Hiremath, Narayanan Komerath, Georgia Institute of Technology, Atlanta, GA, United States* **4:27PM – Fluid-structure Interaction Analysis on the Performance of the High-pressure Fuel Pump for Diesel Engines** **Technical Paper Publication.** IMECE2016-66766 – *Dexing Qian, Ridong Liao, Jianhua Xiang, Baigang Sun, Shangyong Wang, Beijing Institute of Technology, Beijing, Beijing, China* **4:48PM – Nonlinear Reduced-Order Models for Aerodynamic Lift of Oscillating Airfoils** **Technical Paper Publication.** IMECE2016-66859 – *Muhammad Saif Ullah Khalid, Imran Akhtar, National University of Sciences & Technology, Rawalpindi, Pakistan* **5:09PM – Nonlinear boundary condition effects for piping system in the dynamic analysis** **Technical Paper Publication.** IMECE2016-66861 – *Mohamed I. Abou El Ella, Anestis Papadopoulos, PGESCo, Cairo, Egypt*

TIME

3:45PM–5:30PM

5-9-2 DYNAMICS AND CONTROL IN MICRO/NANO ENGINEERING II

ROOM 131B

Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States

Session Co-Organizer: Pezhman A. Hassanpour, Loyola Marymount University, Los Angeles, CA, United States, Samuel Asokanthan, Univ Of Western Ontario, London, ON, Canada

3:45PM – Dynamic Response Mechanism of Rotary Ultrasonic Motor under High Impact Load
Technical Paper Publication. IMECE2016-65568 – *Dong Sun, Nanjing University of Science and technology, Nanjing, Jiangsu, China, Xinjie Wang, Nanjing University of Science and Technology, Nanjing, Jiangsu, China, Chao Chen, Nanjing University of Aeronautics and Astronautics, Nanjing, China, Jiong Wang, Nanjing University of Science and Technology, JiangSu, China, YaFeng Liu, NanJing University of Science and Technology, NanJing, JiangSu, China*

4:06PM – Higher Harmonics Exploitation for Real-Time Tip monitoring of Dynamic Atomic Force Microscopy (AFM)
Technical Presentation. IMECE2016-66445 – *Enrique Rull Trinidad, TU Delft, Delft, Netherlands, Farbod Alijani, Technical University of Delft, Delft, Netherlands, Jordi Fraxedas, ICN2/CSIC, Bellaterra, Spain, Francesc Perez-Murano, IMB-CNM, CSIC, Bellaterra, Spain, Urs Staufer, TU delft, Delft, Netherlands*

4:27PM – Modeling and Experimental Study on Nonlinear Time Delay Induced Dynamics and Control in Cutting Operations
Technical Presentation. IMECE2016-68371 – *Xianbo Liu, Xinhua Long, Hongguang Li, Shanghai Jiao Tong University, Shanghai, China, Guang Meng, Shanghai Jiao Tong University, Shanghai 200240, China*

4:48PM – Application of the Moving Frame Method to solve 3D Dynamics problems
Technical Paper Publication. IMECE2016-68000 – *Amir Rezaei, California State polytechnic university, pomona, Pomona, CA, United States, Shannon Lee, Cal poly, pomona, Pomona, CA, United States, Thomas J. Impelluso, Bergen University College, Bergen, Norway*

5:09PM – Uncertainty Quantification for Cantilever-based MEMS Switches considering Bouncing Dynamics.
Technical Paper Publication. IMECE2016-67083 – *Mohamed Bognash, Western University, London, ON, Canada, Samuel Asokanthan, Univ Of Western Ontario, London, ON, Canada*

5-11-2 NOVEL CONTROL OF DYNAMIC SYSTEM AND DESIGN II

ROOM 131C

Session Organizer: C. Steve Suh, Texas A&M University, College Station, TX, United States

Session Co-Organizer: Weidong Zhu, University of Maryland, Baltimore, MD, United States

3:45PM – Active Torque Vectoring in High Speed Lane Change Maneuvers
Technical Paper Publication. IMECE2016-65539 – *Nathaniel Steinbock, Laura Prange, Brian C. Fabien, University of Washington, Seattle, WA, United States*

4:06PM – A Variable-Gain Discrete Sliding Mode Control Strategy with PID-Type Sliding Surface for an Ultra-Precision Wafer Stage
Technical Paper Publication. IMECE2016-66324 – *Min Li, Yu Zhu, Kaiming Yang, Chuxiong Hu, Tsinghua University, Beijing, China, Haihua Mu, Tsinghua University, Beijng, China*

4:27PM – High Performance Balanced Flow Modulating Hydraulic Control Valve
Technical Paper Publication. IMECE2016-67041 – *Mohamed Elgamil, Cairo University, Giza, Giza, Egypt, Marwan El-Husseiny, Faculty of Engineering Cairo Univesity, Giza, Giza, Egypt, Saad, A. Kassem, Faculty of Enginering, Giza, Giza, Egypt*

4:48PM – Nonlinear Time-Frequency Control of Permanent Magnet Synchronous Motors
Technical Paper Publication. IMECE2016-67363 – *Xin Wang, C. Steve Suh, Texas A&M University, College Station, TX, United States*

5:09PM – Nonlinear Time-Frequency Control: Electromagnetic Solenoid Valve
Technical Paper Publication. IMECE2016-67383 – *Jacob Southern, Texas A&M, College Station, TX, United States*

5-13-1 VIBRATIONS OF CONTINUOUS SYSTEMS I

ROOM 129B

Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States

Session Co-Organizer: Marco Amabili, McGill University, Montreal, QC, Canada, Hidenori Murakami, University of California, San Diego, San Diego, CA, United States

3:45PM – Integrability Conditions in Nonlinear Beam Kinematics
Technical Paper Publication. IMECE2016-65293 – *Hidenori Murakami, University of California, San Diego, San Diego, CA, United States*

4:06PM – Development of an Active Curved Beam Model Using a Moving Frame Method
Technical Paper Publication. IMECE2016-65294 – *Hidenori Murakami, University of California, San Diego, San Diego, CA, United States*

4:27PM – Optimization of joined conical shells based on free vibration
Technical Paper Publication. IMECE2016-65612 – *Rayehe Karimi Mahabadi, Firooz Bakhtiari-Nejad, Amirkabir University of Technology, Tehran, Iran*

4:48PM – On the Dynamics of Vibro-impacting Tapered Cantilever with Tip Mass
Technical Paper Publication. IMECE2016-65617 – *Prasanna Gandhi, Vishal Vyas, Indian Institute of Technology-Bombay, Mumbai, Maharashtra, India*

5:09PM – Multi-Mode Vibration Control of Plates Using Single Actuator and Single Sensor
Technical Paper Publication. IMECE2016-65660 – *Majed Majeed, Kuwait University, Safat, Kuwait, Khaled Alhazza, Altaf Alsnafi, Kuwait University, Kuwait City, Kuwait*

TIME	
10:30AM–12:15PM	

5-3-6 NONLINEAR DYNAMICS, CONTROL, AND STOCHASTIC MECHANICS VI

ROOM 227A

Session Organizer: Dumitru Caruntu, University Of Texas Rio Grande Valley, Edinburg, TX, United States

Session Co-Organizer: Marco Amabili, McGill University, Montreal, QC, Canada, Paulo B. Goncalves, Pontifical Catholic University, Puc-Rio, Rio De Janeiro, Brazil

10:30AM – Understanding the Experimental Dynamics of Flexible Structures Modified Nonlinearly by Flexible Continua
Invited Presentation. IMECE2016-68862 – *Ioannis Georgiou, Nat'l Tech Univ of Athens, Des Plaines, IL, United States*

11:12AM – Design and Dynamic Characteristics of a Torsion Isolator with Negative Stiffness Structures
Technical Paper Publication. IMECE2016-66257 – *Hui Liu, Xiaojie Wang, Weida Wang, Beijing Institute of Technology, Beijing, Beijing, China, Xiang Changle, Beijing Intsitute Of Technology, Beijing 100081, Beijing, China*

11:33AM – Dynamic Instability of Cantilever Beams with Open Cross-Section
Technical Paper Publication. IMECE2016-65674 – *Paulo B. Goncalves, Pontifical Catholic University, Puc-Rio, Rio De Janeiro, Brazil, Julio C. Coaquira, Catholic University, PUC-Rio, Rio de Janeiro, RJ, Brazil, Eulher C. Carvalho, Federal Institute of Education, Science and Technology, Jataí, GO, Brazil*

11:54AM – Rub-impact Detection of Rotor Systems Using Time-Frequency Techniques
Technical Paper Publication. IMECE2016-65412 – *Laihao Yang, Xuefeng Chen, Shibin Wang, Hao Zuo, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

5-5-1 CONTROL THEORY AND APPLICATIONS

ROOM 227C

Session Organizer: Majura Selekwa, North Dakota State University, Fargo, ND, United States

Session Co-Organizer: Dale McDonald, Midwestern State Univ, Wichita Falls, TX, United States

10:30AM – FAULT SENSITIVITY ANALYSIS OF DATA FEEDBACK CONTROL DESIGN BASED ON MULTIOBJECTIVE OPTIMIZATION
Technical Paper Publication. IMECE2016-65077 – *Young-Man Kim, Saginaw Valley State University, Saginaw, MI, United States*

10:51AM – Belbic-Sliding Mode Control of Robotic Manipulators With Uncertainties and Switching Constraints
Technical Paper Publication. IMECE2016-65620 – *Sophie Klecker, Peter W. Plapper, University of Luxembourg, Luxembourg, Luxembourg*

11:12AM – High-Precision Tracking Control of Machine Tool Feed Drives Based On ADRC
Technical Paper Publication. IMECE2016-66000 – *Chengyong zhang, Yaolong Chen, Xi'an Jiaotong university, Xi?an, China*

11:33AM – On the stability analysis of active magnetic bearing with parametric uncertainty and position tracking control
Technical Paper Publication. IMECE2016-66603 – *Junya Kato, Nagoya University, Chikusa-Ward, Nagoya, Aichi, Japan, Kentaro Takagi, Nagoya University, Chikusa-Ward, Nagoya-shi, Aichi, Japan, Tsuyoshi Inoue, Nagoya University, Chikusa-Ku Nagoya, Japan*

11:54AM – Linguistic Fuzzy Logic Control of Double Inverted Pendulum with Destabilizing Fractional Dampers
Technical Paper Publication. IMECE2016-67979 – *Arman Dabiri, Morad Nazari, Eric Butcher, University of Arizona, Tucson, AZ, United States*

5-6-1 RENEWABLE ENERGY, STRUCTURAL HEALTH MONITORING, AND DISTRIBUTED STRUCTURAL SYSTEMS I

ROOM 228A

Session Organizer: Weidong Zhu, University of Maryland, Baltimore, MD, United States

Session Co-Organizer: C. Steve Suh, Texas A&M University, College Station, TX, United States

10:30AM – Application to the reciprocating compressor condition monitoring using vibration models
Technical Paper Publication. IMECE2016-65562 – *Yoshifumi Mori, Yamaguchi University, Shunan City, Japan, Takashi Saito, Yamaguchi university, Ube / Yamaguchi, Japan, Katsuhide Fujita, National Institute of Technology, Ube College, Ube / Yamaguchi, Japan, Takanori Nakamura, Yamaguchi University, Ube / Yamaguchi, Japan*

10:51AM – Influence of Icing on the Modal Behavior of Wind Turbine Blades
Technical Paper Publication. IMECE2016-66918 – *Sudhakar Gantasala, Jean-Claude Luneno, Jan-Olov Aidanpaa, Lulea university of technology, Lulea, Sweden, Michel Cervantes, Luleå university of Technology, Luleå, Sweden*

11:12AM – Damage Identification Using a Continuous Scanning Laser Doppler Vibrometer System
Technical Paper Publication. IMECE2016-67293 – *Daming Chen, UMBC, Catonsville, MD, United States, Yongfeng Xu, University of Maryland Baltimore County, Halethorpe, MD, United States, Weidong Zhu, University of Maryland, Baltimore, MD, United States*

11:33AM – A PROBABILISTIC MODEL-BASED PROGNOSTICS USING MESHFREE MODELING: A CASE STUDY ON FATIGUE LIFE OF A CANTILEVER BEAM
Technical Paper Publication. IMECE2016-67936 – *Haileyesus Endeshaw, Texas Tech University, Lubbock, TX, United States, Fisseha Alemayehu, West Texas A&M, Canyon, TX, United States, Stephen Ekwaro-Osire, Texas Tech Univ, Lubbock, TX, United States, João Paulo Dias, Texas Tech University, Lubbock, TX, United States*

5-18-1 MOBILE ROBOTS AND UNMANNED GROUND VEHICLES I

ROOM 227B

Session Organizer: Giuseppe Quaglia, Politecnico Di Torino - DIMEAS, Torino, Italy

Session Co-Organizer: GIULIO REINA, Universita del Salento, Lecce, Italy, Luca Bruzzone, DIMEC - Università degli Studi di Genova, Genova, Italy

10:30AM – Robotic gripper for payload capture in low Earth orbit
Technical Paper Publication. IMECE2016-65429 – *Giancarlo Genta, Marco Dolci, Politecnico di Torino, Torino, Italy, Italy*

10:51AM – Path Tracking Experimentation with Epi.q-Mod 2: an Obstacle Climbing Mobile Robot
Technical Paper Publication. IMECE2016-65838 – *Matteo Nisi, Giuseppe Quaglia, Politecnico Di Torino - DIMEAS, Torino, Italy, Luca Bruzzone, DIMEC - Università degli Studi di Genova, Genova, Italy, Pietro Fanghella, DIMEC - Università degli Studi di Genova, Genoa, Italy*

11:12AM – Locomotion on Complex Deformable Terrain
Technical Presentation. IMECE2016-66335 – *Hosain Bagheri, Spandana Vajrala, Heather Emady, Hamidreza Marvi, Arizona State University, Tempe, AZ, United States*

11:33AM – A Novel Deformable Multi-mode Quadruped Robot
Technical Paper Publication. IMECE2016-67683 – *Yaobin Tian, University of Ontario Institute of Technology, Oshawa, ON, Canada, Dan Zhang, York University, Toronto, ON, Canada*

11:54AM – Design of a Low-Power Quadruped Robot for Remote Data Acquisition in a Heated Garden
Technical Paper Publication. IMECE2016-68177 – *Nicholas Mitchell, The Cooper Union for the Advancement of Science and Art, New York City, NY, United States, Kristin Miller, RMF Engineering, Inc., Baltimore, MD, United States, Chih Shing Wei, Cooper Union, New York, NY, United States, Runar Unnthorsson, University of Iceland, Reykjavík, Iceland, William Foley, Robert Dell, The Cooper Union, New York, NY, United States*

TIME	
1:30PM–3:15PM	**5-3-5 NONLINEAR DYNAMICS, CONTROL, AND STOCHASTIC MECHANICS V** **232A** *Session Organizer: Bogdan I. Epureanu, University of Michigan, Ann Arbor, MI, United States* *Session Co-Organizer: Marco Amabili, McGill University, Montreal, QC, Canada, Najib Kacem, FEMTO-ST Institute, UMR 6174, Department of Applied Mechanics, University of Franche-Comté, UBFC, Besançon, France, Arman Dabiri, University of Arizona, Tucson, AZ, United States* **1:30PM – Multistability and modal interactions in periodic 2D coupled pendulums array** **Technical Paper Publication.** IMECE2016-66684 – *Diala Bitar, FEMTO-ST Institute, UMR 6174, Department of Applied Mechanics, University of Franche-Comté, UBFC, Besancon, France, Najib Kacem, Noureddine Bouhaddi, FEMTO-ST Institute, UMR 6174, Department of Applied Mechanics, University of Franche-Comté, UBFC, Besançon, France* **1:51PM – Prediction of changes in vibration response with respect to multiple variables of vehicle transmission using response sensitivity function** **Technical Presentation.** IMECE2016-6645 – *Hui Liu, Chen Zhang, Yue Ma, Yi Huang, Beijing Institute of Technology, Beijing, Beijing, China* **2:12PM – Modeling of Mechanical Systems With Friction Interfaces Considering Variable Normal Contact Load And Tangential Micro/Macro Slip** **Technical Paper Publication.** IMECE2016-65995 – *Dongwu Li, Northwestern Polytechnical University, Xi An, Shan Xi, China, Chao xu, Northwestern Polytechinical University, Shaanxi Province, China* **2:33PM – Chaos analysis and control in fractional-order systems using fractional Chebyshev collocation method** **Technical Paper Publication.** IMECE2016-67909 – *Arman Dabiri, Morad Nazari, Eric Butcher, University of Arizona, Tucson, AZ, United States* **2:54PM – Robustness analysis of the collective dynamics of nonlinear periodic structures under parametric uncertainty** **Technical Paper Publication.** IMECE2016-66720 – *Khaoula Chikhaoui, FEMTO-ST Institute, UMR 6174, Department of Applied Mechanics, University of Franche-Comté, UBFC, Besançon, France, Diala Bitar, FEMTO-ST Institute, UMR 6174, Department of Applied Mechanics, University of Franche-Comté, UBFC, Besancon, France, Najib Kacem, Noureddine Bouhaddi, FEMTO-ST Institute, UMR 6174, Department of Applied Mechanics, University of Franche-Comté, UBFC, Besançon, France*	**5-14-1 STOCHASTIC OPTIMIZATION, UNCERTAINTY AND PROBABILITY** **232B** *Session Organizer: Isaac Elishakoff, Florida Atlantic University, Boca Raton, FL, United States* *Session Co-Organizer: Alba Sofi, University "Mediterranea" of Reggio Calabria, Reggio Calabria, Italy, Giuseppe Muscolino, University of Messina, MESSINA, Italy* **1:30PM – Estimating the Interval of Failure Probability Fluctuation under Uncertain Input Variable Distributions** **Technical Paper Publication.** IMECE2016-65342 – *Jorge E. Hurtado, Universidad Nacional de Colombia, Manizales, Colombia* **1:51PM – Motion Reliability Analysis of A 3-RRR Parallel Manipulator with Random and Interval Variables** **Technical Paper Publication.** IMECE2016-66655 – *Zhenhui Zhan, Xianmin Zhang, Guangdong Provincial Key Laboratory of Precision Equipment and Manufacturing Technology, Guangzhou, Guangdong, China* **2:12PM – Framework to Quantify Uncertainties in Piezoelectric Energy Harvesters** **Technical Paper Publication.** IMECE2016-65699 – *Rafael O. Ruiz, Viviana Meruane, Universidad de Chile, Santiago, Chile* **2:33PM – Stochastic Optimization of Nonlinear Energy Sinks using Resonance-based Clustering** **Technical Paper Publication.** IMECE2016-67115 – *Ethan Boroson, Samy Missoum, University of Arizona, Tucson, AZ, United States* **2:54PM – A Search Space Reduction Method for Optimizing Sequential Control by Hypothetically Achievable Bound Estimation of the Objective Function** **Technical Paper Publication.** IMECE2016-66577 – *Yuya Tokuda, Yasuhiro Yoshida, Takaaki Sekiai, Hitachi, Ltd., Hitachi-shi, Ibaraki-ken, Japan, Kazunori Yamanaka, Atsushi Yamashita, Norihiro Iyanaga, Mitsubishi Hitachi Power Systems , Ltd., Hitachi-shi, Ibaraki-ken, Japan, Yukinori Katagiri, Takuya Yoshida, Hitachi, Ltd., Hitachi-shi, Ibaraki-ken, Japan*
3:45PM–5:30PM	**5-15-1 MEASUREMENT AND ANALYSIS TECHNIQUES IN NONLINEAR DYNAMIC SYSTEMS** **ROOM 229B** *Session Organizer: Pezhman A. Hassanpour, Loyola Marymount University, Los Angeles, CA, United States* *Session Co-Organizer: Timothy Doughty, University of Portland, Portland, OR, United States* **3:45PM – EXPERIMENTAL AND SIMULATION OF A CAM AND TRANSLATED ROLLER FOLLOWER OVER A RANGE OF SPEEDS** **Technical Paper Publication.** IMECE2016-65506 – *Louay S. Yousuf, Dan Marghitu, Auburn University, Auburn, AL, United States* **4:06PM – Nonlinear Model Tracking as Health Monitoring for Vibrating Systems under Varied Excitation** **Technical Paper Publication.** IMECE2016-65987 – *Timothy Doughty, Liam Cassidy, Shannon Danforth, Nicholas Pendowski, University of Portland, Portland, OR, United States* **4:27PM – Surface Roughness Identification in End Milling using Vibration Signals and Fuzzy Clustering** **Technical Paper Publication.** IMECE2016-68207 – *Issam Abu-Mahfouz, Amit Banerjee, Penn State University Harrisburg, Middletown, PA, United States, A.H.M. Esfakur Rahman, Penn State University Harrisburg, Harrisburg, PA, United States* **4:48PM – Characteristic Variation of Self-excited Vibration in the Vertical Rotor System due to the Flexible Support of the Journal Bearing** **Technical Paper Publication.** IMECE2016-66714 – *Atsushi Nishimura, Nagoya University, Toyota, Japan, Tsuyoshi Inoue, Nagoya University, Chikusa-Ku Nagoya, Japan, Yusuke Watanabe, EBARA CORPORATION, Hujisawa-shi, Japan*	**5-18-2 MOBILE ROBOTS AND UNMANNED GROUND VEHICLES II** **ROOM 230** *Session Organizer: Giuseppe Quaglia, Politecnico Di Torino - DIMEAS, Torino, Italy* *Session Co-Organizer: GIULIO REINA, Universita del Salento, Lecce, Italy, Luca Bruzzone, DIMEC - Università degli Studi di Genova, Genova, Italy* **3:45PM – Mechatronic Design of a Mixed Conventional / Braking Actuation Mobile Robot** **Technical Paper Publication.** IMECE2016-65287 – *Jeremy W. Simmons II, Mark D. Bedillion, Walelign M. Nikshi, Randy C. Hoover, South Dakota School of Mines and Technology, Rapid City, SD, United States* **4:06PM – Parking Control of Mixed Conventional/Braking Actuation Mobile Robots Using Fuzzy Logic Control** **Technical Paper Publication.** IMECE2016-65331 – *Walelign M. Nikshi, Mark D. Bedillion, Randy C. Hoover, South Dakota School of mines and Technology, Rapid City, SD, United States* **4:27PM – On Wind-driven Land Vehicles** **Technical Paper Publication.** IMECE2016-66664 – *GIULIO REINA, Universita del Salento, Lecce, Italy, Mario Foglia, Politecnico di Bari, Bari, Italy* **4:48PM – AN AIRBORNE CAMERA SIMULATOR FOR AERIAL MAPPING APPLICATIONS** **Technical Paper Publication.** IMECE2016-68209 – *Federica Polimeno, University of Salento, Lecce, Italy, Annalisa Milella, CNR-ISSIA, Bari, Italy, Raphael Rouveure, IRSTEA, Aubière, France, GIULIO REINA, Universita del Salento, Lecce, Italy*

TIME		
10:30AM–12:15PM	**6-1-1 CURRICULUM INNOVATIONS, PEDAGOGY AND LEARNING METHODOLOGIES-I** **ROOM 122A** *Session Organizer: Anabela Alves, Universidade do Minho, Guimaraes, Portugal* *Session Co-Organizer: Amir Karimi, University of Texas, San Antonio, TX, United States* **10:30AM – Foundations of Statics - an Assessment Study and Feedback Implementation** **Technical Paper Publication.** IMECE2016-66302 – *Amitabha Ghosh, Rochester Inst Of Tech, Rochester, NY, United States* **10:51AM – Exploring Innovative Ideas, Projects and Activities Used in "Introduction to Engineering" Classes to Motivate Engineering Students** **Technical Paper Publication.** IMECE2016-66841 – *Kyle Larsen, Awlad Hossain, Eastern Washington University, Cheney, WA, United States* **11:12AM – Proposal of Future-Applied Conventional Technology** **Technical Paper Publication.** IMECE2016-67390 – *Koji Kuroda, Hiroyuki HAMADA, Kyoto Institute of Technology, Kyoto, Japan* **11:33AM – Improving Competitiveness of Engineering Students with Disabilities through Focused Learning** **Technical Paper Publication.** IMECE2016-67982 – *Andrei Zagrai, Warren Ostergren, Laurie Borden, Scott Zeman, New Mexico Institute of Mining and Technology, Socorro, NM, United States* **11:54AM – Project-based Learning about Materials: Case Studies with the CES EduPack tool** **Technical Presentation.** IMECE2016-68472 – *Lee Phillips, Granta Design, Cheshunt, United Kingdom, Luca Masi, Jorge Sobral, Granta Design, Cambridge, United Kingdom*	**6-2-1 GLOBALIZATION OF ENGINEERING EDUCATION** **ROOM 122B** *Session Organizer: Hephzibah Kumpaty, University of Wisconsin-Whitewater, Whitewater, WI, United States* **10:30AM – Global Research Collaboration and International Education: Laser Metal Deposition of Varying Percent of Ti-6Al-4V + Molybdenum on Ti64 Substrate for Biomedical/Aerospace Applications** **Technical Paper Publication.** IMECE2016-65094 – *Subha Kumpaty, Milwaukee School of Engineering, ELKHORN, WI, United States, Esther Akinlabi, University of Johannesburg, Johannesburg, South Africa, Christopher Reynolds, Robert Mueller, Milwaukee School of Engineering, Milwaukee, WI, United States, Sisa Pityana, Council of Industrial and Scientific Research, Pretoria, South Africa* **10:51AM – Ensuring a Technically Proficient Workforce** **Technical Paper Publication.** IMECE2016-65168 – *Paul Braden, University of Utah, Salt Lake City, UT, United States, Kaitlyn Gainer, Texas A&M University, Bryan, TX, United States* **11:12AM – "BUCKETS" of Engineering Students in Globalization Era: Practice in Mechanical Engineering, Shanghai Jiao Tong University** **Technical Presentation.** IMECE2016-65326 – *Qian Huang, School of Mechanical Engineering, Shanghai Jiao Tong University, Shanghai, Shanghai, China* **11:33AM – Nanofacture: Senior Design Experience in Nanotechnology** **Technical Paper Publication.** IMECE2016-65402 – *Zoltan Szabo, Rudolf Kyselica, Eniko Enikov, University of Arizona, Tucson, AZ, United States* **11:54AM – RENEWABLE ENERGY NEEDS IN DEVELOPING COUNTRIES: ENGINEERING SOLUTIONS TO EXISTING BARRIERS** **Technical Paper Publication.** IMECE2016-65647 – *K. McCall Barger, Christopher Mattson, Brigham Young University, Provo, UT, United States*
	6-5-1 APPLIED MECHANICS, DYNAMIC SYSTEMS AND CONTROL ENGINEERING **ROOM 229A** *Session Organizer: Mohammad Mahinfalah, Milwaukee School of Engineering, Mukwonago, WI, United States* **10:30AM – Teaching an Undergraduate Dynamics Course for Mechanical Engineering Technology Students: Successful Implementation for Students Learning** **Technical Paper Publication.** IMECE2016-65079 – *Awlad Hossain, Eastern Washington University, Cheney, WA, United States, Jason Durfee, Eastern Washington Univeristy, Spokane, WA, United States, Heechang Bae, Kyle Larsen, Eastern Washington University, Cheney, WA, United States* **10:51AM – AN APPROACH TO TEACHING THE FINITE ELEMENT METHOD THAT USES BEST PRACTICE TECHNIQUES FROM INDUSTRY** **Technical Paper Publication.** IMECE2016-65378 – *Michael Sracic, Milwaukee School of Engineering, Milwaukee, WI, United States* **11:12AM – RIGID BODY DYNAMICS: A NEW PHILOSOPHY, MATH AND PEDAGOGY** **Technical Paper Publication.** IMECE2016-65970 – *Thomas J. Impelluso, Bergen University College, Bergen, Norway* **11:33AM – An automated virtual lab for bond graph based dynamics modeling using graph grammars and tree-search** **Technical Paper Publication.** IMECE2016-66110 – *Felice Mancini, Daniel Grande, Worcester Polytechnic Institute, Worcester, MA, United States, Pradeep Radhakrishnan, Worcester Polytechnic Institute, Natick, MA, United States* **11:54AM – Curriculum Change For Control Engineering Education In A Mechanical Engineering Undergrad Program** **Technical Paper Publication.** IMECE2016-66658 – *Rafael E. Vásquez, Universidad Pontificia Bolivariana, Medellín, Colombia, Norha L. Posada, Santiago Rúa, Carlos A. Zuluaga, Fabio Castrillón, Diego A. Flórez, Universidad Pontificia Bolivariana, Medellin, Antioquia, Colombia*	**6-6-1 FLUID MECHANICS, HEAT TRANSFER, EXPERIMENTS AND ENERGY SYSTEMS I** **ROOM 228B** *Session Organizer: Wael Mokhtar, Grand Valley State University, Grand Rapids, MI, United States* **10:30AM – Small-Scale Smart Electrical Grid Design, Construction, and Analysis** **Technical Paper Publication.** IMECE2016-65219 – *Andrew Craig, Xiaokuan Li, Patrick Sesker, Alex McInerny, Thomas DeAgostino, Christopher Depcik, University of Kansas, Lawrence, KS, United States* **10:51AM – A Comparative Investigation of Rheological and Flow Behavior among Clean Polymeric and Surfactant Based Fluids** **Technical Paper Publication.** IMECE2016-65133 – *Ahmed Kamel, University of Texas of the Permian Basin, Odessa, TX, United States* **11:12AM – Heat pump interactive computer learning tool** **Technical Paper Publication.** IMECE2016-66819 – *Geanette Polanco, University of Tromso, Narvik, Norway* **11:33AM – Combined Evaporative Cooling with Vapor Compression Air Conditioning to Increase Efficiency** **Technical Presentation.** IMECE2016-66853 – *Kyle Larsen, Awlad Hossain, Eastern Washington University, Cheney, WA, United States*

WED. NOV. 16 TRACK 6: Education and Globalization

TIME

10:30AM–12:15PM

6-9-1 PRE-COLLEGE STEM UNIVERSITY, SCHOOL AND INDUSTRY ALLIANCE

ROOM 230

Session Organizer: Devdas Pai, North Carolina A&T State University, Greensboro, NC, United States

10:30AM – Summer Research and Collaborative Professional Development Experience for NSF RET Teachers in Advanced Manufacturing and Materials
Technical Paper Publication. IMECE2016-66141 – *Ahsan Mian, Wright State University Dept. Of Mechanical & Materials Engineering, Dayton, OH, United States, Margaret Pinnell, University of Dayton, Dayton, OH, United States, Leanne Petry, Central State University, Wilberforce, OH, United States, Raghavan Srinivasan, Wright State Univ, Dayton, OH, United States, Suzanne Franco, Wright State University, Dayton, OH, United States, Melissa Taylor, University of Dayton, Dayton, OH, United States*

10:51AM – Eggs, Oranges and other Technological Devices in Science Dissemination
Technical Paper Publication. IMECE2016-66648 – *Celina P. Leão, Filomena Soares, University of Minho, Guimarães, Portugal, João Sena Esteves, University of Minho, Guimaraes, Portugal, Paula Jorge, University of Porto, Porto, Portugal*

11:12AM – Internship and experiential learning model for liberal arts graduates to prepare them for advanced manufacturing careers
Technical Paper Publication. IMECE2016-67166 – *Ibrahim Zeid, Northeastern Univ, Boston, MA, United States, Chitra Javdekar, Mass Bay Community College, Wellesley Hills, MA, United States, Marina Bograd, MassBay Community College, Wellesley, MA, United States, Claire Duggan, Northeastern University, Boston, MA, United States*

11:33AM – A Sustainable Model For Problem-Based Learning In South African Schools
Technical Paper Publication. IMECE2016-68075 – *Sune Von Solms, Johan Meyer, Warren S. Hurter, University of Johannesburg, Johannesburg, Gauteng, South Africa*

1:30PM–3:15PM

6-12-1 ENGINEERING EDUCATION PROGRAMS AT THE NATIONAL SCIENCE FOUNDATION

ROOM 131A

Session Organizer: Subha Kumpaty, Milwaukee School of Engineering, ELKHORN, WI, United States

Session Co-Organizer: Mohamad Naraghi, Manhattan College, Riverdale, NY, United States

3:45PM–5:30PM

6-1-2 CURRICULUM INNOVATIONS, PEDAGOGY AND LEARNING METHODOLOGIES-II

ROOM 131B

Session Organizer: Amir Karimi, University of Texas, San Antonio, TX, United States

Session Co-Organizer: Anabela Alves, Universidade do Minho, Guimaraes, Portugal

3:45PM – Academic Makerspaces and Engineering Education
Technical Paper Publication. IMECE2016-68048 – *Vincent Wilczynski, Yale University School of Engineering & Applied Science, New Haven, CT, United States, Ronald Adrezin, U.S. Coast Guard Academy, New London, CT, United States*

4:06PM – Assigning Students Teacher?s Role: a Student-centered Approach in Computer-Aided Design Education
Technical Paper Publication. IMECE2016-66871 – *Xiaobo Peng, Tianyun Yuan, Uzair Nadeem, Prairie View A&M University, Prairie View, TX, United States, Antonia Ketsetzi, Bugrahan Yalvac, Texas A&M University, College Station, TX, United States, Deniz Eseryel, T. Fulya Eyupoglu, North Carolina State University, Raleigh, NC, United States, Suxia Cui, Prairie View A&M University, Prairie View, TX, United States*

4:27PM – Increasing Student Awareness of Non-Traditional Career Paths in Mechanical Engineering
Technical Paper Publication. IMECE2016-66986 – *Shaobo Huang, Cassandra M. Degen, South Dakota School of Mines and Technology, Rapid City, SD, United States, Marius Ellingsen, SDSMT - ME Dept, Rapid City, SD, United States, Karim H. Muci-Kuchler, South Dakota School of Mines and Technology, Rapid City, SD, United States*

4:48PM – Analysis and Evaluation of Readiness, Retention and Completion by Intensive Engineering Summer Readiness Program
Technical Paper Publication. IMECE2016-67621 – *Yong Zhou, Cheng-Chang Pan, Nazmul Islam, University of Texas Rio Grande Valley, Brownsville, TX, United States*

6-6-2 FLUID MECHANICS, HEAT TRANSFER, EXPERIMENTS AND ENERY SYSTEMS II

ROOM 131A

Session Organizer: Subha Kumpaty, Milwaukee School of Engineering, ELKHORN, WI, United States

3:45PM – Introducing Renewable Energy through Projects
Technical Paper Publication. IMECE2016-65372 – *Emine Celik, York College of PA, York, PA, United States*

4:06PM – Learning Thermodynamic Properties With An App
Technical Presentation. IMECE2016-65376 – *Smitesh Bakrania, Austin Carrig, Rowan University, Glassboro, NJ, United States*

4:27PM – Steady Heat Conduction with Generalized Boundary Conditions
Technical Paper Publication. IMECE2016-66605 – *Kevin D. Cole, University of Nebraska, Lincoln, NE, United States, Filippo De Monte, University of L'Aquila, L'Aquila 67100, Italy, Robert McMasters, Virginia Military Inst, Lexington, VA, United States, Keith Woodbury, University of Alabama, Tuscaloosa, AL, United States, James Beck, Michigan State University, Okemos, MI, United States, Abdolhossein Haji-Sheikh, Univ Of Texas @ Arlington, Arlington, TX, United States*

4:48PM – EXTERNAL AIR FLOW OVER A PICKUP TRUCK: CFD MODELING AND INVESTIGATION
Technical Paper Publication. IMECE2016-65118 – *Scott Kruepke, Milwaukee School of Engineering, Milwaukee, WI, United States, Subha Kumpaty, Milwaukee School of Engineering, ELKHORN, WI, United States*

10:00AM–11:45AM

6-3-1 ENGINEERING ACCREDITATION, ASSESSMENT AND ONLINE EDUCATION

ROOM 129A

Session Organizer: Amir Karimi, University of Texas, San Antonio, TX, United States

10:00AM – Formative Assessment using Multiple Choice Questions in Statics and Dynamics
Technical Paper Publication. IMECE2016-66304 – *Amitabha Ghosh, Rochester Inst Of Tech, Rochester, NY, United States*

10:21AM – Improving Project-Based Learning Outcomes by Formative Assessment and Strategic Time Optimization
Technical Paper Publication. IMECE2016-65461 – *Leo Stocco, University Of British Columbia, Vancouver, BC, Canada, Roberto Rosales, The University of British Columbia, Vancouver, BC, Canada, Ignacio Galiano, Andy Liu, University of British Columbia, Vancouver, BC, Canada, David Feixo, The University of British Columbia, Vancouver, BC, Canada*

10:42AM – Design and Fabricating a Self-Cleaning Toilet - Developing a Student Invention.
Technical Paper Publication. IMECE2016-65273 – *Zbigniew Bzymek, University of Connecticut, Storrs, CT, United States, Stephan Maric, University of Connecticut, Andover, CT, United States, Joseph Phelps, University of Connecticut, Storrs, CT, United States, Vito Moreno, Univerity of Connecticut, Storrs, CT, United States*

11:03AM – cdmHUB.org: a Platform for Pervasive Composites Learning in the Cloud
Technical Presentation. IMECE2016-65702 – *Johnathan Goodsell, Wenbin Yu, Purdue University, West Lafayette, IN, United States*

11:24AM – How Changes in ABET-EAC-Criteria 3and 5 Effect Engineering Programs
Technical Presentation. IMECE2016-68543 – *Amir Karimi, University of Texas, San Antonio, TX, United States*

6-4-1 SYSTEMS ENGINEERING AND SUSTAINABLE ENGINEERING EDUCATION I

ROOM 129B

Session Organizer: Clifford Whitcomb, Naval Postgraduate School, Monterey, CA, United States

10:00AM – Self-Efficacy Analysis of Student Learning in Systems Engineering
Technical Paper Publication. IMECE2016-67032 – *Rabia Khan, Clifford Whitcomb, Corina White, Naval Postgraduate School, Monterey, CA, United States*

10:21AM – A Flipped Classroom Approach to Conveying the Basics of Systems Thinking to Engineering Undergraduates
Technical Paper Publication. IMECE2016-66069 – *Jonathan Weaver, University of Detroit Mercy, Plymouth, MI, United States, Darrell Kleinke, University of Detroit Mercy, Livonia, MI, United States*

10:42AM – Incorporating Basic Systems Thinking and Systems Engineering Concepts in a Sophomore-Level Product Design and Development Course
Technical Paper Publication. IMECE2016-65852 – *Karim H. Muci-Kuchler, Mark D. Bedillion, Cassandra M. Degen, South Dakota School of Mines and Technology, Rapid City, SD, United States, Marius Ellingsen, SDSMT - ME Dept, Rapid City, SD, United States, Shaobo Huang, South Dakota School of Mines and Technology, Rapid City, SD, United States*

11:03AM – Barriers and opportunities to the acquisition of systems thinking skills for K-12 teachers
Technical Paper Publication. IMECE2016-67146 – *Greg Bartus, Frank Fisher, Stevens Institute of Technology, Hoboken, NJ, United States*

11:24AM – A Framework For Systems Engineering Education In An Accredited Undergraduate Engineering Programme
Technical Paper Publication. IMECE2016-68038 – *Johan Meyer, Hannelie Nel, Nickey Janse Van Rensburg, University of Johannesburg, Johannesburg, Gauteng, South Africa*

1:15PM–3:00PM

6-4-2 SYSTEMS ENGINEERING AND SUSTAINABLE ENGINEERING EDUCATION II

ROOM 129B

Session Organizer: Aaron Brown, Metropolitan State University of Denver, Denver, CO, United States

1:15PM – Interaction of Undergraduate Research and Sustainable Systems Engineering Baccalaureate Program Development
Technical Paper Publication. IMECE2016-65385 – *Aaron Brown, Metropolitan State University of Denver, Denver, CO, United States, Jeno Balogh, Metroppolitan State University of Denver, Denver, CO, United States, Runing Zhang, Metropolitan State University of Denver, Denver, CO, United States*

1:36PM – Systems Engineering Course Development Aligned with a Competency Model
Technical Presentation. IMECE2016-66946 – *Clifford Whitcomb, Corina White, Rabia Khan, Naval Postgraduate School, Monterey, CA, United States*

1:57PM – Using Practical Examples to Motivate the Study of Product Development and Systems Engineering Topics
Technical Paper Publication. IMECE2016-66764 – *John L. Ziadat, South Dakota School of Mines and Technology, Rapid City, SD, United States, Marius Ellingsen, SDSMT - ME Dept, Rapid City, SD, United States, Karim H. Muci-Kuchler, Shaobo Huang, Cassandra M. Degen, South Dakota School of Mines and Technology, Rapid City, SD, United States*

2:18PM – Systems Engineering Capstone Project Course Development and Assessment
Technical Presentation. IMECE2016-67373 – *Clifford Whitcomb, Naval Postgraduate School, Monterey, CA, United States*

2:39PM – Lean Education impact in professional life of engineers
Technical Paper Publication. IMECE2016-67034 – *Anabela Alves, Universidade do Minho, Guimaraes, Portugal, Celina P. Leão, University of Minho, Guimarães, Portugal, Laura Costa Maia, Universidade Do Minho, Guimarães, Portugal, Paulo Amaro, Efacec, Porto, Portugal*

6-7-1 PROBLEM SOLVING IN ENGINEERING EDUCATION, RESEARCH AND PRACTICE

ROOM 129A

Session Organizer: Zbigniew Bzymek, University of Connecticut, Storrs, CT, United States

Session Co-Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

1:15PM – Interdisciplinary and consistent use of a 3D CAD model for CAx Education in engineering studies
Technical Paper Publication. IMECE2016-65031 – *Andreas Faath, Reiner Anderl, TU Darmstadt DiK, Darmstadt, Germany*

1:36PM – A Search for Optimal Friction Resistant Material to Cover Contact Surfaces in the 30AMP Manual Switch A Case Study in the Senior Mechanical Engineering Design Industry Generated Student Project.
Technical Paper Publication. IMECE2016-65481 – *Zbigniew Bzymek, University of Connecticut, Storrs, CT, United States, Vito Moreno, Univerity of Connecticut, Storrs, CT, United States, Alexander Choi, Tyler Luneski, Geri Gonxhe, University of Connecticut, Storrs, CT, United States*

1:57PM – Machine Parts Modeling and Prototyping by Additive and Subtractive Manufacturing
Technical Paper Publication. IMECE2016-65577 – *Zbigniew Bzymek, University of Connecticut, Storrs, CT, United States, Dimitriy Kosovay, University of Connecticut, West Hartford, CT, United States, Rainer Hebert, UConn, Storrs, CT, United States, Mark Summers, CNC Software Inc, Tolland, CT, United States, Thomas Mealy, University of Connecticut U-3139ME, Storrs, CT, United States*

2:18PM – Development of an Industrially Sponsored Senior Design Capstone Program
Technical Paper Publication. IMECE2016-66076 – *Vito Moreno, Univerity of Connecticut, Storrs, CT, United States, Vinay Patel, Stanley Access Technologies, Farmington, CT, United States, Eric Cutiongco, Barnes Aerospace, Windsor, CT, United States*

2:39PM – Comparing Transparent Devices to Current Educational Methods for Enhancing Comprehension of Product Functionality
Technical Paper Publication. IMECE2016-66858 – *Ariana Pedersen, John Salmon, Brigham Young University, Provo, UT, United States*

TRACK 6: Education and Globalization

TIME	
3:30PM–5:15PM	

6-10-1 TEACHING LABORATORIES, MACHINE SHOP EXPERIENCE AND TECHNOLOGY-AIDED LEARNING

ROOM 129A

Session Organizer: Mohamed Salim Azzouz, Midwestern State University, Wichita Falls, TX, United States

3:30PM – Implementing Computer Numerical Controls Affordably at a Four Year University
Technical Paper Publication. IMECE2016-66152 – *Wesley S. Hunko, Lewis Payton, Auburn University, Auburn University, AL, United States*

3:51PM – Twists and Turns of a Senior Design Project
Technical Paper Publication. IMECE2016-66194 – *Mohamed Salim Azzouz, Jan Brink, Midwestern State University, Wichita Falls, TX, United States*

4:12PM – A Virtual Laboratory Combined with Biometric Authentication and 3D Reconstruction
Technical Paper Publication. IMECE2016-66799 – *Zhou Zhang, Mingshao Zhang, Yizhe Chang, Stevens Institute of Technology, Hoboken, NJ, United States, Sven Esche, Constantin Chassapis, Stevens Institute Of Tech, Hoboken, NJ, United States*

4:33PM – A low-cost and simplified digital image correlation and particle image velocimetry software package for use in undergraduate teaching laboratories
Technical Paper Publication. IMECE2016-67620 – *Fritz Hieb, Michael Hargather, New Mexico Tech, Socorro, NM, United States*

4:54PM – Learning Systems on Surgical Technique of Laparoscopic Cholecystectomy
Technical Paper Publication. IMECE2016-68021 – *Hisanori Shiomi, Nagahama Red Cross Hospital, shiga, Japan, Kazuaki Yamashiro, Yuka Takai, Akihiko GOTO, Osaka Sangyo University, Osaka, Japan, Hiroyuki HAMADA, Kyoto Institute of Technology, Kyoto, Japan*

6-11-1 SOCIETAL AND ETHICAL DIMENSIONS OF ENGINEERING AND SAFETY ISSUES

ROOM 129B **3:30PM–5:15PM**

Session Organizer: Nazmul Islam, University of Texas Rio Grande Valley, Brownsville, TX, United States

Session Co-Organizer: Mohamad Naraghi, Manhattan College, Riverdale, NY, United States

3:30PM – Building Inclusive Undergraduate Teams
Technical Paper Publication. IMECE2016-65988 – *Ryan Barr, Claire Pfeiffer, Heather Dillon, Timothy Doughty, University of Portland, Portland, OR, United States*

3:51PM – Understanding The Impact Of Engineering Through Appropriate Technology Development
Technical Paper Publication. IMECE2016-68084 – *Nickey Janse Van Rensburg, Zach Simpson, Naude C. Malan, University of Johannesburg, Johannesburg, South Africa*

4:12PM – Analyzing the Role of Ethics in Systems Dynamics Modeling and Vice Versa
Technical Paper Publication. IMECE2016-67396 – *Richard A. Burgess II, Murdough Center - Texas Tech University, Lubbock, TX, United States, Mario Beruvides, Texas Tech University, Lubbock, TX, United States*

4:33PM – Role of Engineering Ethics in combating the Corruption
Technical Presentation. IMECE2016-65275 – *Anurag Gupta, Oil India Limited, Assam, India, Suresh Chandra Goswami, Oil India Limited, DELHI, Uttar Pradesh, India*

TIME	
10:30AM–12:15PM	**7-14-1 NEXT GENERATION INTERNET AND ITS IMPACT** **ROOM 230** *Session Organizer: J. Cecil, Oklahoma State University, Stillwater, OK, United States*

TIME	
8:00AM–9:45AM	

7-1-1 MECHATRONICS AND AUTOMATION

ROOM 123

Session Organizer: Abdennour Seibi, University of Louisiana, Lafayette, LA, United States

Session Co-Organizer: Akash Pandey, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India

8:00AM – Development of Haptic Communication Device for Disabled Persons
Technical Paper Publication. IMECE2016-65404 – *Zoltan Szabo, Eniko Enikov, University of Arizona, Tucson, AZ, United States*

8:21AM – Leak Detection and Self-Healing Pipelines Using Twin Balls Technology
Technical Paper Publication. IMECE2016-68163 – *Wadie Chalgham, Abdennour Seibi, Fathi Boukadi, University of Louisiana, Lafayette, LA, United States*

8:42AM – The Influence of Sensors Arrangement and Quantity on MCMC Inversion Model Based on Bayesian Inference
Technical Paper Publication. IMECE2016-66051 – *Cong Li, Shuai Meng, Yina Yao, Tsinghua University, Beijing, China, Yuanhua He, Civil Aviation Flight University of China, Guanghan, China, Rui Yang, Tsinghua University, Beijing, China*

9:03AM – Embedded Controller Based Automatic Gear Change Mechanism For Two Wheeled Manual Transmission Motorcycle
Technical Paper Publication. IMECE2016-68127 – *Aditya Mairal, Akash Pandey, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India, Jimil M. Shah, The University of Texas at Arlington, Arlington, TX, United States*

7-2-1 EMERGING TECHNOLOGIES IN ENERGY

ROOM 129A

Session Organizer: Sanjeev Khanna, University of Missouri - Columbia, Columbia, MO, United States

Session Co-Organizer: Ajay Shastri, WSP Parsons Brinckerhoff Pte. ltd, Singapore, 199555, Singapore

8:00AM – Study of efficiency improvement & optimization in CFB
Technical Paper Publication. IMECE2016-65216 – *Ajay Shastri, WSP Parsons Brinckerhoff Pte. ltd, Singapore, 199555, Singapore*

8:21AM – Infinitely Variable Process Control For Distributed Generation
Technical Paper Publication. IMECE2016-66290 – *A Keith Miller, VeriTran, Inc., Chugwater, WY, United States*

8:42AM – Development Of An Empirical Model To Predict Sulfuric Acid Condensate Formation In Air Handling System Of Medium Speed Diesel Engines
Technical Paper Publication. IMECE2016-66547 – *Pranav Raina, Vijayaselvan Jayakar, GE India Technology center, Bangalore, Karnataka, India, Roy Primus, General Electric Company, Niskayuna, NY, United States, Aravind Kalavara, Dayanand TH, GE India Technology center, Bangalore, Karnataka, India*

9:03AM – Fluidized Bed Particle Heat Exchanger for Supercritical Carbon Dioxide Power Cycles
Technical Paper Publication. IMECE2016-67104 – *Peter Steiner, Karl Schwaiger, TU Wien, Vienna, Austria, Heimo Walter, Vienna Univ of Tech, Vienna, Austria, Markus Haider, Martin Hämmerle, TU Wien, Vienna, Austria*

9:24AM – Thermal Performance of Domestic Replacement A19 LED Lighting Products
Technical Paper Publication. IMECE2016-67974 – *Thomas Storey, Robin Rackerby, Heather Dillon, Lydia Gingerich, University of Portland, Portland, OR, United States*

7-3-1 INNOVATIVE PRODUCTS

ROOM 227B

Session Organizer: Leo Stocco, University Of British Columbia, Vancouver, BC, Canada

Session Co-Organizer: Aditya Shashidhar, National Institute of Technology, Karnataka, Surathkal, Mangaluru, Karnataka, India

8:00AM – The Orbitless Drive
Technical Paper Publication. IMECE2016-65253 – *Leo Stocco, University Of British Columbia, Vancouver, BC, Canada*

8:21AM – The Coupled Orbitless Drive
Technical Paper Publication. IMECE2016-65284 – *Leo Stocco, University Of British Columbia, Vancouver, BC, Canada*

8:42AM – Conceptual Design and Prototyping of an External Continuously Variable Transmission for Bicycles
Technical Paper Publication. IMECE2016-67790 – *Jordan Oldroyd, Brigham Young University, Highland, UT, United States, John Salmon, Brigham Young University, Provo, UT, United States*

9:03AM – Pressure Sensor Activated Clutch
Technical Paper Publication. IMECE2016-65955 – *Aditya Shashidhar, Nitin Srinath, Prajwal G S, Vedanth S Reddy, Hitesh Bhadana, National Institute of Technology, Karnataka, Surathkal, Mangaluru, Karnataka, India*

TIME		
10:00AM–11:45AM	**7-5-1 EMERGING TECHNOLOGIES IN COMPOSITE MATERIALS** **ROOM 131A** *Session Organizer: Assimina Pelegri, Rutgers, East Brunswick, NJ, United States* *Session Co-Organizer: Sanjeev Khanna, University of Missouri - Columbia, Columbia, MO, United States* **10:00AM – Interfacial Properties of Injection Molded Glass fiber/ Thermoplastics Composites** **Technical Paper Publication.** IMECE2016-66722 – *Rutchaneekorn Wongpajan, Suchalinee Mathurosemontri, Jitlada Boonlertsamut, Supaphorn Thumsorn, Hiroyuki HAMADA, Kyoto Institute of Technology, Kyoto, Japan* **10:21AM – Effect of Strain Rate and Temperature on the Compressive Response of Aluminum Foam Reinforced with Carbon Nanotubes** **Technical Presentation.** IMECE2016-67743 – *Abdelhakim Aldoshan, University of Missouri, Columbia, MO, United States, Sanjeev Khanna, University of Missouri - Columbia, Columbia, MO, United States* **10:42AM – Fuzzy Logic Optimization of Composite Driveshaft of Low Passenger Vehicles** **Technical Paper Publication.** IMECE2016-68006 – *Dhiraj Patil, Shivaji University, Tasgaon, India, Rajaram Shinde, Shivaji University, Islampur, India, Suresh Sawant, Rajarambapu Institute of Technology, Sakharale, India* **11:03AM – A Study of Electrically Conductive Fibers and Their Potential as Active Damage-Sensing Body Armor** **Technical Presentation.** IMECE2016-68181 – *Max Tenorio, Rutgers University, Piscataway, NJ, United States, Stephen Recchia, Picatinny Arsenal, Wharton, NJ, United States, Alexandra Tucker, Rutgers University, Piscataway, NJ, United States, Assimina Pelegri, Rutgers, East Brunswick, NJ, United States*	**7-6-1 EMERGING MANUFACTURING TECHNIQUES - I** **ROOM 131B** *Session Organizer: Mohammed Mayeed, Kennesaw State University, Marietta, GA, United States* *Session Co-Organizer: Suresh Sawant, Rajarambapu Institute of Technology, Sangli, India* **10:00AM – DESIGNING AN UNMANNED AERIAL VEHICLE FOR SPECIFIC AERIAL APPLICATIONS OF INSECTICIDES AND HERBICIDES** **Technical Paper Publication.** IMECE2016-65936 – *Mohammed Mayeed, Gabriel Darveau, Kennesaw State University, Marietta, GA, United States* **10:21AM – Spatial Control of Frost Formation** **Technical Presentation.** IMECE2016-66231 – *Ching-Wen Lo, Venkata Raman Sahoo, Ming-Chang Lu, National Chiao Tung University, Hsinchu, Taiwan* **10:42AM – THE RECREATION AND EVALUATION OF A HUMAN HAND USING LOW-COST REVERSE ENGINEERING AND 3D PRINTING SYSTEMS** **Technical Paper Publication.** IMECE2016-66905 – *Cassandra Jacobsen, Elias Ashe, Rafiqul Noorani, Loyola Marymount University, Los Angeles, CA, United States* **11:03AM – Design Analysis for Origami-Based Folded Sheet Metal Parts** **Technical Presentation.** IMECE2016-68317 – *Ala Qattawi, University of California, Merced, Merced, CA, United States*
1:15PM–3:00PM	**7-6-2 EMERGING MANUFACTURING TECHNQIUES - II** **ROOM 131B** *Session Organizer: Changyong Cao, Duke University, Durham, NC, United States* *Session Co-Organizer: Sanjeev Khanna, University of Missouri - Columbia, Columbia, MO, United States* **1:15PM – Investigation on mechanical behavior of clinched joint using different tools** **Technical Paper Publication.** IMECE2016-66285 – *Xiaolan Han, Shengdun Zhao, Xi'an Jiaotong University, Xi'an, China* **1:36PM – Phantom Battery Pack for Destructive Testing of Li-Ion Batteries** **Technical Paper Publication.** IMECE2016-67881 – *Alex Francis, University of Wisconsin-Milwaukee, Milwaukee, WI, United States, Calvin Berceau, DRS Power and Control Technologies, Milwaukee, WI, United States, Hugo Pires Lage Martins, Luke Steinbach, University of Wisconsin-Milwaukee, Milwaukee, WI, United States, Ilya Avdeev, University of Wisconsin - Milwaukee, Milwaukee, WI, United States, Vincent Kanack, University of Wisconsin-Milwaukee, Milwaukee, WI, United States, Justin Mursch, University of Wisconsin-Milwaukee, 53211, WI, United States* **1:57PM – Progress Toward Understanding Catastrophic Failure of electric vehicle Li-Ion Batteries: Multi-Physics Modeling** **Technical Paper Publication.** IMECE2016-67905 – *Alex Francis, Mehdi Gilaki, Daniel Bautista, University of Wisconsin-Milwaukee, Milwaukee, WI, United States, Ilya Avdeev, University of Wisconsin - Milwaukee, Milwaukee, WI, United States* **2:18PM – Improving Contact Interfaces in Fully Printed Carbon Nanotube Thin-Film Transistors** **Technical Presentation.** IMECE2016-67923 – *Changyong Cao, Joseph B. Andrews, Aaron D. Franklin, Duke University, Durham, NC, United States*	**7-7-1 EMERGING APPLICATIONS OF 3D PRINTING** **ROOM 131A** *Session Organizer: Scott Curran, ORNL, Knoxville, TN, United States* *Session Co-Organizer: Arden Moore, Louisiana Tech University, Ruston, LA, United States* **1:15PM – Oak Ridge National Laboratory Additive Manufacturing Integrated Energy demonstration project overview: Case study of additive manufacturing enabling rapid innovation in integrated energy systems** **Technical Paper Publication.** IMECE2016-66256 – *Roderick Jackson, Oak Ridge National Laboratory, Oak Ridge, TN, United States, Scott Curran, ORNL, Knoxville, TN, United States, Paul Chambon, Brian Post, Lonnie Love, Robert Wagner, Burak Ozpineci, Madhu Chinthavali, Oak Ridge National Laboratory, Knoxville, TN, United States, Michael Starke, Oak Ridge National Laboratory, Oak Ridge, TN, United States, Johney Green Jr, Oak Ridge National Laboratory, Knoxville, TN, United States, Lucas Tryggestad, Brian Lee, Skidmore, Owings & Merrill, Chicago, IL, United States* **1:36PM – Design and Performance of Novel Low-Profile Heat Sinks Created Through Additive Manufacturing** **Technical Paper Publication.** IMECE2016-66320 – *Pratik KC, Sangeet Shrestha, Adarsh Radadia, Leland Weiss, Arden Moore, Louisiana Tech University, Ruston, LA, United States* **1:57PM – 3D Printing for Manufacturing Antique and Modern Musical Instrument Parts** **Technical Paper Publication.** IMECE2016-66652 – *Frank Celentano, Nicholas May, Richard Dipasquale, Edward Simoneau, Manhattan College, Riverdale, NY, United States, Zahra Shahbazi, Manhattan College, Stamford, CT, United States, Sina Shahbazmohamadi, Manhattan College, Riverdale, NY, United States* **2:18PM – Detecting Malicious Defects in 3D Printing Process Using Machine Learning and Image Classification** **Technical Paper Publication.** IMECE2016-67641 – *Mingtao Wu, Syracuse University, Fayetteville, NY, United States, Vir V. Phoha, Young B. Moon, Amith Kamath Belman, Syracuse University, Syracuse, NY, United States*

TIME	
3:30PM–5:15PM	**7-10-1 INTERNET OF THINGS** **ROOM 131A** *Session Organizer: Vinod Kumar, University of Texas at El Paso, El Paso, TX, United States* *Session Co-Organizer: Ruben Costa, UNINOVA, Caparica, Portugal* **3:30PM – KEY ENABLERS DRIVING CHANGE IN THE ENGINEERING ANALYSIS & SIMULATION INDUSTRY** **Technical Presentation.** IMECE2016-65252 – *Matthew Ladzinski, NAFEMS, Granville, OH, United States, Rodney Dreisbach, Retired, Kent, WA, United States* **3:51PM – Experimental Investigation on Tag Placement Affecting the Efficient Encoding of Multiple Passive UHF RFID Tags with Unique Identifiers** **Technical Paper Publication.** IMECE2016-67472 – *Yi Zhou, Zi Qin Phua, Vitor N.B. Rangel, Johne Parker, University of Kentucky, Lexington, KY, United States* **4:12PM – Next-generation exa-scale capable mutliphase solver with Trilinos** **Technical Paper Publication.** IMECE2016-67962 – *Ashesh Chattopadhyay, V M K Kotteda, Vinod Kumar, University of Texas at El Paso, El Paso, TX, United States, William Spotz, Sandia National Labs, Albuquerque, NM, United States* **4:33PM – Big Data processing and Storage Framework for ITS - A case study on dynamic tolling** **Technical Paper Publication.** IMECE2016-68069 – *Paulo Figueiras, Ricardo Silva, UNINOVA, Caparica, Portugal, André Ramos, TIS - Transportes, Inovação e Sistemas, Lisboa, Portugal, Guilherme Guerreiro, Faculdade de Ciências e Tecnologia, Universidade Nova de Lisboa, Caparica, Portugal, Ruben Costa, UNINOVA, Caparica, Portugal, Ricardo Jardim-Goncalves, Universidade Nova De Lisboa - Faculdade De Cincias E Tecnologia, Caparica, Portugal**7-12-1 ENGINEERING RESEARCH IN HEALTHCARE** **ROOM 131B 3:30PM–5:15PM** *Session Organizer: Craig R. Carignan, University of Maryland, College Park, MD, United States* **3:30PM – Exoskeleton Wrist Design Using Composite Visualization Methods** **Technical Paper Publication.** IMECE2016-65445 – *Thomas D. James, Craig R. Carignan, University of Maryland, College Park, MD, United States* **3:51PM – Image Guided Automation of Endovascular Robotic Surgery** **Technical Paper Publication.** IMECE2016-65922 – *Aditya Reddy Ashammagari, University at Buffalo, urbana, IL, United States, Naveen Kumar Sankaran, Pramod Chembrammel, university of illinois at urbana champaign, urbana, IL, United States, Ravikiran Chollangi, University at Buffalo, urbana, IL, United States, Adnan Siddiqui, Kenneth Snyder, University at Buffalo, buffalo, NY, United States, Thenkurussi Kesavadas, University of Illinois at Urbana-Champaign, Urbana, IL, United States* **4:12PM – Temporal Case-Based Reasoning for healthcare applications** **Technical Paper Publication.** IMECE2016-67066 – *Ibrahim Zeid, Northeastern Univ, Boston, MA, United States, Niloofar Jalali, Sagar Kamarthi, Northeastern University, Boston, MA, United States, Kamal Jethwani, Stephen Agboola, Harvad Medical School, Boston, MA, United States* **4:33PM – A Novel Design of Thermostat based on Fishing Line Muscles** **Technical Paper Publication.** IMECE2016-67298 – *Lokesh Kumar Saharan, The University of Texas at Dallas, Richardson, TX, United States, Yonas Tadesse, The University of Texas At Dallas (UTD), Richardson, TX, United States*

TIME	
10:30AM–12:15PM	**8-18-1 SESSION I** **ROOM 121C** *Session Organizer: George Nelson, University of Alabama in Huntsville, Huntsville, AL, United States* *Session Co-Organizer: Christopher Depcik, University of Kansas, Lawrence, KS, United States, Yunho Hwang, Univ Of Maryland, College Park, MD, United States* **10:30AM – SmartBattery Enabled by In-Cell Sensors and Actuators** **Track Plenary Presentation.** IMECE2016-68863 – *Chao-Yang Wang, Pennsylvania State Univ, University Park, PA, United States*
1:30PM–3:15PM	**8-1-1 ENERGY-RELATED MULTIDISCIPLINARY - 1** **ROOM 131C** *Session Organizer: Anthony Fresco, Carter, DeLuca, Farrell, Schmidt LLP, Melville, NY, United States* *Session Co-Organizer: Lorena Giordano, Laboratoire Réactions et Génie des Procédés (LRGP), Nancy, France* **1:30PM – Solute Ion Linear Alignment As The Energy Source To Address Aquifer Depletion Fresh Water Scarcity And Sea Level Rise** **Technical Paper Publication.** IMECE2016-65930 – *Anthony Fresco, Carter, DeLuca, Farrell, Schmidt LLP, Melville, NY, United States* **1:51PM – Integrated process for Textile Cotton Waste (TCW) valorization: waste-to-energy and wastewater decontamination** **Technical Paper Publication.** IMECE2016-66706 – *Joana Carvalho, CT2M Center For Mechanical and Materials Technologies, Mechanical Engineering Department, Guimarães, Portugal, Andre Ribeiro, Jorge Araujo, CVR - Centro para a Valorização de Resíduos, Guimaraes, Portugal, Candida Vilarinho, CT2M Center For Mechanical and Materials Technologies, Mechanical Engineering Department, Guimaraes, Portugal* **2:12PM – SUSTAINABILITY INDEX OF COMMUNITY ENERGY SYSTEMS FOR BENCHMARKING AND MULTI-CRITERIA DECISION ANALYSIS** **Technical Paper Publication.** IMECE2016-66887 – *Salim Moslehi, T. Agami Reddy, Arizona State University, Tempe, AZ, United States* **2:33PM – Using Flared Natural Gas for Atmospheric Water Harvesting For Oilfield Operations** **Technical Presentation.** IMECE2016-68482 – *Enakshi Wikramanayake, The University of Texas At Austin, Austin, TX, United States, Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States* **2:54PM – Mathematical Modeling for Mineral Matter Redistribution in Pulverized Coal Combustion** **Technical Presentation.** IMECE2016-68732 – *Noman Sadi, Arkansas State University, Jonesboro, AR, United States, Kwangkook Jeong, Arkansas State University, State University, AR, United States* **8-2-1 EXERGO-ECONOMIC ANALYSIS OF ENERGY SYSTEMS** **ROOM 221A** *Session Organizer: Terry J. Hendricks, Nasa-Jet Propulsion Laboratory/Calif Inst of Tech, Pasadena, CA, United States* *Session Co-Organizer: Lorena Giordano, Laboratoire Réactions et Génie des Procédés (LRGP), Nancy, France* **1:30PM – Entropy generation minimization for crystallization processes** **Technical Paper Publication.** IMECE2016-66531 – *Lingen Chen, Naval University of Engineering, Wuahn, China, Shaojun Xia, Fengrui Sun, Naval University of Engineering, Wuhan, China* **1:51PM – Entropy generation minimization for heat exchangers with heat leakage** **Technical Paper Publication.** IMECE2016-66553 – *Shaojun Xia, Naval University of Engineering, Wuhan, China, Lingen Chen, Naval University of Engineering, Wuahn, China, Fengrui Sun, Naval University of Engineering, Wuhan, China* **2:12PM – Energy and Exergy Analysis of a Biomass Power Plant** **Technical Paper Publication.** IMECE2016-66899 – *Joao Silva, Senhorinha Teixeira, University of Minho, Guimaraes, Portugal, Simone Preziati, EDP, Lisboa, Portugal, Jose Teixeira, University of Minho, Guimaraes, Portugal* **2:33PM – Exergoeconomic Evaluation Conducted with Specific Costs and Specific Revenues** **Technical Presentation.** IMECE2016-67242 – *Tatiana Morosuk, George Tsatsaronis, Ruslan Portnov, Technical University Berlin, Berlin, Germany*

TIME	
1:30PM–3:15PM	**8-4-1 CHP AND COOLING SYSTEMS** **ROOM 221B** *Session Organizer: Gregory Kowalski, Northeastern University, Beverly, MA, United States* *Session Co-Organizer: Roberto Carapellucci, University of L`Aquila, L`Aquila, IT, Italy* **1:30PM – Analysis of an adsorption chiller cooling system for various types of solar collectors using the f-chart cooling method** **Technical Paper Publication.** IMECE2016-65191 – *Irene Koronaki, Efstratios Papoutsis, Michail Nitsas, National Technical University of Athens, Zografou, Greece* **1:51PM – Discrete Adjoint Sensitivities For The Real-Time Optimal Control Of Large District Heating Networks During Failure Events** **Technical Paper Publication.** IMECE2016-66734 – *Alberto Pizzolato, Politecnico di Torino, Turin, Italy, Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy, Adriano Sciacovelli, University of Birmingham, Birmingham, United Kingdom* **2:12PM – Cooling of concentrated photovoltaic system using various configurations of phase-change material heat sink** **Technical Paper Publication.** IMECE2016-67111 – *Mahmoud Ahmed, Assiut University, Assiut, Egypt, Mohamed Emam, Egypt -Japanese University of Science and Technology (E-JUST), Alexanderia, Egypt, Shinichi Ookawara, Tokyo Institute of Technology, Tokyo, Japan, Tokyo, Japan* **2:33PM – Optimization of the thermal request profiles of buildings connected with a large district heating network** **Technical Paper Publication.** IMECE2016-67475 – *Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy, Elisa Guelpa, Giulia Barbero, Francesco Brundu, Andrea Acquaviva, Edoardo Patti, Politecnico di Torino, Torino, Italy* **2:54PM – Evaluation of a Residential Scale Hybrid Co-Generation System** **Technical Paper Publication.** IMECE2016-65057 – *Shuni Mao, Northeastern University, Boston, MA, United States, Gregory Kowalski, Northeastern University, Beverly, MA, United States, Mansour Zenouzi, Wentworth Inst Of Tech, Boston, MA, United States*
	8-5-1 ENERGY SYSTEMS COMPONENTS - I **ROOM 221C** *Session Organizer: Roberto Capata, University Of Roma, Roma, Italy* *Session Co-Organizer: Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy* **1:30PM – Screw Rotor Profiles of Variable Lead Vacuum and Multiphase Machines and Their Caclulation Models** **Technical Paper Publication.** IMECE2016-66314 – *Nikola Stosic, Sham Rane, Ahmed Kovacevic, Ian K Smith, City University London, London, United Kingdom* **1:51PM – IN-FURNACE SULFUR CAPTURE BY CO-FIRING COAL WITH ALKALI-BASED SORBENTS** **Technical Paper Publication.** IMECE2016-65549 – *Emad Rokni, Hsun-Hsien Chi, Yiannis Levendis, Northeastern University, Boston, MA, United States* **2:12PM – Dual-pump CARS Measurements for N2 Thermometry of Crude Oil Spray Burner** **Technical Presentation.** IMECE2016-65693 – *Alfredo Tuesta, Naval Research Laboratory, Washington, DC, United States, Steven Tuttle, Naval Research Laboratory, Brandywine, MD, United States* **2:33PM – Coaxial Borehole Heat Exchanger Simulation with Power Generation Potential for Chachimbiro, Ecuador** **Technical Paper Publication.** IMECE2016-65862 – *Diego Siguenza, Escuela Superior Politecnica Del Litoral ESPOL, Guayaquil, Ecuador, Dawei Wu, Newcastle University, Newcastle, Tyne and Wear, United Kingdom, Guillermo Soriano, Escuela Superior Politecnica Del Litoral, Guayaquil, Ecuador* **2:54PM – Design of a Power Waveform Capture Platform for Plug Load Monitoring** **Technical Paper Publication.** IMECE2016-65984 – *Joseph Hoffbeck, Heather Dillon, Stephen Hildebrand, University of Portland, Portland, OR, United States*
	8-11-1 SOLAR THERMAL ENERGY AND THERMAL ENERGY STORAGE **ROOM 131B** *Session Organizer: Dervis Demirocak, Texas A&M University - Kingsville, Kingsville, TX, United States* **1:30PM – Numerical Study of Thermochemical Storage Using Ca(OH)2/CaO - High Temperature Applications** **Technical Paper Publication.** IMECE2016-65909 – *Qasim A. Ranjha, Nasser Vahedi, Alparslan Oztekin, Lehigh University, Bethlehem, PA, United States* **1:51PM – High Temperature Thermochemical Energy Storage Using Packed Beds** **Technical Paper Publication.** IMECE2016-65912 – *Qasim A. Ranjha, Nasser Vahedi, Alparslan Oztekin, Lehigh University, Bethlehem, PA, United States* **2:12PM – DESIGN OF AN INNOVATIVE SOLAR UPDRAFT AERATION SYSTEM FOR FISH PONDS IN THE DEVELOPING WORLD USING THERMOFLUIDIC COMPUTATIONAL MODELLING** **Technical Paper Publication.** IMECE2016-66286 – *Ali Ebrahimi Khabbazi, Shakya Sur, Ahmed Mahmoud, University of Toronto, Toronto, ON, Canada, Elan Pavlov, Curiousitate Inc., Cambridge, MA, United States, Amy Bilton, University of Toronto, Toronto, ON, Canada* **2:33PM – Solar Selective Volumetric Receivers for Harnessing Solar Thermal Energy** **Technical Paper Publication.** IMECE2016-66599 – *Vikrant Khullar, Thapar University, Patiala, Punjab, India, Himanshu Tyagi, Indian Institute of Technology Ropar, Rupnagar, PB, Punjab, India, Todd Otanicar, University of Tulsa, Tulsa, OK, United States, Yasitha hewakuruppu, University of New South Wales, Sydney, Australia, Robert Taylor, The University of New South Wales, Sydney, Australia* **2:54PM – Applicability of Heat Mirrors in Reducing Thermal Losses in Concentrating Solar Collectors** **Technical Paper Publication.** IMECE2016-66565 – *Prashant Mahendra, Vikrant Khullar, Madhup Mittal, Thapar University, Patiala, Punjab, India*

TIME

3:45PM–5:30PM

8-1-2 ENERGY-RELATED MULTIDISCIPLINARY - 2

ROOM 131C

Session Organizer: Adriano Sciacovelli, University of Birmingham, Birmingham, United Kingdom

Session Co-Organizer: Claudia Toro, CNR Institute of Environmental Geology and Geoengineering IGAG c/o Department of Mechanical and Aerospace Engineering (DIMA), Roma, Italy

3:45PM – Performance Analysis for Pressure Retarded Osmosis: Experimentation with High Pressure Difference and Varying Flow Rate, Considering Exposed Membrane Area
Technical Paper Publication. IMECE2016-67290 – *Thomas T.D. Tran, Keunhan (Kay) Park, Amanda D. Smith, University of Utah, Salt Lake City, UT, United States*

4:06PM – Tuning And Implementation Of A Feedback Control Strategy For Drying Process Based On IAE Minimization
Technical Paper Publication. IMECE2016-67291 – *Ana Lugo, Cinthia Audivet Duran, Marco Sanjuan, Universidad del Norte, Barranquilla, Colombia*

4:27PM – Swelling and Deswelling kinetics of superabsorbent Polymer
Technical Paper Publication. IMECE2016-68042 – *Mahmoud Elsharafi, Midwestern State University, withita falls, TX, United States, Cody Chancellor, Midwestren State University, Burkburnett, TX, United States*

4:48PM – Evaluate the Effect of pH on the Mixed Brine and Chemical Solutions
Technical Paper Publication. IMECE2016-68043 – *Mahmoud Elsharafi, Midwestern State University, withita falls, TX, United States, Cody Chancellor, Midwestren State University, Burkburnett, TX, United States, Connor Kirby, midwestern state university, wichita falls, TX, United States*

5:09PM – Noble Hydroxide Based Phase Change Materials For Thermal Energy Storage
Technical Presentation. IMECE2016-68229 – *Hasan Md. Zahir, Shamseldin A. Mohamed, King Fahd University of Petroleum & Minerals, Dhahran, Eastern, Saudi Arabia*

8-2-2 APPLIED THERMODYNAMIC SYSTEMS AND APPLICATIONS

ROOM 221A

Session Organizer: Irene Koronaki, National Technical University of Athens, Zografou, Greece

Session Co-Organizer: Michail Nitsas, National Technical University of Athens, Zografou, Greece

3:45PM – Entropy generation analysis for prediction of the preferential propagation directions of forest fires
Technical Paper Publication. IMECE2016-67393 – *Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy, Elisa Guelpa, Politecnico di Torino, Torino, Italy*

4:06PM – Thermodynamic Analysis of Steam Jet Ejector
Technical Paper Publication. IMECE2016-66634 – *Zhou Shaoxiang, Li Yao, North China Electric Power University, Beijing, Beijing, China*

4:27PM – 3D Computational Analysis Of Thermal&Hydraulic Performance of Louvered Fin Heat Exchanger with Variable Louver Angle and Louver Pitch
Technical Paper Publication. IMECE2016-66534 – *Abdulkerim Okbaz, Yildiz Technical University, ISTANBUL, ISTANBUL, Turkey, Ali Bahadir Olcay, Yeditepe university, Istanbul, ISTANBUL, Turkey, Ali Pinarbasi, Yildiz Technical University, ISTANBUL, ISTANBUL, Turkey*

4:48PM – Constructal design for helm-shaped fin with internal heat sources
Technical Paper Publication. IMECE2016-66561 – *Huijun Feng, Naval University of Engineering, Wuhan, China, Lingen Chen, Naval University of Engineering, Wuahn, China, Zhihui Xie, Fengrui Sun, Naval University of Engineering, Wuhan, China*

5:09PM – Modelling and simulation of a solar driven single effect absorption cooling systems in Aspen Hysys®
Technical Paper Publication. IMECE2016-67601 – *Erni S. Ramos, Univesidad del Atlantico, Puerto Colombia, Atlantico, Colombia, Guillermo Valencia, Universidad del Atlantico, Barranquilla, Puerto Colombia, Colombia, Marley Vanegas, Universidad del Atlantico, Puerto Colombia, Atlantico, Colombia, Marisol Osorio, Universidad Pontificia Bolivariana, Medellin, Antioquia, Colombia, Adriana M. Jiménez, Universidad del Atlantico, Puerto Colombia, Atlantico, Colombia*

8-4-2 NATURAL GAS-BASED SYSTEMS AND COMBUSTION PROCESSES

ROOM 221B

Session Organizer: **Tatiana Morosuk**, *Technical University Berlin, Berlin, Germany*
Session Co-Organizer: **Roberto Carapellucci**, *University of L`Aquila, L`Aquila, IT, Italy*

3:45PM – Environmental Impact Assessment Applied to the Chain ?Natural gas ? LNG ? Natural Gas?
Technical Presentation. IMECE2016-67248 – *Tatiana Morosuk, Technical University Berlin, Berlin, Germany, Young Duk Lee, Korea Institute of Machinery & Materials, Daejeon, Korea (Republic), Stefanie Tesch, George Tsatsaronis, Technical University Berlin, Berlin, Germany*

4:06PM – Exergy Analysis of a Novel Cryogenic Concept for the Liquefaction Of Natural Gas Integrated into an Air Separation Process
Technical Paper Publication. IMECE2016-67221 – *Stefanie Tesch, Tatiana Morosuk, George Tsatsaronis, Technical University Berlin, Berlin, Germany*

4:27PM – Mixed Combustion/Electrochemical Energy Conversion for High-Efficiency, Transportation-Scale Engines
Technical Presentation. IMECE2016-67587 – *John Fyffe, Mark Donohue, M C Regalbuto, Chris Edwards, Stanford University, Stanford, CA, United States*

4:48PM – Flow and Combustion Characteristics of Annular Advanced Vortex Combustor
Technical Paper Publication. IMECE2016-65304 – *Yangbo Deng, Luohan Zheng, Fengmin Su, Dalian Maritime University, Dalian, Liaoning, China, Chenshuo Ma, Northeast Yucai school, Shenyang, China*

5:09PM – Combustion Characteristic of Flow through A Low Swirl Injector
Technical Paper Publication. IMECE2016-65957 – *Yangbo Deng, Luohan Zheng, Fengmin Su, Dalian Maritime University, Dalian, Liaoning, China, Chenshuo Ma, Northeast Yucai school, Shenyang, China*

8-5-2 ENERGY SYSTEMS COMPONENTS - II

ROOM 221C

Session Organizer: Roberto Capata, University Of Roma, Roma, Italy

Session Co-Organizer: Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy

3:45PM – Feasibility analysis and Component design for a vehicular ORC system
Technical Paper Publication. IMECE2016-65607 – *Roberto Capata, University Of Roma, Roma, Italy, Sara Fiorelli, Bridgstone - Italy, Roma, Italy*

4:06PM – CFD Simulation Study of a Heat Pipe Heat Exchanger Effect on a Ventilated Circular Tube Air-Cooled Condenser
Technical Paper Publication. IMECE2016-65968 – *Zulkarnaini Abdullah, University of Tecnology Sydney, NSW, Australia, B. Phuoc Huynh, Univ Of Tech Sydney, Broadway Nsw 2007, Australia, Awang Idris, Universiti Kuala Lumpur Malaysian Spanish Institute, Kulim, Malaysia*

4:27PM – Thermoeconomic Analysis of an Organic Rankine Cycle Coupled to an ICE-Based Cogeneration Plant
Technical Paper Publication. IMECE2016-66519 – *Marco Badami, Ilaria Mangiantini, Armando Portoraro, Politecnico di Torino - DENERG, Torino, Italy, Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy, Elisa Vigliani, Comau SpA, Grugliasco (TO), Italy*

4:48PM – Dehumidification Performance of Mass Exchangers Consisted of Silica Aerogel Coated Metal Foams
Technical Paper Publication. IMECE2016-67740 – *Kashif Nawaz, Oak Ridge National Laboratory, Oak Ridge, TN, United States, Shelly Schmidt, UIUC, Urbana, IL, United States, Anthony Jacobi, Univ Of Illinois, Urbana, IL, United States*

5:09PM – Performance evaluation of concentrated photovoltaic system using a microchannel heat sink
Technical Paper Publication. IMECE2016-66724 – *Mahmoud Ahmed, Assiut University, Assiut, Egypt, Ali Radwan, Egypt -Japanese University of Science and Technology (E-JUST), Alexanderia, Egypt, Shinichi Ookawara, Tokyo Institute of Technology, Tokyo, Japan, Tokyo, Japan*

TIME	
10:30AM–12:15PM	**8-18-2 SESSION II** **ROOM 129A** *Session Organizer: Christopher Depcik, University of Kansas, Lawrence, KS, United States* *Session Co-Organizer: Yunho Hwang, Univ Of Maryland, College Park, MD, United States, Roberto Carapellucci, University of L`Aquila, L`Aquila, IT, Italy* **10:30AM – Metal Oxide-Based Thermochemical Redox Processes for Producing Solar Fuels and Storing Thermal Energy** **Track Plenary Presentation.** IMECE2016-68864 – *James Miller, Sandia National Laboratories, Albuquerque, NM, United States*
1:30PM–3:15PM	**8-4-3 CARBON CAPTURE AND STORAGE** **ROOM 221A** *Session Organizer: Chuanwei Zhuo, Cabot Corp., Billerica, MA, United States* *Session Co-Organizer: Pengxiang Wang, Harbin Institute of Technology, Harbin, Heilongjiang, China* **1:30PM – Process Simulation and Energy Analysis of Oxy-Coal Combustion Steam Systems (OCSCS) with Near-zero Emissions** **Technical Paper Publication.** IMECE2016-65274 – *Pengxiang Wang, Yijun Zhao, Shaozeng Sun, Harbin Institute of Technology, Harbin, Heilongjiang, China* **1:51PM – Hydrogen Production from Methane Steam Reforming with CO2 Capture through Metallic Membranes** **Technical Paper Publication.** IMECE2016-65363 – *Roberto Carapellucci, University of L`Aquila, L`Aquila, IT, Italy, Eric Favre, Université de Lorraine, Nancy, France, Lorena Giordano, Laboratoire Réactions et Génie des Procédés (LRGP), Nancy, France, Denis Roizard, Université de Lorraine, Nancy, France* **2:12PM – Experimental Investigation of a Spark Ignited Engine using Magnetic Air Conditioner (MAC) for improved Performance and reduced emissions** **Technical Paper Publication.** IMECE2016-66521 – *Narayanrao Hargude, Rajarambapu Institute of Technology,Rajaramnagar India-415 409, Islampur, Maharahtra, India, Suresh Sawant, Rajarambapu Institute of Technology, Sakharale, India* **2:33PM – Analysis of the Performance of Carbon Dioxide Capture Using Sorbent-Loaded Hollow Fiber Modules in Coal-Fired Power Plants** **Technical Presentation.** IMECE2016-67747 – *Dhruv C Hoysall, Bashir El Fil, Srinivas Garimella, Georgia Inst Of Technology, Atlanta, GA, United States* **2:54PM – A comparative analysis of natural gas fired combined cycle adopting carbon capture technologies** **Technical Presentation.** IMECE2016-68462 – *Ji-Ho Ahn, Byeong Seon Choi, Inha University, Incheon, Korea (Republic), Tong-seop Kim, Inha University, Incheon 402-751, Korea (Republic)* **8-5-3 ENERGY SYSTEMS COMPONENTS - III** **ROOM 221B** *Session Organizer: Roberto Capata, University Of Roma, Roma, Italy* *Session Co-Organizer: Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy* **1:30PM – On the Hydrodynamic Analysis and Heat Transfer Investigation of Forced Oscillated Vertical Annular Fluid Column** **Technical Paper Publication.** IMECE2016-66915 – *Ersin Sayar, Istanbul Technical University, Istanbul, Turkey* **1:51PM – Design, Build and Test a 200-kW ORC System in a Steel Processing Plant** **Technical Presentation.** IMECE2016-68509 – *Taehong Sung, Pusan National University, Busan, Korea (Republic), Eunkoo Yun, Korea Atomic Energy Research Institute, Deajeon, Korea (Republic), Hyundong Kim, Sang Youl Yoon, Pusan National University, Busan, Korea (Republic), Bumseog Choi, Korea Institute Of Machinery & Materials, Daejon, Korea (Republic), Kuisoon Kim, Jangmok Kim, Pusan National University, Busan, Korea (Republic), Yang Beom Jung, BIP Industry Co., Ltd., Busan, Korea (Republic), Kyung-chun Kim, Pusan National University, Busan, Korea (Republic)* **2:12PM – Next Generation Carbon-Fueled Hybrid Combined Cycle Power Plant Concept** **Technical Presentation.** IMECE2016-65138 – *Timothy McDonald, Retired (Electric Utility Engineer), Glendale, AZ, United States* **2:33PM – Mist cooling technology for thermoelectric power plants** **Technical Paper Publication.** IMECE2016-65377 – *Enes Gokkus, Global Prior Art Inc., Boston, MA, United States, Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States* **2:54PM – Conceptual design of an energy harvesting accessory for road vehicles** **Technical Paper Publication.** IMECE2016-65553 – *Gerardo Hurtado-Hurtado, Queretaro Autonomous University, San Juan Del Rio, Mexico, Jose Antonio Romero Navarrete, Queretaro Autonomous University, San Juan Del Rio, Aro., Mexico*

TIME	
1:30PM–3:15PM	

8-10-1 AIR CONDITIONING

ROOM 222A

Session Organizer: Kwangkook Jeong, Arkansas State University, State University, AR, United States

1:30PM – Evaluation of an Extended-Duct Air Delivery System in Tall Spaces Conditioned by Rooftop Units
Technical Paper Publication. IMECE2016-65523 – *Ryan Kennett, University of Maryland, College Park, MD, United States, Yunho Hwang, Reinhard Radermacher, Univ Of Maryland, College Park, MD, United States*

1:51PM – Energy consumption modeling of a heat pump system for combined space conditioning and residential water heating in a typical household in Quito, Ecuador.
Technical Paper Publication. IMECE2016-66243 – *Gabriel Agila, Escuela Superior Politecnica del Litoral ESPOL, Guayaquil, Guayas, Ecuador, Guillermo Soriano, Escuela Superior Politecnica Del Litoral, Guayaquil, Ecuador*

2:12PM – Parameter Estimation for Commercial HVAC System Models from Standard Test Data
Technical Paper Publication. IMECE2016-66809 – *Hannah Luthman, John Gardner, Boise State University, Boise, ID, United States*

2:33PM – Thermal Energy Storage for Building-Scale Solar Organic Rankine Cycles
Technical Presentation. IMECE2016-68572 – *Deep Poudel, Prairie View A&M University, houston, TX, United States, Rambod Rayegan, Prairie View A&M University, Prairie View, TX, United States*

2:54PM – EXERGY STUDY OF AIR-CONDITIONED SPACE OF A PROTOTYPE SCALE OF A RIVER VESSEL ROOM
Technical Paper Publication. IMECE2016-65093 – *Juan Fajardo, Universidad Tecnológica De Bolívar, Cartagena, Colombia, Bienvenido Sarria, Universidad Tecnológica de Bolivar, Cartagena, Colombia, Mario Álvarez-Guerra, Universidad de Cienfuegos, Cienfuegos, Cuba, Oscar Cruz, Universidad Central de las Villas, Santa Clara, Cuba*

8-11-5 WIND ENERGY AND TIDAL ENERGY

ROOM 222B

Session Organizer: Christopher Depcik, University of Kansas, Lawrence, KS, United States

Session Co-Organizer: Jim Kuo, California State University, Los Angeles, Los Angeles, CA, United States

1:30PM – Understanding the Influence of Turbine Geometry and Atmospheric Turbulence on Wind Turbine Wakes
Technical Paper Publication. IMECE2016-67421 – *Ping Gu, University of Toronto, Toronto, ON, Canada, Jim Kuo, California State University, Los Angeles, Los Angeles, CA, United States, David A. Romero, Cristina H. Amon, Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, ON, Canada*

1:51PM – Analysis and modifications of turbulence models for wind turbine wake simulations in atmospheric boundary layers
Technical Paper Publication. IMECE2016-67353 – *Enrico G. A. Antonini, David A. Romero, Cristina H. Amon, Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, ON, Canada*

2:12PM – CFD Analysis Of Wind Power Potential Across Rooftop Gaps Of Tall Buildings
Technical Presentation. IMECE2016-68536 – *Gargi Kailkhura, Chaitanya Kadakia, Huei-Ping Huang, Arizona State University, Tempe, AZ, United States*

2:33PM – Engineering Options for an Emission-free Global Economy by 2050
Technical Paper Publication. IMECE2016-66345 – *Max Platzer, University of California, MAE Department, Davis, CA, United States, Nesrin Sarigul-Klijn, UCDavis, Davis, CA, United States*

2:54PM – A Vertical Axis Wave Turbine with Hydrofoil Blades
Technical Paper Publication. IMECE2016-65952 – *Yingchen Yang, University of Texas Rio Grande Valley, Brownsville, TX, United States, Isaiah Diaz, Uinversity of Texas Rio Grande Valley, Brownsville, TX, United States, Sergio Soto Quintero, University of Texas Rio Grande Valley, Brownsville, TX, United States*

8-13-1 FUEL CELLS

ROOM 221C

Session Organizer: George Nelson, University of Alabama in Huntsville, Huntsville, AL, United States

Session Co-Organizer: Partha Mukherjee, Texas A&M University, College Station, TX, United States

1:30PM – Computational analysis of the steam reforming process with low-temperature waste heat source
Technical Paper Publication. IMECE2016-66420 – *Gahui Shin, Jinwon Yun, Sangseok Yu, Chungnam National University, Daejeon, Korea (Republic)*

1:51PM – A NOVEL 3D PRINTING TECHNIQUE TO SYNTHESISE GAS DIFFUSION LAYER FOR PEM FUEL CELL APPLICATION
Technical Paper Publication. IMECE2016-65554 – *Arunkumar Jayakumar, AUT, Auckland, New Zealand, Maximiano Ramos, AUT,, Auckland, New Zealand, Ahmed Al-Jumaily, Auckland University of Technology, Institute of Biomedical Technologies, Auckland, New Zealand*

2:12PM – Simplified Theoretical Performance Model of a Solid Oxide Fuel Cell
Technical Presentation. IMECE2016-65815 – *Irad Brandys, NRCN, Ben Gurion University of the Negev, Beer Sheva, Israel, Yedidia Haim, Yaniv Gelbstein, Ben Gurion University of the Negev, Beer Sheva, Israel*

2:33PM – Effect of gradient anode on mass transfer performance for anode-supported planar solid oxide fuel cells
Technical Paper Publication. IMECE2016-66095 – *Pei Fu, Xi'an Jiao Tong University, Xi'an, Shaanxi, China, Min Zeng, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Qiuwang Wang, Xi'an Jiao Tong University, Xi'an, China*

2:54PM – Flow Analysis in a Direct Borohydride-Hydrogen Peroxide Fuel-Cell Stack
Technical Paper Publication. IMECE2016-67600 – *Sotirios Lyrintzis, Indiana University - Purdue University Fort Wayne, West lafayette, IN, United States, Donald Mueller, Indiana University - Purdue University Fort Wayne, Fort Wayne, IN, United States, John Rusek, Swift Enterprises, Lafayette, IN, United States*

TIME

3:45PM–5:30PM

8-4-4 DESIGN AND ANALYSIS OF ENERGY SYSTEMS - 1

ROOM 221A

Session Organizer: Fisseha Alemayehu, West Texas A&M, Canyon, TX, United States

Session Co-Organizer: Lorena Giordano, Laboratoire Réactions et Génie des Procédés (LRGP), Nancy, France

3:45PM – VALIDATION OF THE ASVDADD CONSTRAINT SELECTION ALGORITHM FOR EFFECTIVE RCCE MODELING OF NATURAL GAS IGNITION IN AIR
Technical Paper Publication. IMECE2016-65323 – *Luca Rivadossi, Gian-Paolo Beretta, Univ di Brescia, Brescia, Italy*

4:06PM – PROBABILISTIC APPROACH TO DETERMINE THE EFFICIENCY OF WAVE ENERGY CONVERSION SYSTEMS
Technical Paper Publication. IMECE2016-67942 – *Stephen Ekwaro-Osire, Texas Tech Univ, Lubbock, TX, United States, Ozhan Gecgel, Shweta Dabetwar, Haileyesus Endeshaw, Texas Tech University, Lubbock, TX, United States, Fisseha Alemayehu, West Texas A&M, Canyon, TX, United States, Jamie Chapman, João Paulo Dias, Texas Tech University, Lubbock, TX, United States*

4:27PM – Exergo-Risk-Hazard-Analysis: Theory and Application
Technical Presentation. IMECE2016-67238 – *Tatiana Morosuk, Edgar Cano, Stefanie Tesch, George Tsatsaronis, Technical University Berlin, Berlin, Germany*

4:48PM – Measurement of Temperature of Chemically Reacting Internal Flows Using Tunable Diode Laser Absorption Spectrometer
Technical Presentation. IMECE2016-66390 – *Kazim Akyuzlu, Univiversity Of New Orleans, New Orleans, LA, United States, Mine Kaya, University of New Orleans, New Orleans, LA, United States*

5:09PM – Wireless power supply efficiency and quality in metal shaft environment with eddy current losses and electromagnetic interference
Technical Paper Publication. IMECE2016-68031 – *Miaomiao Xu, Xiongzhu Bu, Zhangjie Tu, Nanjing University of Science and Technology, Nanjing, China*

8-6-1 LOW-TEMPERATURE ENERGY CONVERSION SYSTEMS

ROOM 221C

Session Organizer: Adriano Sciacovelli, University of Birmingham, Birmingham, United Kingdom

Session Co-Organizer: Andrea Lazzaretto, Università degli studi di Padova, Padova 35122, Italy, Bellur Shiva Prasad, Wright State University, Sidney, OH, United States

3:45PM – Cooling Technology Comparison and Design Method for a Waste-Heat Driven System
Technical Presentation. IMECE2016-65379 – *Nicholas W. Fette, Sami Alelyani, Jonathan A Sherbeck, Arizona State University, TEMPE, AZ, United States, Patrick Phelan, Arizona State University, Scottsdale, AZ, United States*

4:06PM – Analysis of Heat-Driven Combined Cooling and Desalination
Technical Paper Publication. IMECE2016-65390 – *Sami Alelyani, Nicholas W. Fette, Ellen Stechel, Arizona State University, Tempe, AZ, United States, Pinchas Doron, AORA Solar, Ltd., Rehovot,, Central District, Israel, Patrick Phelan, Arizona State University, Scottsdale, AZ, United States*

4:27PM – Optimisation of Power Plant Operating on Waste Heat of Gas IC Engine Driven Power Generator
Technical Paper Publication. IMECE2016-66550 – *Matthew Read, Ian K Smith, Nikola Stosic, City University London, London, United Kingdom*

4:48PM – Temperature-Staged Thermal Energy Storage Enabling Low Thermal Exergy
Technical Paper Publication. IMECE2016-67013 – *Terry J. Hendricks, Bill J. Nesmith, Jonathan Grandidier, Nasa-Jet Propulsion Laboratory/Calif Inst of Tech, Pasadena, CA, United States*

5:09PM – Parametric Study Of Dual Bed Adsorption Chillers To Efficiently Utilize Waste Heat And Renewable Energy
Technical Presentation. IMECE2016-68618 – *Vishnu Gupta, IIT Gandhinagar, Gandhinagar, Gujarat, India, Vaibhav M Joshi, Indian Institute of Technology, Gandhinagar, Gandhinagar, Gujarat, India, Jens Ammann, IBM Research Zurich, Zurich, Switzerland, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India, Patrick Ruch, IBM Research Zurich, Zurich, Switzerland*

8-10-2 BUILDING ENERGY

ROOM 222A

Session Organizer: Navid Goudarzi, University of Maryland, Columbia, MD, United States

3:45PM – Design and Construction of a Heated Garden System Utilizing Steam Condensate from an On Site Boiler
Technical Paper Publication. IMECE2016-68180 – *Robert Dell, The Cooper Union, New York, NY, United States, Chih Shing Wei, Cooper Union, New York, NY, United States, Raj Parikh, Metropolitan Building Consulting Group, New York City, NY, United States, Runar Unnthorsson, University of Iceland, Reykjavík, Iceland, Nicholas Mitchell, The Cooper Union for the Advancement of Science and Art, New York City, NY, United States, William Foley, The Cooper Union, New York, NY, United States*

4:06PM – A Convenient Low Order Thermal Model for Heat Transfer Characteristics of Single Floored Low-Rise Residential Buildings
Technical Paper Publication. IMECE2016-65254 – *Nadish Anand, North Carolina State University, Raleigh, NC, United States, Richard Gould, North Carolina State Univ, Raleigh, NC, United States*

4:27PM – Development and Validation of a Predictive Algorithm for Optimal Control of Venetian Blinds
Technical Paper Publication. IMECE2016-65286 – *Nasim Karizi, T. Agami Reddy, Partha Dasgupta, Arizona State University, Tempe, AZ, United States*

4:48PM – Proposal and assessment of a new CCHP (combined cooling, heating and power) system integrated gas turbine and heat-driven cooling and power cogeneration system
Technical Paper Publication. IMECE2016-65817 – *Wei Han, Inst. of Engineering Thermophysics, Beijing 100190, China, Zefeng Wang, Inst. of Engineering Thermophysics, Beijing, China, Na Zhang, Inst. Engineering Thermophysics, CAS, Beijing, China, Hongguang Jin, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, China, Qiang Chen, China Huadian Science and Technology Institute, Beijing, China*

5:09PM – A Comparison of Commercial Building Retrofits Using EnergyPlus for Energy and Emissions Savings
Technical Paper Publication. IMECE2016-67615 – *Zahra Fallahi, Amanda D. Smith, University of Utah, Salt Lake City, UT, United States*

TIME		
3:45PM–5:30PM	**8-11-6 OCEAN ENERGY, GEOTHERMAL, AND STORAGE** **ROOM 222B** *Session Organizer:* **Christopher Depcik**, *University of Kansas, Lawrence, KS, United States* **3:45PM – DESIGN AND DEVELOPMENT OF A SMALL SCALE OCEAN CURRENT AND WAVE ENERGY CONVERTER** **Technical Paper Publication.** IMECE2016-66793 – *Tyler Johnson, Wentworth Institute of Tech., Bourne, MA, United States*, *Benjamin Phillips, Wentworth Inst Of Tech, Boston, MA, United States*, *Scott Ringuette, Wentworth Institute of Tech., Boston, MA, United States*, *James McCusker, Wentworth Institute of Technology, Boston, MA, United States*, *Mansour Zenouzi, Wentworth Inst Of Tech, Boston, MA, United States* **4:06PM – Non-linear Modeling of Ocean Current Turbine Blades under Large Deflection** **Technical Paper Publication.** IMECE2016-66802 – *Takuya Suzuki, Hassan Mahfuz, Florida Atlantic University, Boca Raton, FL, United States* **4:27PM – Numerical analysis of a geothermal heat exchanger to be implemented in a geothermal-solar hybrid power plant for electricity production in Mexico** **Technical Paper Publication.** IMECE2016-67869 – *Jorge A. Rangel Arista, UMSNH, Morelia, Mexico, Mexico*, *J. Jesus Pacheco Ibarra, Universidad Michoacana De San Nicolás De Hidalgo, Morelia, Mexico*, *Carlos Rubio-Maya, Oskar Javier Gonzalez Pedraza, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico*, *Daniel Alcantar Martinez, UMSNH, Morelia, Mexico* **4:48PM – Numerical simulation of a U-shape geothermal heat exchanger for heat pump system applied to provide air conditioning for an academic facility in Mexico** **Technical Presentation.** IMECE2016-67948 – *Daniel Alcantar Martinez, Jorge A. Rangel Arista, UMSNH, Morelia, Mexico*, *Oskar Javier Gonzalez Pedraza, Universidad Michoacana De San Nicolas De Hidalgo, Morelia, Mexico*, *Crisanto Mendoza-Covarrubias, J. Jesus Pacheco Ibarra, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, Mexico* **5:09PM – Numerical Comparison And Sizing Of Sensible And Latent Thermal Energy Storage For Compressed Air Energy Storage** **Technical Paper Publication.** IMECE2016-66145 – *Mine Kaya, University of New Orleans, New Orleans, LA, United States*, *Ilker Tari, METU, Ankara, Turkey*, *Derek Baker, Middle East Technical University, Ankara, Turkey*	**8-16-1 GENERATION AND USE OF SYNGAS/PRODUCER GAS** **ROOM 221B** *Session Organizer: Mohsen Saffari Pour, KTH Royal Institute of Technology, Stockholm, Sweden* *Session Co-Organizer: Omid Askari, Mississippi State University, Mississippi State, MS, United States* **3:45PM – Mass burning rate and auto-ignition of syngas/air mixtures at high temperatures and pressures** **Technical Paper Publication.** IMECE2016-65163 – *Mimmo Elia, Matthew Ferrari, Omid Askari, Hameed Metghalchi, Northeastern University, Boston, MA, United States* **4:06PM – AN INVESTIGATION OF ACETYLENE/ARGON GAS ADDITIVES TO NATURAL GAS ON THE LAMINAR DIFFUSION FLAME CHARACTERSTICS FOR A HONEYCOMB GASEOUS BURNER** **Technical Paper Publication.** IMECE2016-66010 – *Ahmed Emara, Faculty of Engineering Mattaria- Helwan Univ., Cairo. Egypt, Cairo, Egypt*, *Amr Attia, Faculty of Engineering Mataria- Helwan University-, Cairo, Egypt* **4:27PM – Steam gasification of miscanthus in a double stage downdraft gasifier** **Technical Paper Publication.** IMECE2016-68112 – *Tejasvi Sharma, University of Iowa, Iowa City, IA, United States*, *Diego Yepes, Federal University of Itajuba, Itajuba, Brazil*, *Yunye Shi, Albert Ratner, Univ of Iowa, Iowa City, IA, United States*, *Electo Silva Lora, Federal University of Brazil, Itajuba, Brazil* **4:48PM – THE BEHAVIOR OF IMPURITIES DURING PRODUCER GAS IMPLEMENTATION AS ALTERNATIVE FUEL IN STEEL REHEATING FURNACES: A CFD AND THERMO-CHEMICAL STUDY** **Technical Paper Publication.** IMECE2016-67168 – *Mohsen Saffari Pour, Nils Andersson, Mikael Ersson, Lage Jonsson, KTH Royal Institute of Technology, Stockholm, Sweden*, *John Niska, Anders Rensgard, Swerea MEFOS, Luleå, Sweden*, *Pär Goran Jönsson, KTH Royal Institute of Technology, Stockholm, Sweden*

TIME

10:30AM–12:15PM

8-4-5 DESIGN AND ANALYSIS OF ENERGY SYSTEMS - 2

ROOM 123

Session Organizer: Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States

Session Co-Organizer: Roberto Carapellucci, University of L`Aquila, L`Aquila, IT, Italy

10:30AM – Performance evaluation of Novel Spline-Curved Blades of a Vertical Axis Wind Turbine Based on the Savonius Concept
Technical Paper Publication. IMECE2016-65122 – *Michele Mari, Mauro Venturini, Università degli Studi di Ferrara, Ferrara, Italy, Asfaw Beyene, San Diego State University, San Diego, CA, United States*

10:51AM – A novel information fusion model based on D-S evidence theory for equipment diagnosis
Technical Paper Publication. IMECE2016-65292 – *Dengji Zhou, Shanghai Jiao Tong Univ, Shanghai, China, Tingting Wei, Shanghai Jiao Tong University, Shanghai, China, Huisheng Zhang, Shanghai Jiao Tong Univ, Shanghai, China, Meishan Chen, Shixi Ma, Zhenhua Lu, Shanghai Jiao Tong University, Shanghai, China*

11:12AM – Landfill gas utilization for water, electricity and food production in Texas
Technical Paper Publication. IMECE2016-65375 – *Enakshi Wikramanayake, The University of Texas At Austin, Austin, TX, United States, Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States*

11:33AM – THERMO MECHANICAL ANALYSIS OF A DIRECT INJECTION HEAVY DUTY DIESEL ENGINE PISTON USING FEA
Technical Paper Publication. IMECE2016-66160 – *Ahmed Emara, Faculty of Engineering Mattaria- Helwan Univ., Cairo. Egypt, Cairo, Egypt, Islam Ismail, Egyptian Russian University, New Cairo, Cairo, Egypt, El Sayed Abdel Razek, Faculty of Engineering-MUST- Cairo-Egypt, 6th of October City, Egypt*

11:54AM – Trend Model for Regional Energy Consumption System Based on Synergetics
Technical Paper Publication. IMECE2016-67811 – *Yan Long, Junyin Zhang, Xinghui Wang, Wenxian Feng, Ying Xiang, Huazhong University of Science & Technology, Wuhan, Hubei, China, Lingzhao Meng, SUMEC Complete Equipment&Engineering CO.,Ltd., Nanjing, Jiangsu, China*

8-8-1 ENERGY CONVERSION AT MICRO AND NANO SCALE

ROOM 122C **10:30AM–12:15PM**

Session Organizer: Vittorio Verda, Politecnico di Torino - Dip Energetica Politech, Torino, Italy

Session Co-Organizer: Enrico Sciubba, University of Roma, Roma 00184, Italy, Abel Hernandez-Guerrero, University of Guanajuato, Salamanca, Guanajuato, Guanajuato, Mexico

10:30AM – HEAT TRANSFER ENHANCEMENT USING MINIATURIZED CHANNEL SECTIONS WITH SURFACE MODIFICATIONS
Technical Paper Publication. IMECE2016-65187 – *Mohammed Mayeed, Kennesaw State University, Marietta, GA, United States, Soumya Patnaik, Air Force Research Laboratory, Dayton, OH, United States, Ricky Mitchell, Kennesaw State University, Marietta, GA, United States*

10:51AM – Numerical Study of Premixed Combustion of Methane Stabilized on Porous Medium
Technical Paper Publication. IMECE2016-65205 – *Valerio Giovannoni, Rajnish Sharma, The University of Auckland, Auckland, New Zealand, New Zealand, Robert Raine, Univ Of Auckland, Auckland, New Zealand*

11:12AM – Flexible and transparent triboelectric nanogenerators harvesting biomechanical energy for self-powered nanosystem
Technical Presentation. IMECE2016-65960 – *Wenzhuo Wu, Purdue University, West Lafayette, IN, United States*

11:33AM – Study of Energy Harvesting Performance of Wet-Stretched PVDF Nanofibers
Technical Paper Publication. IMECE2016-66642 – *Raghid Najjar, Rowan University, Glassboro, NJ, United States, Yi Luo, Hangzhou Dianzi University, Hangzhou, Zhejiang, China, Xiao Hu, Vince Beachley, Wei Xue, Rowan University, Glassboro, NJ, United States*

8-10-3 AIR HANDLING AND ENERGY STORAGE

ROOM 129A

Session Organizer: Hohyun Lee, Santa Clara University, Santa Clara, CA, United States

10:30AM – Beneficial Use of Air Handling Unit Condensate for Laboratory HVAC Energy and Water Recovery in Humid Climates
Technical Presentation. IMECE2016-66892 – *William Eades, US Environmental Protection Agency, RTP, NC, United States*

10:51AM – IDENTIFICATION OF BENEFIT OF SETPOINT RESET AND KEY PAREMETERS AFFECTING ENERGY CONSUMPTION OF AN AIR HANDLING UNIT
Technical Paper Publication. IMECE2016-66258 – *David Goodman, IUPUI, Indianapolis, IN, United States, Ali Razban, IUPUI, Carmel, IN, United States, Jing Li, IUPUI, Indianapolis, IN, United States, Jie Chen, Indiana U. Purdue U. Indianapolis, Indianapolis, IN, United States*

11:12AM – Energy Optimization of Air Handling Unit Using CO2 Data and Coil Performance
Technical Paper Publication. IMECE2016-66271 – *Ali Razban, IUPUI, Carmel, IN, United States, Arash Edalatnoor, David Goodman, IUPUI, Indianapolis, IN, United States, Jie Chen, Indiana U. Purdue U. Indianapolis, Indianapolis, IN, United States*

11:33AM – Thermodyanamic Evaluation of PCM Thermal Energy Cooling Systems Using Clathrates
Technical Presentation. IMECE2016-68016 – *Mohamed Gadalla, American Univ of Sharjah, Sharjah, United Arab Emir., Sayem Zafar, Bahaa Morad, American University of Sharjah, Sharjah, Sharjah, United Arab Emir.*

11:54AM – Effect of electric energy storage on the performance of a power generation unit–organic Rankine cycle system
Technical Paper Publication. IMECE2016-65388 – *Harrison Warren, Mississippi State University, Starkville, MS, United States, Alta Knizley, Mississippi State University, Mississippi State, MS, United States, Pedro Mago, Mississippi State Univ, Mississippi State, MS, United States*

TIME	
10:30AM–12:15PM	**8-11-2 SOLAR PHOTOVOLTAICS, SOLAR COOLING AND THERMAL ENERGY STORAGE** **ROOM 129B** *Session Organizer: Dervis Demirocak, Texas A&M University - Kingsville, Kingsville, TX, United States* **10:30AM – Thermal Performance of Parabolic Trough Collector for Cooling Applications in Residential Buildings in UAE** **Technical Paper Publication.** IMECE2016-66846 – *Fadi Ghaith, Heriot Watt University Dubai Campus, Dubai, United Arab Emir., Haseeb-Ul-Hassan Razzaq, Heriot-Watt University, Dubai, United Arab Emir.* **10:51AM – Thermal Analysis of Elemental Sulfur in a Shell-and-Tube Configuration for Thermal Energy Storage Applications** **Technical Paper Publication.** IMECE2016-67389 – *Mitchell Shinn, Karthik Nithyanandam, Amey Barde, Richard E. Wirz, University of California, Los Angeles, Los Angeles, CA, United States* **11:12AM – The Long-term Viability of Concentrated Photovoltaic Systems in the Southwestern US** **Technical Paper Publication.** IMECE2016-66931 – *Aaron Sahm, University of Nevada, Las Vegas, Las Vegas, NV, United States, Laurie Burnham, Sandia National Laboratories, Albuquerque, NV, United States, Robert Boehm, Univ Of Nevada Las Vegas, Las Vegas, NV, United States, Gary Wood, Southern Nevada Water Auth, Las Vegas, NV, United States, Adam Betemedhin, University of Nevada, Las Vegas, Las Vegas, NV, United States* **11:33AM – Performance evaluation of an asymmetric hybrid solar collector-Effect of nanofluids on the electrical and thermal efficiency** **Technical Paper Publication.** IMECE2016-65189 – *Michail Nitsas, Irene Koronaki, Aristeidis Kontos, National Technical University of Athens, Zografou, Greece* **11:54AM – Techno-economic Study of Installing 10 MW PV Power Plant in Sudan** **Technical Paper Publication.** IMECE2016-66996 – *Ahmed Abuelyamen, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, MOHAND H. MOHAMED, Department of Mechanical Engineering, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia* **8-12-1 ENERGY STORAGE AND CONVERSION I** **ROOM 131A** *Session Organizer: Partha Mukherjee, Texas A&M University, College Station, TX, United States* *Session Co-Organizer: Ankur Jain, University of Texas Arlington, Arlington, TX, United States* **10:30AM – Fabrication and characterization of nanostructured cathodes for Li-ion batteries** **Technical Paper Publication.** IMECE2016-67873 – *Piyush Jibhakate, George Nelson, University of Alabama in Huntsville, Huntsville, AL, United States* **10:51AM – Degradation-Safety Interplay in Li-Ion Cells under External Short-Circuit Scenarios** **Technical Presentation.** IMECE2016-67582 – *Daniel Juarez Robles, Texas A&M, College Station, TX, United States, Partha Mukherjee, Texas A&M University, College Station, TX, United States, Judy Jeevarajan, Underwriters Laboratories Inc., League City, TX, United States* **11:12AM – Adding Thermal to Electrochemical-Mechanical: The Next Step for Silicon Anode Development** **Technical Presentation.** IMECE2016-66631 – *Marriner Merrill, US Naval Research Laboratory, Washington, DC, United States, Wonmo Kang, Leidos/NRL, Washington, DC, United States* **11:33AM – Thermal Transport in Li-ion Cell Materials** **Technical Presentation.** IMECE2016-67162 – *Ankur Jain, University of Texas Arlington, Arlington, TX, United States* **11:54AM – Deformation of failure mode of lithium-ion battery separators** **Technical Presentation.** IMECE2016-67430 – *Xiaowei Zhang, Elham Sahraei Esfahani, MIT, Cambridge, MA, United States*
	8-17-1 EXPERIMENTAL STUDIES ON BIOFUELS COMBUSTION **ROOM 131B** *Session Organizer: Seyed Allameh, Northern Kentucky Univ, Highland Heights, KY, United States* *Session Co-Organizer: Ahmed Emara, Faculty of Engineering Mattaria- Helwan Univ., Cairo. Egypt, Cairo, Egypt* **10:30AM – Experimental Study of Hot Surface Ignition of Prevaporized Jet-A and Canola Methyl Ester** **Technical Paper Publication.** IMECE2016-65663 – *Alex Spens, Jesse Harter, University of Oklahoma, Norman, OK, United States, Ramkumar N. Parthasarathy, Subramanya Gollahalli, Univ Of Oklahoma, Norman, OK, United States* **10:51AM – Improvements of Performance and Emissions of a Diesel-gen-set with Biodiesel having Guide Vanes of Various Angles** **Technical Paper Publication.** IMECE2016-65994 – *Saiful Bari, University of South Australia, Adelaide, SA, Australia, Idris Saad, Universiti Teknologi MARA, Selangor, Selangor, Malaysia* **11:12AM – Characterization of Biodiesel Produced from Terminalia Seed Oil and Engine Performance Evaluation with 10% and 20% blending** **Technical Paper Publication.** IMECE2016-66624 – *Tapan Gogoi, Jyotirmoy Kakati, Tezpur University, Tezpur, India* **11:33AM – Experimental study on the adhering fuel film of the impinged n-butanol-diesel blends** **Technical Paper Publication.** IMECE2016-66576 – *Hongsheng Zhang, Xingyu Liang, Hanzhengnan Yu, Yuesen Wang, Chen Weijian, Tianjin University, Tianjin, China*

TIME

1:30PM–3:15PM

8-4-6 DESIGN AND ANALYSIS OF ENERGY SYSTEMS - 3

ROOM 131C

Session Organizer: Roberto Carapellucci, University of L`Aquila, L`Aquila, IT, Italy

Session Co-Organizer: Na Zhang, Inst. Engineering Thermophysics, CAS, Beijing, China

1:30PM – Development of an Optimization Framework for Micro-grid Energy Conversion Systems
Technical Paper Publication. IMECE2016-65371 – *Tao Cao, University of Maryland, College Park, MD, United States, Yunho Hwang, Reinhard Radermacher, Univ Of Maryland, College Park, MD, United States, Ho-Hwan Chun, Pusan National University, Busan, Korea (Republic)*

1:51PM – Performance analysis of a humid air turbine cycle with an aero-derivative three-shaft gas turbine
Technical Paper Publication. IMECE2016-65496 – *Jinwei Chen, Di Huang, Shanghai Jiao Tong University, Shanghai, China, Huisheng Zhang, Shanghai Jiao Tong Univ, Shanghai, China, Shilie Weng, Shanghai Jiao Tong University, Shanghai, China*

2:12PM – Concentrated Solar Power System with Micro Gas Turbine: Thermodynamic Optimization and Combustion Analysis
Technical Paper Publication. IMECE2016-65600 – *Raffaele Tuccillo, Università di Napoli Federico II, Napoli 80125, Italy, Maria Cristina Cameretti, D.I.I., Universita' Di Napoli Federico II, NAPOLI, Italy, Carmelina Abagnale, D.I.I., Università di Napoli Federico II, Napoli, Italy, Roberta De Robbio, Department of Industrial Engineering — University of Naples, Napoli, Italy*

2:33PM – Investigation of the effect of the top and the bottom temperatures on the performance of humidification dehumidification desalination systems
Technical Paper Publication. IMECE2016-67985 – *Naef Qasem, Binash Imteyaz, Kfupm, Dhahran, Eastern, Saudi Arabia, Mohamed Antar, Kfupm, Dhahran 31261, Saudi Arabia*

2:54PM – A method of turbine map extrapolation in sub-idle region of gas turbine
Technical Presentation. IMECE2016-68725 – *Jeong ho Kim, Inha University, Incheon, Korea (Republic), Tong-seop Kim, Inha University, Incheon 402-751, Korea (Republic)*

8-11-3 WIND AND SOLAR ENERGY SYSTEMS AND TECHNOLOGIES

ROOM 221B

Session Organizer: Navid Goudarzi, UNC Charlotte, ETCM Department, Charlotte, NC, United States

1:30PM – Feasibility analysis of a hybrid photovoltaic/thermal cogeneration system for domestic applications
Technical Paper Publication. IMECE2016-67093 – *Eduardo Ruiz-Casanova, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, Mexico, Carlos Rubio-Maya, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Mexico, Ana Laura Soto-Sánchez, Crisanto Mendoza-Covarrubias, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, Mexico, Jesús Martínez-Patiño, Universidad de Guanajuato, Salamanca, Guanajuato, Mexico*

1:51PM – Thermodynamic analysis of solar hybridization with coal-fired power system
Technical Paper Publication. IMECE2016-68218 – *Hui Hong, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, China, Shuo Peng, Huaneng Clean Energy Research Institute, Beijing, China, Hongguang Jin, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, China*

2:12PM – Solar and Wind Power Generating Potential at the Prairie View A&M University Main Campus
Technical Presentation. IMECE2016-68573 – *Rambod Rayegan, Prairie View A&M University, Prairie View, TX, United States, Philip N. Thomas, Prairie View A&M University, Grandview, TX, United States, Deep Poudel, Prairie View A&M University, houston, TX, United States*

2:33PM – Highway mounted axial flow reaction turbines for wind energy harvesting from cruising vehicles.
Technical Paper Publication. IMECE2016-65194 – *Shreyas Hegde, Anand Thamban, Shah Palash Manish Bhai, Arham Ahmed, Meet Upadhyay, Ashish Joishy, National institute of technology karnataka surathkal, Mangalore, Karnataka, India, Arun Mahalingam, nitk, Mangalore, Karnataka, India*

2:54PM – Computational Analysis of Airfoil Merging and its Effect on Performance of Lift Based Vertical Axis Wind Turbine
Technical Paper Publication. IMECE2016-66274 – *Akshay Basavaraj, University of Kansas, Lawrence, KS, United States*

8-12-2 ENERGY STORAGE AND CONVERSION II

ROOM 221C

Session Organizer: Soumik Banerjee, Washington State University, Pullman, WA, United States

Session Co-Organizer: George Nelson, University of Alabama in Huntsville, Huntsville, AL, United States

1:30PM – Molecular dynamics simulations of glassy solid electrolytes for sodium ion batteries
Technical Presentation. IMECE2016-67998 – *Aniruddha Dive, Clarence C. King, Scott P. Beckman, Washington State University, Pullman, WA, United States, Steve W. Martin, Iowa State University, Ames, IA, United States, Soumik Banerjee, Washington State University, Pullman, WA, United States*

1:51PM – A numerical investigation of active surface accessibility in Li-ion battery cathodes
Technical Presentation. IMECE2016-67778 – *George Nelson, University of Alabama in Huntsville, Huntsville, AL, United States*

2:12PM – A Computational Method for Spirally-wounded Lithium-ion Cells in Battery Modules and Packs
Technical Presentation. IMECE2016-68182 – *Chao Li, Rutgers University, Piscataway, NJ, United States, Assimina Pelegri, Rutgers, East Brunswick, NJ, United States*

2:33PM – Graphene/Sulfur and Graphene oxide (GO)/Sulfur composite cathodes for high performance Li-S batteries: A molecular dynamics study
Technical Paper Publication. IMECE2016-67590 – *Aniruddha Dive, Ramiro Gonzalez, Soumik Banerjee, Washington State University, Pullman, WA, United States*

2:54PM – Thermal-Chemomechanics of Lithium-ion Batteries
Technical Presentation. IMECE2016-68498 – *Sangwook Kim, Hsiao-Ying Shadow Huang, North Carolina State University, Raleigh, NC, United States*

TIME		
1:30PM–3:15PM	**8-15-1 NUCLEAR POWER PLANTS: DESIGN, ANALYSIS AND SAFETY - I** **ROOM 221A** *Session Organizer: Jovica Riznic, Canadian Nuclear Safety Commission, Ottawa, ON, Canada* *Session Co-Organizer: Hakan Ozaltun, Idaho National Laboratory, Idaho Falls, ID, United States* **1:30PM – What Could Have Saved Fukushima From Its Severe Accident** **Technical Paper Publication.** IMECE2016-65069 – *Kenji Iino, Sydrose Lp, San Jose, CA, United States, Ritsuo Yoshioka, Japan Functional Safety Laboratory, Yokohama, Kanagawa, Japan, Masao Fuchigami, Komatsu Ltd., Tokyo, Japan, Masayuki Nakao, The University of Tokyo, Tokyo, Japan* **1:51PM – Licensing Basis Event Selection Framework for Advanced Reactors** **Technical Paper Publication.** IMECE2016-67520 – *Mark R. Holbrook, Jim C. Kinsey, Wayne L. Moe, Idaho National Laboratory, Idaho Falls, ID, United States* **2:12PM – Calibration of Code Equations for Nuclear Piping** **Technical Paper Publication.** IMECE2016-66103 – *Kleio Avrithi, University of Houston-Downtown, Houston, TX, United States* **2:33PM – RELAP5 Code Analysis of LSTF Small Break LOCA Tests with Steam Generator Intentional Depressurization and Its Uncertainty Quantification by Monte-Carlo Method and Wilks? Formula Approach** **Technical Paper Publication.** IMECE2016-66638 – *Ikuo Kinoshita, Institute of Nuclear Safety System, Inc., Mikata-Gun, Fukui, Japan, Michio Murase, Institute of Nuclear Safety System, Inc., Mikata-gun, Fukui 919-1205, Japan*	**8-17-2 MODELING AND SIMULATION OF BIOFUEL COMBUSTION** **ROOM 131B** *Session Organizer: Ahmed Emara, Faculty of Engineering Mattaria- Helwan Univ., Cairo. Egypt, Cairo, Egypt* *Session Co-Organizer: Seyed Allameh, Northern Kentucky Univ, Highland Heights, KY, United States* **1:30PM – Theoretical Prediction of Laminar Burning Speed and Ignition Delay of Gas To Liquid Fuel** **Technical Paper Publication.** IMECE2016-65440 – *Guangying Yu, Omid Askari, Fatemeh Hadi, Ziyu Wang, Hameed Metghalchi, Northeastern University, Boston, MA, United States, Kumaran Kannaiyan, Texas A & M University at Qatar, Doha, Qatar, Reza Sadr, Texas A&M University at Qatar, College Station, TX, United States* **1:51PM – CFD Analysis & Experimental investigation of a Heavy Duty D.I. Diesel Engine Exhaust System** **Technical Paper Publication.** IMECE2016-65750 – *Kareem Emara, Helwan University, Cairo, Egypt, Ahmed Emara, Faculty of Engineering Mattaria- Helwan Univ., Cairo. Egypt, Cairo, Egypt, El sayed Abdel Razek, Faculty of Engineering- Misr University for Science and Technology, Cairo-Egypt, cairo, Egypt* **2:12PM – COMBUSTION PERFORMANCE, NOISE, AND VIBRATIONS OF AN IDI ENGINE FUELED WITH CARINATA BIOFUEL** **Technical Paper Publication.** IMECE2016-67051 – *Valentin Soloiu, Jose Moncada, Aliyah Knowles, Tyler Naes, Martin Muinos, Emerald Simons, Spencer Harp, Georgia Southern University, Statesboro, GA, United States* **2:33PM – EFFECT OF CHEMICAL FUEL ADDITIVES ON LIQUID FUEL SAVING, AND EMISSIONS FOR HEAVY FUEL OIL** **Technical Paper Publication.** IMECE2016-65717 – *Ahmed Emara, Faculty of Engineering Mattaria- Helwan Univ., Cairo. Egypt, Cairo, Egypt*
3:45PM–5:30PM	**8-10-4 SORPTION TECHNOLOGY** **ROOM 131C** *Session Organizer: Ali Al-Alili, The Petroleum Institute, Abu Dhabi, United Arab Emir.* **3:45PM – Solar Sorption Cooling in the MENA Region** **Technical Paper Publication.** IMECE2016-66352 – *Abdul Ahad Mohammad Iqbal, Ali Al-Alili, The Petroleum Institute, Abu Dhabi, Abu Dhabi, United Arab Emir.* **4:06PM – Strategies To Improve Solar Fraction In An Adsorption Cooling System Based On Metal Organic Frameworks In Humid And Dry Climates ? A Case Study For Southeast And Southwest Texas** **Technical Paper Publication.** IMECE2016-66879 – *Dervis Emre Demirocak, Bharath Kumar, Yashada Kolatkar, Texas A&M University - Kingsville, Kingsville, TX, United States* **4:27PM – Year-Round Water Purification and Space-Conditioning With a Forward Osmosis Absorption Cycle** **Technical Presentation.** IMECE2016-67760 – *Daniel B Boman, Srinivas Garimella, Georgia Inst Of Technology, Atlanta, GA, United States* **4:48PM – PHOTOVOLTAIC-THERMOELECTRIC SYSTEMS FOR Building COOLING APPLICATIONS: A PRELIMINARY STUDY** **Technical Paper Publication.** IMECE2016-67507 – *Akshay Bhargava, Hamidreza Najafi, Florida Institute of Technology, Melbourne, FL, United States*	**8-11-4 WIND ENERGY SYSTEMS AND TECHNOLOGIES** **ROOM 221B** *Session Organizer: Navid Goudarzi, UNC Charlotte, ETCM Department, Charlotte, NC, United States* **3:45PM – An Overview on Rotor Flow Field Techniques in Vertical Axis Wind Turbine Analysis** **Technical Paper Publication.** IMECE2016-68164 – *Navid Goudarzi, University of Maryland, Columbia, MD, United States, Ramin Heydarlaki, Amirkabir University of Technology, Tehran, Tehran, Iran* **4:06PM – Fatigue analysis of an innovative extensible wind turbine blade** **Technical Paper Publication.** IMECE2016-67056 – *Jiale Ll, Xiong (Bill) Yu, Case Western Reserve University, Cleveland, OH, United States* **4:27PM – Configuration Analysis, Modeling, Design of a Wind Turbine with Hydrostatic Transmission System** **Technical Paper Publication.** IMECE2016-67307 – *Majid Deldar, Afshin Izadian, Indiana University Purdue University Indianapolis, Indianapolis, IN, United States, Sohel Anwar, Indiana University Purdue University Indianapolis, Carmel, IN, United States* **4:48PM – FEASIBILITY STUDY OF ERECTING A WIND FARM IN KUWAIT** **Technical Paper Publication.** IMECE2016-65098 – *Yousef Gharbia, Mohammed Anany, American University of the Middle East, Kuwait, Kuwait* **5:09PM – Wind Power Forecasting Model Fusion Evaluation Based on Comprehensive Weights** **Technical Paper Publication.** IMECE2016-6566 – *Jianyan Tian, Tingting Liu, Taiyuan University of Technology, Taiyuan, Shanxi, China, Amit Banerjee, Penn State University Harrisburg, Middletown, PA, United States, Aixue Wei, Shengqiang Yang, Wei Gao, Taiyuan University of Technology, Taiyuan, Shanxi, China*

TIME	
3:45PM–5:30PM	**8-12-3 ENERGY STORAGE AND CONVERSION III** **ROOM 221C** *Session Organizer: Ankur Jain, University of Texas Arlington, Arlington, TX, United States* *Session Co-Organizer: Soumik Banerjee, Washington State University, Pullman, WA, United States* **3:45PM – Characterization of the Through Thickness Mechanical Property of Thin Polymer Films** **Technical Presentation.** IMECE2016-66795 – *Shutian Yan, Michigan State University, Lansing, MI, United States, Xiaosong Huang, General Motors Global R&D, Warren, MI, United States, Xinran Xiao, Michigan State University, Lansing, MI, United States* **4:06PM – Optimization of Li-ion battery structures using computational homogenization** **Technical Presentation.** IMECE2016-67385 – *Elham Sahraei Esfahani, MIT, Cambridge, MA, United States, Emanuela Bosco, Eindhoven University of Technology, Eindhoven, Netherlands, Benjamin Lai, Brandy Dixon, MIT, Cambridge, MA, United States* **4:27PM – Conjugated Dynamic Modeling on Vanadium Redox Flow Battery with Non-constant Variance for Renewable Power Plant Applications** **Technical Paper Publication.** IMECE2016-67462 – *Abu Nayem Md. Asraf Siddiquee, Arkansas State University, Jonesboro, AR, United States, Kwangkook Jeong, Arkansas State University, State University, AR, United States* **4:48PM – Improved Magnesium Hydride Dosage for Hydrogen Generation from On-Demand Hydrogen Reactor** **Technical Paper Publication.** IMECE2016-6645 – *Tien-Chien Jen, University of Johannesburg, Johannesburg, Gauteng, South Africa, Yen-Hsi Ho, University of Wisconsin, Milwaukee, Milwaukee, WI, United States, Joshua Adeniran, University of Johannesburg, Johannesburg, Gauteng, South Africa, Chung-Hsing Chao, Ta-Hua University of Science and Technology, Hisnchu, Taiwan, Esther Akinlabi, Johan de Koker, University of Johannesburg, Johannesburg, South Africa* **8-15-2 NUCLEAR POWER PLANTS: DESIGN, ANALYSIS AND SAFETY - II** **ROOM 221A** *Session Organizer: Hakan Ozaltun, Idaho National Laboratory, Idaho Falls, ID, United States* *Session Co-Organizer: Jovica Riznic, Canadian Nuclear Safety Commission, Ottawa, ON, Canada* **3:45PM – Study on leakage rate of rubber sealing structures based on percolation theory** **Technical Paper Publication.** IMECE2016-66093 – *Xiaoming Huang, Guoliang Xu, Huazhong University of Science and Technology, Wuhan, China* **4:06PM – Thermal Predictions of the AGR-3/4 Experiment Using PIE-Measured Time Varying Gas Gaps** **Technical Paper Publication.** IMECE2016-67404 – *Grant Hawkes, James Sterbentz, John Maki, Binh Pham, Idaho National Laboratory, Idaho Falls, ID, United States* **4:27PM – Evaluation of Creep Behavior of UO2 at Sub-Grain Length Scales** **Technical Paper Publication.** IMECE2016-67772 – *Benjamin Shaffer, Harn Lim, Robert Mcdonald, Pedro Peralta, Arizona State University, Tempe, AZ, United States* **4:48PM – Effect of Thermal Cycling on Mechanical Behavior of U-10Mo Monolithic Mini-Plate** **Technical Paper Publication.** IMECE2016-68101 – *Hee Seok Roh, Walid Mohamed, Argonne National Laboratory, Lemont, IL, United States*

TIME

1:30PM–3:15PM

9-5-2 CFD APPLICATIONS FOR OPTIMIZATION AND CONTROLS II

ROOM 223

Session Organizer: Zhongquan Charlie Zheng, University of Kansas, Lawrence, KS, United States

Session Co-Organizer: Philipp Epple, Coburg University of Applied Sciences, Coburg, Germany

3:45PM – Optimizing Dynamic Performance of High-Speed Road Vehicles Using Aerodynamic Aids
Technical Paper Publication. IMECE2016-65414 – *Tushita Sikder, Saurabh Kapoor, Yuping He, University of Ontario Institute of Technology, Oshawa, ON, Canada*

4:06PM – CFD Simulation of Jet Mixing with Asymmetric Co-flows in a Down-scaled Rotary Kiln Model
Technical Paper Publication. IMECE2016-65637 – *Ziyan Teng, Simon P. A. Johansson, I. A. Sofia Larsson, T. Staffan Lundström, Luleå University of Technology, Luleå, Norrbotten, Sweden, B. Daniel Marjavaara, Luossavaara-Kiirunavaara AB, Kiruna, Norrbotten, Sweden*

4:27PM – Numerical Study of the Effect of the Upstream Object on Flow Control of the Downstream Object
Technical Paper Publication. IMECE2016-65969 – *Zhongquan Charlie Zheng, Yangliu Liu, University of Kansas, Lawrence, KS, United States, Diangui Huang, Shanghai University of Science and Technology, Shanghai, China*

4:48PM – Analytical and numerical design of a high performance double ? throated supersonic blow down wind tunnel
Technical Paper Publication. IMECE2016-66085 – *Philipp Epple, Michael Steppert, Michael Steber, Coburg University of Applied Sciences, Coburg, Bavaria, Germany*

5:08PM – Numerical Investigation of Effects of Non-uniform Tip Clearance on Flow Field inside a Turbine Cascade
Technical Paper Publication. IMECE2016-66509 – *Hongwei Ma, Yangtao Tian, Beihang University, Beijing, Beijing, China*

9-9-1 FLOW AND THERMAL PROCESSES IN INTERNAL MULTIPHASE FLOWS

ROOM 232C

Session Organizer: Siddharth Talapatra, Heat Transfer Research, Inc., Navasota, TX, United States

1:30PM – Particle Image Velocimetry Measurements near the Onset of Cavitation in a Converging-Diverging Glass Nozzle
Technical Paper Publication. IMECE2016-67384 – *Aaron Schmidt, B. Terry Beck, Mohammad Hosni, Kansas State University, Manhattan, KS, United States*

1:51PM – Water Flow Visualization in a Converging-Diverging Glass Nozzle
Technical Paper Publication. IMECE2016-67402 – *Aaron Schmidt, B. Terry Beck, Mohammad Hosni, Kansas State University, Manhattan, KS, United States*

2:12PM – Understanding impact of developing flow on two-phase distribution and pressure drop for vertical upflow in large pipes
Technical Paper Publication. IMECE2016-67156 – *Siddharth Talapatra, Heat Transfer Research, Inc., Navasota, TX, United States*

2:33PM – Pressure Drop for Liquid-Liquid Taylor Flow in a Mini-Scale Tube
Technical Paper Publication. IMECE2016-67736 – *Wesam Adrugi, Memorial University, St. John's, NL, Canada, Yuri Muzychka, Kevin Pope, Memorial University of Newfoundland, St. John's, NL, Canada*

9-10-1 MULTIPHASE FLOW I

ROOM 222C

Session Organizer: Joseph Katz, Johns Hopkins University, Baltimore, MD, United States

Session Co-Organizer: Marianne Francois, Los Alamos National Laboratory, Los Alamos, NM, United States

1:30PM – Investigation of Two Mechanisms Governing Cloud Cavitation Shedding: Experimental Study and Numerical Highlight
Technical Paper Publication. IMECE2016-65420 – *Kilian Croci, Petar Tomov, ENSAM Paristech, Paris, France, Florent Ravelet, Arts Et Metier Paristech, Paris, France, Amélie Danlos, ENSAM Paristech, Paris, France, Sofiane Khelladi, Arts Et Metiers Paristech, PARIS, France, Jean-Christophe Robinet, ENSAM Paristech, Paris, France*

1:51PM – Design of the Large and Versatile Two-phase Flow Facility for Transient Studies in Pipes
Technical Paper Publication. IMECE2016-66740 – *Geanette Polanco, University of Tromso, Narvik, Norway, Antonio Vidal, José Miguel Da Paixao, Orlando Aguillon, Simon Bolivar University, Caracas, Venezuela*

2:12PM – Application of Non-Convex Analytic and Geometric Tools to a PLIC-VOF Method
Technical Paper Publication. IMECE2016-67409 – *Joaquin Lopez, Univ Politecnica De Cartagena, Cartagena Murcia 30202, Murcia, Spain, Pablo Gomez, Claudio Zanzi, UNED, Madrid, Spain, Felix Faura, Universidad Politecnica De Cartagena, Cartagena, Murcia, Spain, Julio Hernandez, UNED, Madrid, Spain*

2:33PM – EXPERIMENTAL INVESTIGATION OF LIQUID CARRY-OVER IN GLCC© SEPARATORS FOR 3-PHASE FLOW
Technical Paper Publication. IMECE2016-67457 – *Srinivas Swaroop Kolla, Ram Mohan, Ovadia Shoham, The University of Tulsa, Tulsa, OK, United States*

9-11-1 16TH INTERNATIONAL SYMPOSIUM ON MEASUREMENT AND MODELING OF ENVIRONMENTAL FLOWS

ROOM 224A

Session Organizer: S.A. Sherif, University of Florida, Gainesville, FL, United States

Session Co-Organizer: Kashif Nawaz, Oak Ridge National Laboratory, Oak Ridge, TN, United States, Stathis Michaelides, TCU, Fort Worth, TX, United States

1:30PM – Experimental Investigation Of Ventilation Effectiveness In An Airliner Cabin Mockup
Technical Paper Publication. IMECE2016-65341 – *JIGNESH PATEL, Byron Jones, Mohammad Hosni, Ali Keshavarz, KANSAS STATE UNIVERSITY, Manhattan, KS, United States*

1:51PM – DEVELOPMENT OF ANALYTICAL MODEL FOR PREDICTING DUAL-PHASE EJECTOR PERFORMANCE
Technical Paper Publication. IMECE2016-65844 – *Ahmed Sherif El-Gizawy, University of Missouri, Columbia, MO, United States, Emily F. Elmore, Burns & Mcdonnell Engineering, Kansas City, MO, United States, Khalid Almutairi, Bilal Kamal Hussain, University of Missouri, Columbia, MO, United States*

2:12PM – Analytical Model for the Deformation of Viscoelastic Non-Newtonian Drops Undergoing Secondary Atomization
Technical Paper Publication. IMECE2016-67579 – *Sharon Snyder, Raytheon Missile Systems, Tucson, AZ, United States, Varun Kulkarni, George Washington University, Washington, DC, United States, Paul Sojka, Purdue University, West Lafayette, IN, United States*

2:33PM – Thermal Driven Dispersion of Smoke in a Parking Space
Technical Paper Publication. IMECE2016-67498 – *Jose Teixeira, Senhorinha Teixeira, Pedro Cunha, Angela Silva, University of Minho, Guimaraes, Portugal*

TIME	
1:30PM–3:15PM	**9-13-1 INDUSTRIAL FLOW APPLICATIONS WITH PUMPS, MEMBRANES AND MASS TRANSFER** **ROOM 232B** *Session Organizer: George Chamoun, Eastman Chemical Company, Gray, TN, United States* **1:30PM – Comparison of Inlet Curved Disk Arrangement for Suppression of Flow Recirculation in a Centrifugal Pump Impeller** **Technical Paper Publication.** IMECE2016-65448 – *Munther Hermez, Badih Jawad, Liping Liu, Vernon Fernandez, Kingman Yee, Lawrence Technological University, Southfield, MI, United States, Eli Oklejas, Fluid Equipment Development Co, Monroe, MI, United States* **1:51PM – Reverse Osmosis Desalination Module - Three Dimensional, Transient Analyses** **Technical Paper Publication.** IMECE2016-65890 – *Ali Anqi, Mustafa Usta, Mohammed Alrehili, Lehigh University, Bethlehem, PA, United States, Nawaf Alkhamis, King Abdulaziz University, Jeddah, Saudi Arabia, Alparslan Oztekin, Lehigh University, Bethlehem, PA, United States* **2:12PM – The Comparison of Membrane Blocking Process and Yeast Membrane Filtration Data** **Technical Paper Publication.** IMECE2016-66944 – *Aklilu G Giorges, Georgia Tech, Stone Mountain, GA, United States, John Pierson, Georgia Tech Research Institute (GTRI) in Atlanta, GA, Atlanta, GA, United States* **2:33PM – An Eulerian Approach for Characterization of Solid Suspension in Multiphase Flow Systems and Its Application in Hole Cleaning During Drilling** **Technical Paper Publication.** IMECE2016-67204 – *Feifei Zhang, Halliburton, Houston, TX, United States, Stefan Miska, Mengjiao Yu, University of Tulsa, Tulsa, OK, United States, Evren Ozbayoglu, University of Tulsa - Petroleum Engineering Dept., Tulsa, OK, United States, Nicholas Takach, University of Tulsa, Tulsa, OK, United States* **2:54PM – A Reduced-Order Model for Annular Labyrinth Seals based on Proper Orthogonal Decomposition** **Technical Paper Publication.** IMECE2016-67086 – *Hanxiang Jin, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States, Alexandrina Untaroiu, Virginia Tech, Blacksburg, VA, United States*
3:45PM–5:30PM	**9-5-1 CFD APPLICATIONS FOR OPTOMIZATION AND CONTROLS I** **ROOM 223** *Session Organizer: Zhongquan Charlie Zheng, University of Kansas, Lawrence, KS, United States* *Session Co-Organizer: Ning Zhang, McNeese State University, Lake Charles, LA, United States* **1:30PM – Development of a Coupled CFD Simulation with Flight Control Algorithm** **Technical Presentation.** IMECE2016-65971 – *Anpeng He, Zhongquan Charlie Zheng, Haiyang Chao, Pengzhi Tian, University of Kansas, Lawrence, KS, United States* **1:51PM – Lift and Drag Forces of a High Efficiency Airfoil with an Embedded Rotating Cylinder** **Technical Paper Publication.** IMECE2016-66177 – *Komal Gada, CEERS/COE/CSULB, Long Beach, CA, United States, Hamid Rahai, California St Univ-long Beach, Long Beach, CA, United States* **2:12PM – Vortex Shedding Control on a Three-dimensional Ground Vehicle with Synthetic Jets** **Technical Paper Publication.** IMECE2016-66246 – *Cui Wenshi, Yang Zhigang, Wang Guojun, Zhou Hua, Tongji University, Shanghai, China* **2:33PM – Numerical Study of Flow Physics behind the Aerodynamic Performance on an Airfoil with Leading Edge Tubercles** **Technical Paper Publication.** IMECE2016-68107 – *Ming Zhao, Mingming Zhang, Jianzhong Xu, Insititute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, None Selected, China* **2:54PM – HEAVY VEHICLE DOUBLE LOBED BOAT-TAIL DRAG REDUCTION FOR DIFFERENT YAW ANGLES** **Technical Paper Publication.** IMECE2016-65084 – *Wardah Sajid, Mehdi Nazarinia, Heriot-Watt University, Dubai, Dubai, United Arab Emir.* **9-6-1 PANEL: CFD/EFD CHOICE? - A DILEMMA FOR INDUSTRIES** **ROOM 232C** **3:45pm – CFD and EFD in the Design Process of Fans and Blowers** **Panel Presentation.** *IMECE2016-68886* *Philipp Epple, Coburg University of Applied Sciences, Coburg, Germany* **4:20pm – How CFD and EFD complement each other in development of the D8 aircraft** **Panel Presentation**. *IMECE2016-68908* *H. Dogus Akaydin, NASA Ames Research Center, Moffett Field, CA, United States* **4:55pm – The CFD Revolution: Displacing EFD in the Product Development Process** **Panel Presentation**. *IMECE2016-68909* *William Kulp, ANSYS, Canonsburg, PA, United States*

TIME

3:45PM–5:30PM

9-10-2 MULTIPHASE FLOW II

ROOM 222C

Session Organizer: Mark R Duignan, Savannah River National Laboratory, Aiken, SC, United States

Session Co-Organizer: Timothy O`Hern, Sandia National Lab, Albuquerque, NM, United States

3:45PM – Multiphase Effects in Spring-Mass-Damper Systems
Technical Presentation. IMECE2016-65559 – *Timothy O`Hern, Sandia National Lab, Albuquerque, NM, United States, John Torczynski, Jonathan Clausen, Sandia National Labs, Albuquerque, NM, United States*

4:06PM – Simulations of Particle-Laden Flows Under Extreme Conditions
Technical Presentation. IMECE2016-66344 – *Bertrand Rollin, Embry-Riddle Aeronautical University, Daytona Beach, FL, United States, Frederick Ouellet, Rahul Koneru, Subramanian Annamalai, CCMT - University of Florida, Gainesville, FL, United States, CHANYOUNG PARK, The University of Florida, GAINESVILLE, FL, United States*

4:27PM – Numerical Simulation of Non-Isothermal Two-Phase Flow in a Pipeline Using the Flux-Corrected Transport Method
Technical Paper Publication. IMECE2016-66827 – *Carina N. Sondermann, Rodrigo Patricio, Aline Figueiredo, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil, Renan Baptista, Petrobras, Rio de Janeiro, RJ, Brazil, Felipe Bastos De Freitas Rachid, Universidade Federal Fluminense, Rio De Janeiro, Brazil, Gustavo Bodstein, Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil*

4:48PM – QUANTIFYING AND MODELING THE FORCE VARIATION WITHIN RANDOM ARRAYS OF SPHERES
Technical Paper Publication. IMECE2016-68066 – *Georges Akiki, Thomas Jackson, S. Balachandar, University of Florida, Gainesville, FL, United States*

5:09 – FORMATION AND PENETRATION OF VORTEX RING ON DROP COALESCENCE. IMECE2016-66786
Hiranya Deka, Gautam Biswas, Amaresh Dalal, Indian Institute of Technology Guwahati, India

9-13-2 INDUSTRIAL FLOW APPLICATIONS WITH JETS AND ROTATING FLOWS

ROOM 232B

Session Organizer: Alexandrina Untaroiu, Virginia Tech, Blacksburg, VA, United States

Session Co-Organizer: George Chamoun, eastman chemical company, Gray, TN, United States

3:45PM – The Flow Dynamics of a Partially Filled Horizontal Helical Screw Reactor (PFHSR)
Technical Paper Publication. IMECE2016-66947 – *Aklilu G Giorges, Georgia Tech, Stone Mountain, GA, United States, Marc Zanghi, Georgia Tech, Atlanta, GA, United States*

4:06PM – Numerical Investigation on the Rotating Stall Characteristics in a Three-blade Centrifugal Impeller
Technical Paper Publication. IMECE2016-65794 – *Lei Cao, Zhengwei Wang, Yexiang Xiao, Yongyao Luo, Tsinghua University, Beijing, China*

4:27PM – Effects of the shape of a nozzle with chevrons on the dynamics of turbulent impinging jet
Technical Paper Publication. IMECE2016-68125 – *Sadek Horra, Zoubir Nemouchi, Universite des Frères Mentouri, Constantine, Constantine 25000, Algeria, Lyes Khezzar, The Petroleum Institute, Abu Dhabi, United Arab Emir.*

4:48PM – Numerical and Analytical Investigation of viscous fluids in a screw extruder
Technical Paper Publication. IMECE2016-66124 – *Mustafa Ozsipahi, Sertac Cadirci, Hasan Gunes, Istanbul Technical University, Istanbul, Turkey*

5:09PM – THE NUMERICAL SIMULATION OF TURBULENT FLOW IN SEMI-CLOSED ROTOR- STATOR CAVITY
Technical Paper Publication. IMECE2016-66656 – *Guohu Luo, Shengde Wang, Hong Shen, Zhenqiang Yao, Shanghai Jiao Tong University, Shanghai, China*

9-17-1 YEP CONTEST

ROOM 224A

Session Organizer: B. Terry Beck, Kansas State University, Manhattan, KS, United States

3:45PM – Numerical Study On The Effect Of Control Elements On Laminar Airflows Over A Flat Plate
Technical Paper Publication. IMECE2016-65767 – *Jessica Gartrell, California State University, Fresno, Fresno, CA, United States, Deify Law, California State Univ, Fresno, Fresno, CA, United States*

4:06PM – EFFECT OF FREE-STREAM TURBULENCE ON THE LOADS EXPERIENCED BY A MARINE HYDROKINETIC TURBINE
Technical Paper Publication. IMECE2016-68395 – *Angela M. Lawrence, Ashwin Vinod, Arindam Banerjee, Lehigh University, Bethlehem, PA, United States*

4:27PM – DESIGN OF A HYBRID ACTIVE AND PASSIVE EFFICIENT MICROMIXER FOR 3D PRINTED MICROFLUIDICS
Technical Paper Publication. IMECE2016-68759 – *Austin Liolli, Mohammed Jalal Ahamed, University of Windsor, Windsor, ON, Canada*

4:48PM – A STUDY OF TCPC-STENT CONJUNCTION FOR CAVOPULMONARY ASSIST IN FONTAN PATIENTS WITH RIGHT VENTRICULAR DYSFUNCTION
Technical Paper Publication. IMECE2016-68760 – *Jakin Jagani, Alexandrina Untaroiu, Virginia Tech, Blacksburg, VA, United States*

5:09PM – An Experimental Study on Human Milk Viscosity
Technical Paper Publication. IMECE2016-68761 – *Diana Alatalo, Fatemeh Hassanipour, The University of Texas at Dallas, Plano, TX, United States*

TIME

1:30PM–3:15PM

9-3-1 FLUID MECHANICS AND RHEOLOGY OF NON-LINEAR MATERIALS AND COMPLEX FLUIDS I

ROOM 222B

Session Organizer: Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile

Session Co-Organizer: Mhamed Boutaous, CETHIL- INSA De Lyon, Villeurbanne, France

1:30PM – Crystallization kinetics and polymorphism of PLA: effects of temperature and shearing conditions
Technical Paper Publication. IMECE2016-68213 – *Mhamed Boutaous, CETHIL- INSA De Lyon, Villeurbanne, France, Zakariaa Refaa, INSA De Lyon, CETHIL, Lyon, France, Shihe XIN, Université de Lyon, CNRS, Villeurbanne, France, Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile*

1:51PM – Thermometric Studies of Newly Developed Nanolubricants
Technical Paper Publication. IMECE2016-65040 – *Sayavur Bakhtiyarov, New Mexico Institute of Mining and Technology, Socorro, NM, United States, Elguja Kutelia, Georgian Technical University, Tbilisi, Georgia, Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile*

2:12PM – Elastic Effects in Viscoplastic Flow in Tubes of Arbitrary Cross-Section
Technical Paper Publication. IMECE2016-65025 – *Mario Letelier, University of Santiago of Chile, Santiago, Chile, Nicolás Díaz, Universidad de Santiago de Chile, Santiago, Chile, Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile, Ercio Báez, Universidad de Santiago de Chile, Santiago, Chile*

2:33PM – Flow Behaviour Of FENE-P Fluids in Grooved Parallel Plates With Transverse Cavities
Technical Paper Publication. IMECE2016-65198 – *Abdelkader Filali, Petroleum Institute, Abu Dhabi, United Arab Emir., Lyes Khezzar, Mohamed Alshehhi, The Petroleum Institute, Abu Dhabi, United Arab Emir.*

2:54PM – Viscoelastic flow in teardrop-shaped tubes. Analysis of transversal flow
Technical Paper Publication. IMECE2016-65436 – *Mario Letelier, University of Santiago of Chile, Santiago, Chile, Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile, Sebastian Gutierrez, Pablo Arratia, Department of Mechanical Engineering of the University of Santiago of Chile, Santiago, Chile, Amaru Gonzalez, Center for Research in Creativity and Higher Education, University of Santiago of Chile, Santiago, Chile*

9-5-3 CFD APPLICATIONS FOR OPTIMIZATION AND CONTROLS III

ROOM 222C

Session Organizer: Ning Zhang, McNeese State University, Lake Charles, LA, United States

Session Co-Organizer: Lincan Yan, CDC/NIOSH, Pittsburgh, PA, United States

1:30PM – Optimized Design of Wastewater Disinfection Reactors based on an Artificial Neural Network Metamodel
Technical Paper Publication. IMECE2016-65139 – *Wangshu Wei, Charles N. Haas, Drexel University, Philadelphia, PA, United States, Bakhtier Farouk, Drexel University, MEM Dept, Philadelphia, PA, United States*

1:51PM – Interior Thermal Environment of a 6-person Metal-Type Refuge Alternative (RA)
Technical Paper Publication. IMECE2016-65225 – *Lincan Yan, David Yantek, CDC/NIOSH, Pittsburgh, PA, United States, Mark Klein, Thermoanalytics, Inc., Calumet, MI, United States, Peter Bissert, NIOSH, Pittsburgh, PA, United States*

2:12PM – Transient Multiphase Simulation in Separator Vessel Internals Design in Saudi Aramco
Technical Paper Publication. IMECE2016-65250 – *Hussain Al-Khalifa, Lanre Oshinowo, Omar A Al-Saif, Saudi Aramco, Dhahran, Eastern, Saudi Arabia*

2:33PM – 3D Dynamic Simulation of a Flow Force Compensated Pressure Relief Valve
Technical Paper Publication. IMECE2016-65624 – *Giorgio Altare, Massimo Rundo, Politecnico di Torino, Torino, Italy, Micaela Olivetti, OMIQ s.r.l., Milano, Italy*

2:54PM – Differences in Predicted Flow-Induced Vibration of Submarine Pipelines Considering Cross-Flow and Inline Oscillations and its Influence in Fatigue-Life
Technical Paper Publication. IMECE2016-65796 – *Anthony Dominguez, Armando Blanco, Euro Casanova, Nelson Loaiza, Janneth Garcia, Universidad Simon Bolivar, Caracas, Miranda, Venezuela*

9-8-1 MICRO- AND NANOFLUIDICS MODELING AND APPLICATIONS - I

ROOM 222A

Session Organizer: Iman MirzaeeKakhki, University of Massachusetts Lowell, Lowell, MA, United States

Session Co-Organizer: Prodip Das, Newcastle University, Newcastle, United Kingdom

1:30PM – Droplet oscillation after impact on a solid surface
Technical Paper Publication. IMECE2016-66025 – *Yina Yao, Shuai Meng, Cong Li, Tsinghua University, Beijing, China, Xiantao Chen, Civil Aviation Flight University of China, Guanghan, China, Rui Yang, Tsinghua University, Beijing, China*

1:51PM – Modeling study of Leidenfrost liquid drops moving on surfaces with micro- and nano-scale ratchets
Technical Presentation. IMECE2016-68160 – *Jeong Tae Ok, Kiran Chapagain, Daniel Goodey, Ayesha Dewalagawa Madamawatta, Midwestern State University, Wichita Falls, TX, United States, Eurydice Kanimba, Virginia Tech., Wichita Falls, TX, United States, Mahmoud Elsharafi, Midwestern State University, withita falls, TX, United States, Yu Guo, Sheldon Wang, Midwestern State University, Wichita Falls, TX, United States, Sunggook Park, Louisiana State University, Baton Rouge, LA, United States*

2:12PM – Influence of the co-flow geometry on the generation of mono-disperse emulsions in microfluidic devices
Technical Paper Publication. IMECE2016-68131 – *Evan Denis, New York University, Brooklyn, NY, United States, Emilie Dressaire, New York University, New York, NY, United States*

2:33PM – MICROFLUIDIC SYNTHESIS OF POLYMER IONIC LIQUID GEL BEADS FOR ENERGY HARVESTING APPLICATIONS
Technical Paper Publication. IMECE2016-67018 – *Kaushik Kudtarkar, Patricia Iglesias, Thomas Smith, Rochester Institute of Technology, Rochester, NY, United States, Michael Schertzer, RIT, Rochester, NY, United States*

TIME

3:45PM–5:30PM

9-3-2 FLUID MECHANICS AND RHEOLOGY OF NON-LINEAR MATERIALS AND COMPLEX FLUIDS II

ROOM 222B

Session Organizer: Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile

Session Co-Organizer: Sayavur Bakhtiyarov, New Mexico Institute of Mining and Technology, Socorro, NM, United States

3:45PM – Creating orbiting vorticity vectors in magnetic particle suspensions through field symmetry transitions?a route to noncontact multi-axis mixing
Invited Presentation. IMECE2016-67574 – *James Martin, Sandia National Laboratories, Albuquerque, NM, United States*

4:27PM – Dependence of the Regime of Aggregate Structures of Magnetic Rod-like Particles on the Magnetic Model
Technical Paper Publication. IMECE2016-65352 – *Akira Satoh, Akita Prefectural Univ, Yuri-Honjo, Japan*

4:48PM – Interfacial Instabilities of Miscible Ferrofluids in a Hele-Shaw Cells
Technical Presentation. IMECE2016-68754 – *Chih-Yung Wen, Huan-Hao Li, The Hong Kong Polytechnic University, Kowloon, Hong Kong*

5:09PM – Experiment on Negative Magneto-Rheological Characteristics to Verify the Theoretical Prediction Based on the Orientational Distribution Function
Technical Paper Publication. IMECE2016-65353 – *Rafael CUADRA, Akita Prefectural University, Yuri-Honjo, Japan, Akira Satoh, Akita Prefectural Univ, Yuri-Honjo, Japan*

9-5-4 CFD APPLICATIONS FOR OPTIMIZATION AND CONTROLS IV

ROOM 222C

Session Organizer: Philipp Epple, Coburg University of Applied Sciences, Coburg, Germany

Session Co-Organizer: Sertac Cadirci, Istanbul Technical University, Istanbul, Turkey

3:45PM – Numerical Analysis of Blockage Ratio Effect on a Portable Hydrokinetic Turbine
Technical Paper Publication. IMECE2016-65828 – *Cosan Daskiran, Jacob Riglin, Alparslan Oztekin, Lehigh University, Bethlehem, PA, United States*

4:06PM – STUDY ON THE INFLUENCE OF INLET AND OUTLET FLOW RATES ON INLET AND OUTLET OIL PRESSURES AND BRAKING TORQUE WITH CWCM AND OWCM IN A HYDRODYNAMIC RETARDER
Technical Paper Publication. IMECE2016-65929 – *Qingdong Yan, Hongbin Mu, Wei Wei, Beijing Institute of Technology, Beijing, China*

4:27PM – Dynamic Simulation of a Direct Drive Reversing Valve Based on the Hydraulic Die Forging Hammer
Technical Paper Publication. IMECE2016-66024 – *Muzhi Zhu, Xi'an Jiaotong University, XiAn City, ShanXi, China, Shengdun Zhao, XiAn Jiaotong University, Xian, China*

4:48PM – The impact of the interaction between impeller and spiral casing on the performance of radial fans
Technical Paper Publication. IMECE2016-66072 – *Philipp Epple, Manuel Fritsche, Coburg University of Applied Sciences, Coburg, Bavaria, Germany, Hans J. Russwurm, Russwurm Ventilatoren GmbH, Meitingen, Bavaria, Germany*

5:09PM – Numerical Investigation of Turbulent Flow over a Windscreen Wiper Blade
Technical Paper Publication. IMECE2016-66123 – *Sertac Cadirci, Mustafa Ozsipahi, Umut Can Coskun, Suleyman Emre Ak, Istanbul Technical University, Istanbul, Turkey, Bugra Selenbas, Teklas A.S., Kocaeli, Turkey, Hasan Gunes, Istanbul Technical University, Istanbul, Turkey*

9-8-2 MICRO- AND NANOFLUIDICS MODELING AND APPLICATIONS - II

ROOM 222A

Session Organizer: Michael Schertzer, RIT, Rochester, NY, United States

3:45PM – IMPACT OF PARTICLE DENSITY ON NANOPARTICLE SELF-ASSEMBLY IN EVAPORATING COLLOIDAL DROPLETS
Technical Paper Publication. IMECE2016-66851 – *Collin Burkhart, Kara Maki, Rochester Institute of Technology, Rochester, NY, United States, Michael Schertzer, RIT, Rochester, NY, United States*

4:06PM – Dielectrophoretic Interactions and Chaining of Ellipsoidal Particles in a Microchannel
Technical Paper Publication. IMECE2016-67247 – *Mohammad Hossan, Univ Of Central Oklahoma, Edmond, OK, United States, Prashanta Dutta, Robert Dillon, Washington State University, Pullman, WA, United States, Partha Gopmandal, National Institute of India, Patna, Bihar, India*

4:27PM – VISCOSITY PREDICTION OF WATER-BASED SILVER NANOFLUID USING EQUILIBRIUM MOLECULAR DYNAMICS
Technical Paper Publication. IMECE2016-65831 – *Qianli Ma, Haisheng Fang, Huazhong University of Science & Technology, Wuhan, Hubei, China*

4:48PM – Molecular Dynamics Study of Contact Line Dynamics of Water Droplets on PTFE Surface
Technical Paper Publication. IMECE2016-65941 – *Lei Zhao, jiangtao cheng, Virginia Tech, Blacksburg, VA, United States*

5:09PM – Deploying Air Bubbles In Two-Layer Microfluidic Devices For In Situ Fabrication Of Biopolymer Membranes
Technical Presentation. IMECE2016-67415 – *Phu Pham, Thanh Vo, Xiaolong Luo, Catholic University of America, Washington, DC, United States*

TIME

8:00AM–9:45AM

9-1-1 ADVANCES IN MATERIALS PROCESSING AND MANUFACTURING

ROOM 131A

Session Organizer: Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile

Session Co-Organizer: Mhamed Boutaous, CETHIL- INSA De Lyon, Villeurbanne, France

8:00AM – Bio-Inspired Engineering: Self-Healing Materials
Invited Paper Publication. IMECE2016-65030 – *Sayavur Bakhtiyarov, New Mexico Institute of Mining and Technology, Socorro, NM, United States, Elguja Kutelia, Georgian Technical University, Tbilisi, Georgia*

8:42AM – The Effect of Gas Evolution on Hydraulic Characteristics of Fluid Flow in Pipeline
Technical Paper Publication. IMECE2016-65068 – *Geylani M. Panakhov, Azerbaijan National Academy of Sciences, Baku, Baku, Azerbaijan, Eldar M. Abbasov, ANAS, Baku, Baku, Azerbaijan, Sayavur Bakhtiyarov, New Mexico Institute of Mining and Technology, Socorro, NM, United States, Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile*

9:03AM – Flow Conditioning Techniques for a Bent Pipe in a Constrained Latent Heat Storage System
Technical Paper Publication. IMECE2016-65730 – *Francesca Moloney, Chatura Wickramaratne, Eydhah Almatrafi, University of South Florida Clean Energy Research Center, Tampa, FL, United States, D. Yogi Goswami, Elias Stefanakos, Rasim Guldiken, University Of South Florida, Tampa, FL, United States*

9:24AM – Analytical investigation on the rotational speed dependence of the RD fluid force (The case of concentric circular whirl in the annular plain seal)
Technical Paper Publication. IMECE2016-66688 – *Atsushi Ikemoto, Kazukiyo Sakamoto, Nagoya University, Nagoya, Aichi, Japan, Tsuyoshi Inoue, Nagoya University, Chikusa-Ku Nagoya, Japan, MASAHARU UCHIUMI, Japan Aerospace eXploration Agency, Kakuda, Miyagi, Japan*

9-3-3 FLUID MECHANICS AND RHEOLOGY OF NON-LINEAR MATERIALS AND COMPLEX FLUIDS III

ROOM 131C

Session Organizer: Sayavur Bakhtiyarov, New Mexico Institute of Mining and Technology, Socorro, NM, United States

Session Co-Organizer: Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile

8:00AM – Flow of a drilling fluid between two concentric and eccentric cylinders
Technical Paper Publication. IMECE2016-65582 – *Wei-Tao Wu, Carnegie Mellon University, Pittsburgh, PA, United States, Zhi-Fu Zhou, Xi'an Jiaotong Univeristy, Xian, Shaanxi, China, Nadine Aubry, Northeastern University, Boston, MA, United States, James Antaki, Carnegie Mellon Univ, Pittsburgh, PA, United States, Mehrdad Massoudi, National Energy Technology Laboratory (NETL), Pittsburgh, PA, United States*

8:21AM – Rheological Characterization of Green Sand Flow
Technical Paper Publication. IMECE2016-66469 – *Masoud Jabbari, Technical University of Denamrk, Kgs. Lyngby, -, Denmark, Jon Spangenberg, Emil Hovad, Raphael Comminal, Jesper H. Hattel, Technical University of Denmark, Kgs. Lyngby, -, Denmark, Katja I. Hartmann, Anton Paar Germany GmbH, Ostfildern, Germany, Denis Schütz, Anton Paar GmbH, Graz, Austria*

8:42AM – Coupled Rheology and Thermal Transport in Granular Materials
Technical Presentation. IMECE2016-67858 – *Aalok Gaitonde, Amy Marconnet, Ishan Srivastava, Rajath Kantharaj, Purdue University, West Lafayette, IN, United States*

9:03AM – Parametric study modeling electrospray settings on jet and space charge characteristics
Technical Presentation. IMECE2016-66875 – *Kirubel Teferra, Marriner Merrill, US Naval Research Laboratory, Washington, DC, United States*

9:24AM – AC Field-Driven Structuring In Suspensions
Technical Presentation. IMECE2016-67593 – *Boris Khusid, New Jersey Inst Of Tech, Newark, NJ, United States, Ezinwa Elele, Qian Lei, New Jersey Institute of Technology, Newark, NJ, United States*

9-4-1 LOW AND HIGH SPEED FLUID DYNAMICS

ROOM 129B

Session Organizer: David Davis, NASA Glenn Research Center, Cleveland, OH, United States

Session Co-Organizer: Francisco Diez, Rutgers Univ, Piscataway, NJ, United States, Francine Battaglia, Virginia Tech, Blacksburg, VA, United States

8:00AM – Aerodynamic Load Mapping of Bluff Bodies: An Update and Summary
Technical Paper Publication. IMECE2016-66105 – *Nicholas Motahari, Dhwanil Shukla, Nandeesh Hiremath, Narayanan Komerath, Georgia Institute of Technology, Atlanta, GA, United States*

8:21AM – Very Low Reynolds Number Flow Over Non-Spherical Particles: Applications To Pollen Aerodynamics
Technical Paper Publication. IMECE2016-67268 – *Lisa Grega, College Of New Jersey, Ewing, NJ, United States*

8:42AM – Measurements and Visualization of the Flow in a Turbine Blade Tip Gap with Passive Jet Injection
Technical Paper Publication. IMECE2016-65182 – *Stefan aus der Wiesche, Maximilian Passmann, Karsten Hasselmann, Harald Boesche, Muenster University of Applied Sciences, Steinfurt, Germany*

9:03AM – Hydraulic Resistance of Subcritical and Supercritical Water Flowing in a Rifled Tube
Technical Paper Publication. IMECE2016-65597 – *Dong Yang, Zhi Shen, Xin Nie, Wanyu Liu, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Fengjun Wang, Ying Huang, Harbin Boiler Company Limited, Harbin, Heilongjiang, China*

9-14-1 WIND TURBINES

ROOM 131B

Session Organizer: Jaikrishnan, R. Kadambi, Case Western Reserve University, Cleveland, OH, United States

Session Co-Organizer: Majid Rashidi, Cleveland State University, Pepper Pike, OH, United States

8:00AM – Aerodynamics Simulation Method for Swept Wind Turbine Blades Based on Improved Vortex Lattice Method
Technical Paper Publication. IMECE2016-65469 – *Guangxing Wu, Lei Zhang, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, China*

8:21AM – Investigation of Aerodynamic Performance of Helical Shape Vertical-Axis Wind Turbine Models Using Wind Tunnel Testing and Computational Fluid Dynamics
Technical Paper Publication. IMECE2016-68081 – *Mosfequr Rahman, Travis Salyers, Georgia Southern University, Statesboro, GA, United States, Mahbub Ahmed, Southern Arkansas University, Magnolia, AR, United States, Adel ElShahat, Valentin Soloiu, Emile Maroha, Georgia Southern University, Statesboro, GA, United States*

8:42AM – Design of a Rooftop Wind Harnessing System with Smart Wind Deflecting Structure
Technical Paper Publication. IMECE2016-65951 – *Majid Rashidi, cleveland state university, Pepper Pike, OH, United States, Jaikrishnan, R. Kadambi, Scott Suren, Case Western Reserve University, Cleveland, OH, United States*

9:03AM – Numerical Investigations of Flow Characteristics and Aerodynamic Parameters of an Airfoil with a Trailing Edge Rotating Cylinder
Technical Paper Publication. IMECE2016-67490 – *Preston Chan, CEERS/COE/CSULB, Long Beach, CA, United States, Hamid Rahai, California St Univ-long Beach, Long Beach, CA, United States, Sanh Luong, CEERS/COE/CSULB, Long Beach, CA, United States*

TIME	
10:00AM–11:45AM	

9-3-4 FLUID MECHANICS AND RHEOLOGY OF NON-LINEAR MATERIALS AND COMPLEX FLUIDS IV

ROOM 131C

Session Organizer: Sayavur Bakhtiyarov, New Mexico Institute of Mining and Technology, Socorro, NM, United States

Session Co-Organizer: Dennis A. Siginer, Botswana International University of Science and Technology & Universidad de Santiago de Chile, Santiago in Chile & Palapye in Botswana, Chile

10:00AM – Modeling the Gross Melt Fracture Extrusion Defect as an Elastic Flow Instability
Technical Presentation. IMECE2016-66543 – *Raphael Comminal, Jon Spangenberg, Technical University of Denmark, Kgs. Lyngby, -, Denmark, Masoud Jabbari, Technical University of Denamrk, Kgs. Lyngby, -, Denmark, Jesper H. Hattel, Technical University of Denmark, Kgs. Lyngby, Copenhagen, Denmark*

10:21AM – Annular Shear-Thinning Flow Over an Axisymmetric Sudden Expansion
Technical Paper Publication. IMECE2016-66149 – *Khaled J. Hammad, Central Connecticut State University, Simsbury, CT, United States*

10:42AM – EFFECTS OF STATOR CONFIGURATIONS ON THE FLOTATION PERFORMANCE OF INDUCED GAS FLOTATION MACHINE
Technical Paper Publication. IMECE2016-66012 – *JiGu Lee, JiYun Kang, SUNGKYUNKWAN UNIVERSITY, Suwon, Gyeonggi-do, Korea (Republic), Youn Jea Kim, Sungkyunkwan Univ, Suwon 440746, Korea (Republic)*

11:03AM – Research on Influencing Factors for Proper Orthogonal Decomposition Basis Functions in a Hydrodynamic Retarder
Technical Paper Publication. IMECE2016-66259 – *Wei Wei, Xueyong Han, Qingdong Yan, Beijing Institute of Technology, Beijing, China*

9-5-5 CFD APPLICATIONS FOR OPTIMIZATION AND CONTROLS V

ROOM 221A

Session Organizer: Mehdi Nazarinia, Heriot-Watt University, Dubai, Dubai, United Arab Emir.

Session Co-Organizer: Zhongquan Charlie Zheng, University of Kansas, Lawrence, KS, United States

10:00AM – Analysis of total head loss in various configurations of spiral casing: A numerical study
Technical Paper Publication. IMECE2016-66358 – *Parameswara Rao Nakkina, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India, Arul Prakash K, Saravana Kumar Gurunathan, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India*

10:21AM – Transient Modelling of Pneumatic Valves in Centrifugal Microfluidic Devices
Technical Paper Publication. IMECE2016-66386 – *Michael Moon, Lin Lin, University of Southern Maine, Gorham, ME, United States*

10:42AM – Numerical Investigation on the Effect of Inlet Total Pressure Distortion on the Characteristic Curve of Compressor
Technical Paper Publication. IMECE2016-66596 – *Tao Sun, HANGHAI QIU, Zuohong Liu, wenbin zhang, Harbin Engineering University, Harbin, China*

11:03AM – The Effect of Intake and Exhaust on the Two-dimensional Airfoil in a Distributed Propulsion System
Technical Paper Publication. IMECE2016-66754 – *Yongsheng Wang, Ming Zhou, Quanyong Xu, Tsinghua University, Beijing, China*

11:24AM – Effect Of Truck-Trailer Gap On Boat Tail Performance Of A Heavy Vehicle: A Numerical Approach
Technical Paper Publication. IMECE2016-66857 – *Chinara Tashmatova, Heriot-Watt University, Dubai International Academic City, Dubai, United Arab Emir., Mehdi Nazarinia, Heriot-Watt University, Dubai, Dubai, United Arab Emir.*

9-16-1 FLUID MEASUREMENTS AND INSTRUMENTATION

ROOM 221B

Session Organizer: Judith Bamberger, Pacific Northwest National Laboratory, Richland, WA, United States

Session Co-Organizer: Joel Park, Naval Surface Warfare Center Carderock Division, West Bethesda, MD, United States, Francisco Diez, Rutgers Univ, Piscataway, NJ, United States

10:00AM – STATIC PRESSURE ERRORS IN PITOT TUBES AT ANGLES
Technical Paper Publication. IMECE2016-65640 – *David Lee, Yong Zhu, Wilkes University, Wilkes-Barre, PA, United States*

10:21AM – V3V - Point of shoot measurement technique for volumetric measurements in Fluid Mechanics
Technical Presentation. IMECE2016-68683 – *Stamatios Pothos, TSI Incorp, Shoreview, MN, United States, Dan Troolin, TSI Incorporated, Shoreview, MN, United States*

10:42AM – Experimental Evaluation of PIV Uncertainty prediction methods
Technical Presentation. IMECE2016-68687 – *Aaron Boomsma, TSI Incorporated, Shoreview, MN, United States, Sayantan Bhattacharya, Purdue University, West Lafayette, IN, United States, Dan Troolin, TSI Incorporated, Shoreview, MN, United States, Stamatios Pothos, TSI Incorp, Shoreview, MN, United States, Pavlos Vlachos, Purdue Univeristy, West Lafayette, IN, United States*

11:03AM – Phase Doppler Anemometry Measurement in Water-Air Impinging jet Flows
Technical Paper Publication. IMECE2016-65199 – *Yakang Xia, Petroleum Institute, Abu Dhabi, United Arab Emir., Lyes Khezzar, Mohamed Alshehhi, The Petroleum Institute, Abu Dhabi, United Arab Emir.*

TIME

1:15PM–3:00PM

9-5-6 CFD APPLICATIONS FOR OPTIMIZATION AND CONTROLS VI

ROOM 221A

Session Organizer: Chenn Zhou, Purdue University Calumet, Hammond, IN, United States

Session Co-Organizer: Philipp Epple, Coburg University of Applied Sciences, Coburg, Germany

1:15PM – Influence Of Pig Mass, Launching Time And Turbulence Model on 3-D CFD Transient Simulation Of Pig Motion
Technical Paper Publication. IMECE2016-66956 – *Diego Jaimes Parilli, Universidad Simón Boívar, Caracas, Choose one..., Venezuela, Armando Blanco, Janneth Garcia, Universidad Simon Bolivar, Caracas, Miranda, Venezuela*

1:36PM – An Optimum Design Approach for Textured Thrust Bearing with Elliptical-Shape Dimples using CFD and DOE Including Cavitation
Technical Paper Publication. IMECE2016-66971 – *Gen Fu, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States, Alexandrina Untaroiu, Virginia Tech, Blacksburg, VA, United States*

1:57PM – Numerical Modeling and Optimization of a Natural Gas and Coke Oven Gas Mixing Flow Field in a T-shape Channel
Technical Paper Publication. IMECE2016-67425 – *Xiang Liu, Bin Wu, Guangwu Tang, Purdue University Calumet, Hammond, IN, United States, Yuchao Chen, Armin Silaen, Purdue University Northwest, Hammond, IN, United States, Chenn Zhou, Purdue University Calumet, Hammond, IN, United States*

2:18PM – Optimization Design of Anti-Dust Accumulation Centrifugal Fan Using Genetic Algorithm
Technical Paper Publication. IMECE2016-67575 – *Jin Xiong, Xi'an Jiaotong University, Shaanxi, China, Haoyu Cui, Xi'an Jiaotong University, Xi'an,Shaanxi, China, Jingyin Li, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

2:39PM – Effects of the installation of driven Motor at the impeller eye on Performance of Volute-free Centrifugal Fan
Technical Paper Publication. IMECE2016-67609 – *Haoyu Cui, Xi'an Jiaotong University, Xi'an,Shaanxi, China, Jin Xiong, Xi'an Jiaotong University, Shaanxi, China, Congcong Chen, Jingyin Li, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

9-8-3 MICRO- AND NANOFLUIDICS MODELING AND APPLICATIONS - III

ROOM 131C

Session Organizer: Prodip Das, Newcastle University, Newcastle, United Kingdom

1:15PM – Micro Scale Air Sampling Devices: a Numerical Study
Technical Paper Publication. IMECE2016-68061 – *Iman Mirzaee, UMass Lowell, Lowell, MA, United States, Majid Charmchi, Univ Of Massachusetts, Lowell, MA, United States, Hongwei Sun, Univ Of Mass-lowell, Lowell, MA, United States, Minghao Song, Univ of Massachusetts Lowell, Lowell, MA, United States*

1:36PM – THE CRITICAL VELOCITY WITH MINIMUM MOMENTUM CHANGE IN PUSHING A DROPLET THROUGH A CONSTRICTION CHANNEL
Technical Paper Publication. IMECE2016-67893 – *Zhifeng Zhang, PENN State University, State College, PA, United States, Xinpeng Zhao, The Penn State University, State College, PA, United States, Jie Xu, University of Illinois At Chicago, Chicago, IL, United States, Xiaolin Chen, Washington State University, Vancouver, WA, United States*

1:57PM – Modeling and numerical simulation of flow resistance characteristics in slowly-varying rectangular cross-section microchannel
Technical Paper Publication. IMECE2016-65257 – *Teng Shen, Wang Jiong, Dong Sun, Yafeng Liu, Nanjing University of Science and Technology, Nanjing, China, Zhouyu Tian, University of Science & Technology China, suzhou, China*

2:18PM – A NUMERICAL STUDY ON HIGHLY VISCOUS COMPOUND CANCER CELL MICROFILTRATION
Technical Paper Publication. IMECE2016-66953 – *Xiaolong Zhang, Xiaolin Chen, Washington State University, Vancouver, WA, United States, Hua Tan, WSU Purchasing Services, Pullman, WA, United States*

9-12-1 MULTIPHASE FLOW WITH BIO-APPLICATIONS I

ROOM 221B

Session Organizer: Jingsen Ma, Dynaflow, Inc, Jessup, MD, United States

Session Co-Organizer: Michael Calvisi, University of Colorado, Colorado Springs, Colorado Springs, CO, United States, Javid Bayandor, Virginia Polytechnic Institute and State University, Blacksburg, VA, United States, D. Keith Walters, Mississippi State University, Mississippi State, MS, United States

1:15PM – AN EULERIAN-LAGRANGIAN STUDY OF CLOUD DYNAMICS NEAR A WALL
Technical Paper Publication. IMECE2016-67360 – *Jingsen Ma, Dynaflow, Inc, Jessup, MD, United States, Georges Chahine, Dynaflow, Inc, Rockville, MD, United States, Chao-tsung Hsiao, Dynaflow, Inc., Montgomery Villag, MD, United States*

1:36PM – Nonspherical Dynamics and Shape Mode Stability of Ultrasound Contrast Agent Microbubbles
Technical Paper Publication. IMECE2016-66423 – *Sean S. Neu, Univestity of Colorado, Colorado Springs, Colorado Springs, CO, United States, John T. Brlansky, Michael Calvisi, University of Colorado, Colorado Springs, Colorado Springs, CO, United States*

1:57PM – Influencing factors and scaling law of bubble detachment at a submerged orifice
Technical Paper Publication. IMECE2016-67509 – *Yiwei Wang, Chenguang Huang, xiaocui Wu, Institute of Mechanics, Chinese Academy of Sciences, Beijing, China*

2:18PM – Wall Shear Stress based Rupture Prediction in Middle Cerebral Artery Aneurysms: A Blinded Study using a Gaussian Mixture Model approach
Technical Presentation. IMECE2016-68273 – *Prahlad Menon, University of Pittsburgh, Pittsburgh, PA, United States*

TIME		
3:30PM–5:15PM	**9-5-7 CFD APPLICATIONS FOR OPTIMIZATION AND CONTROLS VII** **ROOM 221A** *Session Organizer: Ning Zhang, McNeese State University, Lake Charles, LA, United States* *Session Co-Organizer: Zhongquan Charlie Zheng, University of Kansas, Lawrence, KS, United States* **3:30PM – Analysis of Energy Loss Mechanism at the Speed Ratio of Design Operating Condition in Hydrodynamic Torque Converters** **Technical Paper Publication.** IMECE2016-67613 – *Qingdong Yan, Beijing Institute of Technology, Beijing, China, Mingxing Huang, Beijing Institute of Technology Beijing, China, Beijing, China, Wei Wei, Beijing Institute of Technology, Beijing, China* **3:51PM – Testing the Salinity Control Designs in Calcasieu Lake using Hydrodynamic and Salinity Transport Models** **Technical Paper Publication.** IMECE2016-67767 – *Susan Regmi, Ning Zhang, McNeese State University, Lake Charles, LA, United States* **4:12PM – STRUCTURAL INTEGRITY ANALYSIS OF GLCC© SEPARATOR INLET** **Technical Paper Publication.** IMECE2016-67863 – *Srinivas Swaroop Kolla, Ram Mohan, Ovadia Shoham, The University of Tulsa, Tulsa, OK, United States* **4:33PM – Influence of Mesh Type on Accuracy of Numerical Simulations of Barrier Fluid Flow through a Bi-Directional Integrated Pumping Ring for Dual Mechanical Seal** **Technical Paper Publication.** IMECE2016-67981 – *H. A. Warda, Alexandria University, Faculty of Engineering, Alexandria, Egypt, I. G. Adam, A. B. Rashad, M. W. Gamal Aldin, Alexandria University, Faculty of Engineering., Alexandria, Egypt*	**9-8-4 INVITED TALKS** **ROOM 221C** *Session Organizer: Mohammad Hossan, Univ Of Central Oklahoma, Edmond, OK, United States* **3:30PM – Capacitive deionization (CDI) of water: How much energy is dissipated and how much is stored?** **Invited Presentation.** IMECE2016-68767 – *Juan Santiago, Stanford University, Stanford, CA, United States*
	9-12-2 MULTIPHASE FLOW WITH BIO-APPLICATIONS II **ROOM 221B** *Session Organizer: Jingsen Ma, Dynaflow, Inc, Jessup, MD, United States* *Session Co-Organizer: Ning Zhang, McNeese State University, Lake Charles, LA, United States, Zhongquan Charlie Zheng, University of Kansas, Lawrence, KS, United States, Prahlad Menon, University of Pittsburgh, Pittsburgh, PA, United States* **3:30PM – GPS1.0: a general-purpose particle simulator for irregular deformable particles in fluid flow** **Invited Presentation.** IMECE2016-68782 – *Wei Ge, Institute of Process Engineering, Chinese Academy of Sciences, Beijing, China* **4:12PM – A Multiphase Flow Simulation for a Cells-on-a-Chip Device** **Technical Paper Publication.** IMECE2016-66126 – *Meihua Zhang, Amy Zheng, Zhongquan Charlie Zheng, Zhuo Wang, University of Kansas, Lawrence, KS, United States* **4:33PM – Simulation of Flow over Marsh Grasses using an Immersed Boundary Method** **Technical Presentation.** IMECE2016-67855 – *Ning Zhang, McNeese State University, Lake Charles, LA, United States, Lucy Zhang, Arcadia High School, Arcadia, CA, United States* **4:54PM – Clavulanic acid Production by Streptomyces clavuligerus using Solid State Fermentationon on Polyurethane Foam** **Technical Paper Publication.** IMECE2016-65466 – *Hui Wang, State Key Lab of Biochemistry, Institute of Process Engineering, Chinese Academy of Sciences, Beijing, China, Hongzhang Chen, Chinese Academy of Science, Beijing, China*	

TIME	
10:30AM–12:15PM	**10-1-1 HEAT TRANSFER IN ENERGY SYSTEMS: ENERGY CONVERSION** **ROOM 122A** *Session Organizer: Bong Jae Lee, Korea Advanced Institute of Science and Technology, Daejeon, Korea (Republic)* **10:30AM – COMPARATIVE THERMAL PERFORMANCE OF A PARABOLIC TROUGH RECEIVER WITH CU-THERMINOL®VP-1, AG-THERMINOL®VP-1 AND AL2O3 -THERMINOL®VP-1 NANOFLUIDS** **Technical Paper Publication.** IMECE2016-65263 – *Aggrey Mwesigye, University of the Witwatersrand, Johannesburg, Johannesburg, Gauteng, South Africa, Zhongjie Huan, Tshwane University of Technology, Pretoria, Guateng, South Africa, Josua Meyer, Univ. Of Pretoria, Pretoria 0002, South Africa* **10:51AM – Hydrodynamic and Thermal Modelling of Circulating Fluidized Bed Solar Receivers** **Technical Paper Publication.** IMECE2016-67230 – *Serhat Bilyaz, Ilker Tari, METU, Ankara, Turkey* **11:12AM – EXTENDING DIE-ATTACHMENT FATIGUE LIFE OF POWER ELECTRONICS USING PHASE CHANGE MATERIALS** **Technical Paper Publication.** IMECE2016-65151 – *Levi Elston, AFRL, WPAFB, OH, United States* **11:33AM – Analyzing Fluid Elastic Instability of Vibrating Tubes Failure at HRSG Steam Generator by Adopting Criteria of ASME Sec III Div.1 App N-1330** **Technical Paper Publication.** IMECE2016-66340 – *Adel Al-Nasser, Berri Gas Plant, Saudi ARAMCO, Dhahran, Saudi Arabia* **10-2-1 HEAT TRANSFER ANALYSIS OF MULTI PHASE PROCESSES** **ROOM 122B** *Session Organizer: Brian D. Iverson, Brigham Young University, Provo, UT, United States* **10:30AM – New paradigm of icephobic surfaces** **Technical Presentation.** IMECE2016-67727 – *Peyman Irajizad, Munib Hasnain, Nazanin Farokhnia, Seyed Mohammad Sajadi, Hadi Ghasemi, University of Houston, Houston, TX, United States* **10:51AM – Negative Thermal Expansion in Zeolites** **Technical Presentation.** IMECE2016-66753 – *Paarth Thapar, Carnegie Mellon University, Pittsburgh, PA, United States, Alan McGaughey, Carnegie Mellon Univ, Pittsburgh, PA, United States* **11:12AM – Thermal performance of a fin operating under dehumidifying operating conditions** **Technical Paper Publication.** IMECE2016-67260 – *Sulaman Pashah, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia* **11:33AM – Experimental Characterization of Direct-Contact Heat Exchange between a Liquid Film Flowing down over a Vertical String and a Counter-flowing Gas** **Technical Presentation.** IMECE2016-67474 – *Zezhi Zeng, Y. Sungtaek Ju, UCLA, Los Angeles, CA, United States* **11:54AM – Cryogenically propelled microjet array cooling for extreme-flux thermal management** **Technical Presentation.** IMECE2016-67025 – *Alexander Rattner, Pennsylvania State University, State College, PA, United States* **10-4-1 PERFORMANCE ANALYSIS OF LABORATORY SCALE AND INDUSTRIAL SCALE ENERGY SYSTEMS** **ROOM 122C** *Session Organizer: Keunhan (Kay) Park, University of Utah, Salt Lake City, UT, United States* **10:30AM – BOILING HEAT TRANSFER FROM AN OSCILLATED WATER COLUMN THROUGH A POROUS DOMAIN: A SIMPLIFIED THERMODYNAMIC ANALYSIS** **Technical Paper Publication.** IMECE2016-66901 – *Ersin Sayar, Istanbul Technical University, Istanbul, Turkey* **10:51AM – CFD Study of Water Condensation Inside the Tubes of an Automotive Compact Charge Air Cooler Using Large Eddy Simulation Approach** **Technical Paper Publication.** IMECE2016-66999 – *Robin Cash, Ford Motor Company, Farmington Hills, MI, United States, Apoorv Talekar1, Wayne State University, Detorit, MI, United States, Bashar AbdulNour, Ford Motor Company, Dearborn, MI, United States* **11:12AM – Novel evaporator geometries based on entrance-length flow-paths for geothermal binary power plants** **Technical Paper Publication.** IMECE2016-67660 – *Adrian Sabau, Oak Ridge National Laboratory, Oak Ridge, TN, United States, Ali Nejad, The University of Tennessee, Knoxville, TN, United States, Adrian Bejan, Duke Univ, Durham, NC, United States, Kivanc Ekici, The University of Tennessee, Knoxville, TN, United States, James Klett, Oak Ridge National Laboratory, Oak Ridge, TN, United States* **11:33AM – Heat Transfer Analysis of Shell-and-Helical-Coil Heat Exchangers** **Technical Paper Publication.** IMECE2016-68173 – *Anthony Edward Morris, The Cooper Union, New York, NY, United States, Chih Shing Wei, Cooper Union, New York, NY, United States, Runar Unnthorsson, University of Iceland, Reykjavík, Iceland, Robert Dell, The Cooper Union, New York, NY, United States* **11:54AM – CFD modelling and performance analysis of a steel reheating furnace under oxygen enriched conditions** **Technical Presentation.** IMECE2016-68258 – *Bernhard Mayr, Rene Prieler, Graz University of Technology, Graz, Austria, Martin Demuth, Messer Austria GmbH, Gumpoldskirchen, Austria, Christoph Hochenauer, Graz University of Technology, Graz, Austria, Luca Moderer, Marienhuette GmbH, Graz, Austria*

TIME

10:30AM–12:15PM

10-5-1 FUNDAMENTALS OF CONDENSATION

ROOM 123 10:30AM–12:15PM

Session Organizer: Konrad Rykaczewski, Arizona State University, Tempe, AZ, United States

Session Co-Organizer: Amitabh Narain, Michigan Tech Univ, Houghton, MI, United States

10:30AM – Fundamentals of Dropwise Condensation of Water on Metal Matrix-Hydrophobic Nanoparticle Composites
Technical Presentation. IMECE2016-65346 – *Damle Viraj, ASU, Tempe, AZ, United States, Xiaoda Sun, Konrad Rykaczewski, Arizona State University, Tempe, AZ, United States*

10:51AM – Inhibition of Condensation and Condensation Frosting Through Engineered Integral Humidity Sink Effect
Technical Presentation. IMECE2016-65397 – *Xiaoda Sun, Arizona State University, Tempe, AZ, United States, Damle Viraj, ASU, Tempe, AZ, United States, Aastha Uppal, Rubin Linder, Konrad Rykaczewski, Arizona State University, Tempe, AZ, United States*

11:12AM – Dropwise Condensation on Surfaces of Steel
Technical Paper Publication. IMECE2016-66666 – *Fangyu Cao, Advanced Cooling Technologies, Inc, Alexandria, VA, United States, Sean Hoenig, Chien-Hua Chen, Advanced Cooling Technologies, Inc, Lancaster, PA, United States*

11:33AM – On the role of Marangoni convection in dropwise condensation heat transfer
Technical Presentation. IMECE2016-68508 – *Sujal Tipnis, Konrad Rykaczewski, Arizona State University, Tempe, AZ, United States*

10-8-1 FUNDAMENTALS OF MULTISCALE MODELING AND SIMULATIONS OF HEAT TRANSFER I

ROOM 231A 10:30AM–12:15PM

Session Organizer: Nick Roberts, Utah State University, Logan, UT, United States

10:30AM – Inter-chain and intra-chain interactions affect morphology and thermal conductivity of polymer blends
Technical Presentation. IMECE2016-65391 – *Xingfei Wei, University of Notre Dame, Notre Dame, IN, United States, Teng Zhang, University of Notre Dame, Notre Dame, IN, United States, Tengfei Luo, University of Notre Dame, Notre Dame, IN, United States*

10:51AM – Exceptional Interfacial Thermal Conductance across Hydrogen-Bonded Graphene/Polymer Interfaces
Technical Presentation. IMECE2016-66346 – *Lin Zhang, Zhitong Bai, Utah State University, Logan, UT, United States, Ling Liu, Utah State University ENGR 419R, Logan, UT, United States*

11:12AM – Nano Heat Pipe: Nonequilibrium Molecular Dynamics Simulation
Technical Paper Publication. IMECE2016-67448 – *Mohammad Moulod, Gisuk Hwang, Wichita State University, Wichita, KS, United States*

11:33AM – Molecular Dynamics of Thermal Transport at Chemical Interfaces
Technical Presentation. IMECE2016-67488 – *Matthew D. Gerboth, Vanderbilt University, Nashville, TN, United States, Greg Walker, Vanderbilt Univ, Nashville, TN, United States*

11:54 AM – Mechanisms of Thermal Transport in C60 Molecular Crystals
Technical Presentation. IMECE2016-66763 – *Sushant Kumar, Simon Lu, Carnegie Mellon University, Pittsburgh, PA, United States, Alan McGaughey, Carnegie Mellon Univ, Pittsburgh, PA, United States*

1:30PM–3:15PM

10-3-1 ANALYSIS OF RADIATIVE TRANSFER IN ENERGY SYSTEMS

ROOM 222A

Session Organizer: Matthew Jones, Brigham Young University, Provo, UT, United States

1:30PM – Development of a Non-linear Controller for a Solar Receiver Based on a Transient Heat Transfer Model
Technical Presentation. IMECE2016-68644 – *Hamed Abedini, KU Leuven, Leuven, Belgium, Nesrin Ozalp, Katholieke Universiteit (KU) Leuven, Leuven, Belgium*

1:51PM – Enhanced heat transfer and thermal performance of metal foam microchannel heat sinks with internal vertical Y-shaped bifurcations
Technical Paper Publication. IMECE2016-66449 – *Han Shen, Xueting Liu, Northwestern Polytechnical University, Xi'an, China, Bengt Sunden, Lund University, Lund, Sweden, Gongnan Xie, Northwestern Polytechnical University, Xi'an, China*

2:12PM – Effect of thermal radiation on accuracy of restricted domain approach in a square open cavity
Technical Paper Publication. IMECE2016-66380 – *Om Singh, Suneet Singh, Shireesh Kedare, Indian Institute of Technology Bombay, Mumbai, India*

2:33PM – Variable Radiative Heat Exchange with Three-Dimensional Origami Surfaces
Technical Presentation. IMECE2016-68133 – *Michael Farnsworth, Rydge Mulford, Matthew Jones, Brian D. Iverson, Brigham Young University, Provo, UT, United States*

2:54PM – Assessment of Errors in Infrared Pyrometry Due to Non-Ideal Radiative Surface Properties
Technical Presentation. IMECE2016-67971 – *Zachary J. Sadler, Matthew Jones, Brigham Young University, Provo, UT, United States*

10-3-3 CONDUCTION HEAT TRANSFER ANALYSIS OF ENERGY SYSTEMS

ROOM 222B

Session Organizer: Hohyun Lee, Santa Clara University, Santa Clara, CA, United States

1:30PM – Thermal Contact Conductance at Elevated Temperatures: Measurement System and Carbon Nanotube Thermal Interface Material Capabilities
Technical Presentation. IMECE2016-67788 – *Stephen Hodson, Purdue University, Lafayette, IN, United States, Robert A. Sayer, Sandia National Laboratories, Albuquerque, NM, United States, Quentin E. Sneed, Howard University, Washington D.C., DC, United States, Timothy Fisher, Purdue, West Lafayette, IN, United States*

1:51PM – Transient Grating Measurements of Low Thermal Conductivity Polymer Films
Technical Presentation. IMECE2016-67831 – *Andrew Robbins, Austin Minnich, Caltech, Pasadena, CA, United States*

2:12PM – FLOW ARCHITECTURES FOR GROUND-COUPLED HEAT PUMPS
Technical Paper Publication. IMECE2016-65410 – *Sylvie Lorente, INSA, University of Toulouse, Toulouse, France, Adrian Bejan, Duke Univ, Durham, NC, United States*

2:33PM – Experimental Investigation of Temperature Dependent Thermal Conductivity of Aluminum Oxide and CNT Heat Transfer Fluids
Technical Paper Publication. IMECE2016-67288 – *David Calamas, John Willis, Zachary Wilkes, Mosfequr Rahman, Georgia Southern University, Statesboro, GA, United States, Daniel Dannelley, Embry-Riddle Aeronautical University, Prescott, AZ, United States*

2:54PM – Numerical Study of a Hybrid Thermal Insulation with Phase Change Material for Subsea Pipelines
Technical Paper Publication. IMECE2016-67563 – *Mohammad parsazadeh, PhD Student, St. John's, NL, Canada, Xili Duan, Memorial University of Newfoundland, St.john's, NL, Canada*

TIME

1:30PM–3:15PM

10-3-4 NUMERICAL ANALYSIS OF SINGLE AND MULTIPHASE HEAT EXCHANGERS

ROOM 222C

Session Organizer: Mathieu Francoeur, University of Utah, Salt Lake Cty, UT, United States

1:30PM – Integrated Computational Approach for Heat Exchangers Design
Technical Paper Publication. IMECE2016-65653 – *Chung Hyun Goh, Nelson Fumo, University of Texas at Tyler, Tyler, TX, United States, Zhenjun Ming, Beijing Institute of Technology, Beijing, China*

1:51PM – Numerical Simulation of Manifold Microchannel Heat Exchanger
Technical Paper Publication. IMECE2016-66960 – *Muhammad Ansab Ali, The Petroleum Institute, Abu Dhabi, Abu Dhabi, United Arab Emir., Tariq Khan, Petroleum Institute, Abu Dhabi, Abu Dhabi, United Arab Emir., Ebrahim Al-Hajri, Petroleum Institute of Abu Dhabi, Abu Dhabi, United Arab Emir.*

2:12PM – Performance Enhancementof Household Refrigerators Using Phase Change Materials
Technical Paper Publication. IMECE2016-67020 – *Ibrahim M. Mahmoud, Benha Faculty of Engineering, Cairo, Egypt, Mohamed K. Rady, Helwan Faculty of Engineering, Cairo, Egypt, Ahmed S. Huzayyin, Benha Faculty of Engineering, Cairo, Egypt*

2:33PM – Numerical Study of Transport Membrane Condenser Heat Exchangers
Technical Paper Publication. IMECE2016-67882 – *Esmaiil Ghasemisahebi, Soheil Soleimanikutanaei, Cheng-xian Lin, Florida International University, Miami, FL, United States, Dexin Wang, Gas Technology Institute, Indian Creek, IL, United States*

2:54PM – The Study of Heat Exchange Process Between High-temperature Liquid Metal Coolant and Liquid Steel During Crystallization
Technical Paper Publication. IMECE2016-66747 – *Evgeny Neshporenko, Sergey Kartavtsev, Sergey Matveev, Yuri Dyomin, Nosov Magnitogorsk State Technical University, Magnitogorsk, Chelyabinsk region, Russia*

10-3-5 THERMAL-FLUIDS AND TRANSPORT ANALYSIS OF ENERGY SYSTEMS

ROOM 232B

Session Organizer: Leitao Chen, Rice University, Houston, TX, United States

1:30PM – Numerical Study on Stability and Performance of Inline Alpha Stirling Engine
Technical Paper Publication. IMECE2016-65808 – *Joseph Soliman, Youssef A. Attai, Khairy F. Megalla, Helwan University, Cairo, Egypt*

1:51PM – Heat Transfer Behavior Of The Boundary Layer Near Surfaces In Annular Flow Of High Capacity Canned Motor Pump
Technical Paper Publication. IMECE2016-66671 – *Shengde Wang, Guohu Luo, Hong Shen, Zhenqiang Yao, Shanghai Jiao Tong University, Shanghai, Shanghai, China*

2:12PM – NUMERICAL ANALYSIS OF INFLUENCE OF SOFA ON NOX EMISSIONS FOR PULVERIZED COAL BOILER
Technical Paper Publication. IMECE2016-68001 – *Xiangcun Qi, M Yang, University of Shanghai for Science and Technology, Shanghai, China, Yuwen Zhang, University Of Missouri, Columbia, MO, United States*

2:33PM – NUMERICAL SIMULATION OF COMBUSTION PERFORMANCE OF PULVERIZED COAL BURNER
Technical Paper Publication. IMECE2016-68004 – *Xiaoqian Ma, M Yang, University of Shanghai for Science and Technology, Shanghai, China, Yuwen Zhang, University Of Missouri, Columbia, MO, United States*

2:54PM – INFLUENCE OF SPECIES TRANSPORT AND INLET CONDITION ON THE MOCVD-GROWN GAN UNIFORMITY
Technical Paper Publication. IMECE2016-65833 – *Zhi Zhang, Haisheng Fang, Jiang Zheng, Han Yan, Zhiyin Gan, Huazhong University of Science & Technology, Wuhan, Hubei, China*

10-5-2 FUNDAMENTALS OF EVAPORATION & BOILING

ROOM 223

Session Organizer: Amitabh Narain, Michigan Tech Univ, Houghton, MI, United States

Session Co-Organizer: Konrad Rykaczewski, Arizona State University, Tempe, AZ, United States

1:30PM – Dynamic and controlled tuning of the boiling curve during quenching
Technical Paper Publication. IMECE2016-65866 – *Arjang Shahriari, Mark Hermes, Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States*

1:51PM – Pool Boiling Heat Transfer of Water on Hydrophilic Surfaces with Different Wettability
Technical Paper Publication. IMECE2016-67294 – *Adam Girard, University of Texas at Dallas, Richardson, TX, United States, Jinsub Kim, Seung Mun You, The University of Texas At Dallas, Richardson, TX, United States*

2:12PM – Enhancing Critical Heat Flux with Electrowetting
Technical Presentation. IMECE2016-67841 – *Dong Liu, University of Houston, Houston, TX, United States*

2:33PM – Effect of Surface Roughness on Pool Boiling Heat Transfer of Water on a Superhydrophilic Aluminum Surface
Technical Paper Publication. IMECE2016-68183 – *Jinsub Kim, The University of Texas At Dallas, Richardson, TX, United States, Seongchul Jun, University of Texas at Dallas, Richarson, TX, United States, Jungho Lee, Korea Institute of Machinery and Materials (KIMM), Deajeon, Korea (Republic), Seung Mun You, The University Of Texas At Dallas, Richardson, TX, United States*

2:54PM – Contact angle variation on micro-grooved surfaces using a static, dynamic and oscillating meniscus
Technical Presentation. IMECE2016-67651 – *Pruthvik Raghupathi, Satish Kandlikar, RIT, Rochester, NY, United States*

10-8-3 FUNDAMENTALS OF PHONON TRANSPORT MODELING: FORMULATION, IMPLEMENTATION, AND APPLICATIONS I

ROOM 232C

Session Organizer: Sandip Mazumder, Ohio State Univ, Columbus, OH, United States

Session Co-Organizer: Patrick Hopkins, University of Virginia, Charlottesville, VA, United States, Ronggui Yang, University of Colorado, Boulder, CO, United States

1:30PM – Phonon Transport Modeling: Formulation, Implementation, and Applications I
Invited Presentation. IMECE2016-68715 – *Alan McGaughey, Carnegie Mellon Univ, Pittsburgh, PA, United States, Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States*

TIME

3:45PM–5:30PM

10-3-2 CONVECTIVE HEAT TRANSFER ANALYSIS OF ENERGY SYSTEMS

ROOM 222B

Session Organizer: Nesrin Ozalp, Katholieke Universiteit (KU) Leuven, Leuven, Belgium

3:45PM – A Numerical Study of the Convective Heat Transfer from the Inner Surface of a Recessed Window Covered by a Double-Layer Honeycomb Top Down?Bottom Up Blind
Technical Paper Publication. IMECE2016-65883 – *Patrick Oosthuizen, Neda Mansouri, Queen's University, Kingston, ON, Canada*

4:06PM – NUMERICAL SIMULATIONS OF TURBULENT NATURAL CONVECTION IN LATERALLY-HEATED CYLINDRICAL ENCLOSURES WITH BAFFLES FOR CRYSTAL GROWTH
Technical Paper Publication. IMECE2016-66106 – *Hooman Enayati, Abhilash Chandy, Minel J. Braun, University of Akron, Akron, OH, United States*

4:27PM – Estimation of the Surface Temperature of a Photovoltaic Panel Through a Radiation-Natural Convection Heat Transfer Model in Matlab Simulink.
Technical Paper Publication. IMECE2016-66769 – *Mario A. Palacio Vega, Universidad Pontificia Bolivariana Montería, Montería, Córdoba, Colombia, Orlando M. González López, Universidad Pontificia Bolivariana Montería, MONTERIA, CORDOBA, Colombia, Arnold R. Martínez Guarín, Universidad del Norte, Barranquilla, Atlántico, Colombia, Rafael D. Gómez Vásquez, Universidad Pontificia Bolivariana Montería, Montería, Córdoba, Colombia, Antonio Bula, Universidad del Norte, Barranquilla, Atlantico, Colombia, Jorge M. Mendoza Fandiño, Universidad de Córdoba, Montería, Córdoba, Colombia*

4:48PM – Polymeric Desiccants with High Adsorption Capacity and Low Regeneration Temperature for Energy-Efficient Cooling
Technical Presentation. IMECE2016-68587 – *shuang cui, Patrick Charles, Renkun Chen, University of California, San Diego, La Jolla, CA, United States*

5:09PM – Nonlinear characteristics of a sudden expansion followed by sudden contraction channel
Technical Paper Publication. IMECE2016-66663 – *Keyan Liu, M Yang, University of Shanghai for Science and Technology, Shanghai, China, Yuwen Zhang, University Of Missouri, Columbia, MO, United States, chunyun shen, University of Shanghai for Science and Technology, Shanghai, China*

10-4-2 PERFORMANCE ANALYSIS OF COOLING SYSTEMS

ROOM 222C

Session Organizer: Alexander Rattner, Pennsylvania State University, University Park, PA, United States

3:45PM – Thermoelectric Effects of Size of Microchannels on an Internally Cooled Li-ion Battery Cell
Technical Paper Publication. IMECE2016-65729 – *Shahab K. Mohammadian, Yuwen Zhang, University of Missouri, Columbia, MO, United States*

4:06PM – Towards A Technoeconomic Framework for Estimating Cost-Performance Tradeoffs for Power Plants Incorporating Transformative Dry-Cooling Technologies
Technical Paper Publication. IMECE2016-68085 – *Geoffrey Short, Booz Allen Hamilton, Washington, DC, United States, Addison K. Stark, ARPA-E, Washington, DC, United States, Daniel Matuszak, Booz Allen Hamilton, Washington, DC, United States, James F. Klausner, US Department of Energy, ARPA-E, Washington DC, DC, United States*

4:27PM – Identification of Design Criteria for Converter Cooling System of Permanent Magnet Direct-Drive Wind Turbine Generator
Technical Paper Publication. IMECE2016-66772 – *Gerardo Augusto, Alvin Culaba, Laurence Gan Lim, DE LA SALLE UNIVERSITY, Manila, Philippines*

4:48PM – Thermal Analysis of Offshore Buried Pipelines Through Experimental Investigations and Numerical Analysis
Technical Paper Publication. IMECE2016-65441 – *Suvra Chakraborty, Memorial University of Newfoundland, St.john's, NL, Canada, Vandad Talimi, C-CORE, St. John's, NL, Canada, Mohammad Haghighi, Yuri Muzychka, Memorial University of Newfoundland, St. John's, NL, Canada, Rodney McAffee, C-CORE, St. John's,, NL, Canada*

5:09PM – Passive day-time self-cooling thermal system
Technical Presentation. IMECE2016-67283 – *Yaoguang Ma, University of Colorado, Boulder, CO, United States, Yao Zhai, University of Colorado, Boulder, Boulder, CO, United States, Dongliang Zhao, University of Colorado Boulder, Boulder, CO, United States, Runnan Lou, Sabrina David, University of Colorado, Boulder, Boulder, CO, United States, Ronggui Yang, University of Colorado, Boulder, CO, United States, Xiaobo Yin, University of Colorado, Boulder, Boulder, CO, United States*

10-6-1 NATURAL CONVECTIVE HEAT TRANSFER

ROOM 223

Session Organizer: Chris Kobus, Oakland Univ, Rochester, MI, United States

Session Co-Organizer: Patrick Oosthuizen, Queen's University, Kingston, ON, Canada

3:45PM – A Comparative Study Of Natural Convection In The Enclosure Of Different Shapes
Technical Paper Publication. IMECE2016-65065 – *Anuj Gupta, G. L. Bajaj Institute of Technology and Management, Delhi, Delhi, India, H. C. Thakur, Gautam Buddha University, Greater Noida, Uttar Pradesh, India, Bhavyanidhi Vats, Muradabad Institute of Technology, Chandausi, Uttar Pradesh, India*

4:06PM – A Numerical Study of the Simultaneous Natural Convective Heat Transfer from the Upper and Lower Surfaces of a Thin Isothermal Horizontal Circular Plate
Technical Paper Publication. IMECE2016-65540 – *Patrick Oosthuizen, Queen's University, Kingston, ON, Canada, Abdulrahim Kalendar, Public Authority for Applied Education and Training, Shuwaikh, Kuwait*

4:27PM – A Numerical Study of the Effect of Triangular Waves on Natural Convective Heat Transfer From an Upward Facing Heated Horizontal Isothermal Surface
Technical Paper Publication. IMECE2016-65716 – *Patrick Oosthuizen, Queen's University, Kingston, ON, Canada*

4:48PM – Numerical Investigation of Various Approaches to Avoid Natural Convection Instabilities Inside the Channels of Horizontal Plate Fin Heat Sinks
Technical Paper Publication. IMECE2016-67196 – *Ilker Tari, Mehmet Erdem Ozet, METU, Ankara, Turkey*

10-6-2 FORCED CONVECTION AND MICROCHANNEL HEAT TRANSFER

ROOM 232B

Session Organizer: Chris Kobus, Oakland Univ, Rochester, MI, United States

Session Co-Organizer: Patrick Oosthuizen, Queen's University, Kingston, ON, Canada

3:45PM – Numerical Simulation on Forced Convection Heat Transfer Performance and Pressure Drop of High Permeability Porous Media
Technical Paper Publication. IMECE2016-65321 – *Shigeki Hirasawa, Kobe University, Kobe-shi, Hyogo, Japan, Tsuyoshi Kawanami, Katsuaki Shirai, Kobe University, Kobe, Hyogo, Japan*

4:06PM – Numerical Investigation of Slip Flows Through 2-D U-Shaped Microchannels
Technical Paper Publication. IMECE2016-66136 – *Mostafa Shojaeian, Ali Kosar, Sabanci University, Istanbul, Turkey*

4:27PM – Numerical investigation viscous dissipation effect in forced convection in rectangular microchannels with nanofluids
Technical Paper Publication. IMECE2016-66189 – *Bernardo Buonomo, Luca Cirillo, Davide Ercole, Seconda Universita' degli Studi di Napoli, Aversa, Caserta, Italy, Oronzio Manca, Seconda Universita' degli Studi di Napoli, Aversa (CE), Italy, Sergio Nardini, Seconda Universita' degli Studi di Napoli, Aversa, Caserta, Italy*

4:48PM – Feasibility Study of a Single-Phase Thermosiphon for Radiative Cooling Cold Collection and Storage
Technical Presentation. IMECE2016-67947 – *Dongliang Zhao, University of Colorado Boulder, Boulder, CO, United States, Ronggui Yang, University of Colorado, Boulder, CO, United States*

TIME		
3:45PM–5:30PM	**10-8-4 FUNDAMENTALS OF PHONON TRANSPORT MODELING: FORMULATION, IMPLEMENTATION, AND APPLICATIONS II** **ROOM 232C** *Session Organizer: Patrick Hopkins, University of Virginia, Charlottesville, VA, United States* *Session Co-Organizer: Sandip Mazumder, Ohio State Univ, Columbus, OH, United States, Ronggui Yang, University of Colorado, Boulder, CO, United States* **3:45PM – Phonon Transport Modeling: Formulation, Implementation, and Applications II** **Invited Presentation.** IMECE2016-68716 – *Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States, Alan McGaughey, Carnegie Mellon Univ, Pittsburgh, PA, United States*	**10-39-1 THERMAL MANAGEMENT OF MOBILE DEVICES** **ROOM 222A** *Session Organizer: Victor Chiriac, Qualcomm, San Diego, CA, United States* *Session Co-Organizer: Dhruv Singh, Global Foundries, Malta, NY, NY, United States* **3:45PM – Mobile Panel: To be provided soon** **Panel Presentation.** IMECE2016-68875 – *Tannaz Harirchian, Intel Corporation, Chandler, AZ, United States* **4:37PM – Mobile Panel: To be provided soon** **Panel Presentation.** IMECE2016-68876 – *Y.C Lee, University of Colorado Boulder, Boulder, CO, United States*

TIME	
10:30AM–12:15PM	**10-44-1 PLENARY** **ROOM 131C** *Session Organizer: Raj M. Manglik, University Of Cincinnati, Cincinnati, OH, United States* *Session Co-Organizer: Satwindar Sadhal, Univ Of Southern California, Los Angeles, CA, United States*
1:30PM–3:15PM	**10-44-2 PLENARY** **ROOM 224B** *Session Organizer: Yaroslav Chudnovsky, Gas Technology Institute, Des Plaines, IL, United States* *Session Co-Organizer: Arun Muley, Boeing Reserach and Technology, Huntington Beach, CA, United States*
3:45PM–5:30PM	**10-6-3 WALL JETS AND FORCED CONVECTION** **ROOM 225A** *Session Organizer: Patrick Oosthuizen, Queen's University, Kingston, ON, Canada* *Session Co-Organizer: Chris Kobus, Oakland Univ, Rochester, MI, United States* **3:45PM – A Numerical Investigation of the Effect of Inlet Velocity Oscillation on Heat Transfer in a Two-Dimensional Laminar Jet Impinging on an Isothermal Surface** **Technical Paper Publication.** IMECE2016-65144 – *Johnny Issa, Najib Saliba, University of Balamand, Tripoli, Lebanon, Bchara Sidnawi, Villanova University, Villanova, PA, United States* **4:06PM – Transient Heat Transfer Measurements for Planar and Circular Wall jet Using Liquid Crystal Thermography** **Technical Paper Publication.** IMECE2016-66572 – *SANGAMESH GODI, Arvind Pattamatta, Chakravarathy Balaji, INDIAN INSTITUTE OF TECHNOLOGY MADRAS, CHENNAI, India* **4:27PM – Numerical Study of Convective Heat Transfer from Expanding Annular Pipe Flows** **Technical Paper Publication.** IMECE2016-67486 – *Khaled J. Hammad, Central Connecticut State University, Simsbury, CT, United States* **4:48PM – Mixed Convection Characteristic inside a Thermal Cycling Chamber with Nonuniform Perforated Plate** **Technical Paper Publication.** IMECE2016-67640 – *Yiye Huang, Shanghai Jiaotong University, Shanghai, China, Guang Yang, Jingyi Wu, Shanghai Jiao Tong University, Shanghai, China* **10-8-2 FUNDAMENTALS OF MULTISCALE MODELING AND SIMULATIONS OF HEAT TRANSFER II** **ROOM 224B** *Session Organizer: Gisuk Hwang, Wichita State University, Wichita, KS, United States* *Session Co-Organizer: Nick Roberts, Utah State University, Logan, UT, United States* **3:45PM – Prediction of Thermal Boundary Conductance using Equilibrium Molecular Dynamics Simulations with the Green-Kubo Formalism** **Technical Presentation.** IMECE2016-67109 – *ChangJin Choi, Nick Roberts, Utah State University, Logan, UT, United States* **4:06PM – Analytical Model for Lattice Thermal Conductivity Predictions of Periodic Nanoporous Structures** **Technical Paper Publication.** IMECE2016-65459 – *Qing Hao, Yue Xiao, Hongbo Zhao, University of Arizona, Tucson, AZ, United States* **4:27PM – Application of the McKelvey-Shockley Flux Method for Ballistic-Diffusive Steady State Heat Transfer with Generation** **Technical Presentation.** IMECE2016-66214 – *Aaditya A. Candadai, Vaibhav Jain, Satyasaurabh Mungamuru, Purdue University, West Lafayette, IN, United States, Timothy Fisher, Purdue, West Lafayette, IN, United States* **4:48PM – Time averaging versus ensemble averaging in phonon Monte Carlo simulations for the calculation of thermal conductivity** **Technical Presentation.** IMECE2016-67131 – *Samuel Driggs, Nick Roberts, Utah State University, Logan, UT, United States*

TRACK 10: Heat Transfer and Thermal Engineering

TIME	
3:45PM–5:30PM	

10-16-1 HEAT TRANSFER IN MULTI-PHASE SYSTEMS

ROOM 225B

Session Organizer: Xianming Dai, University of Texas, Dallas, Dallas, TX, United States

Session Co-Organizer: Scott Thompson, Auburn University, Auburn, AL, United States

3:45PM – The Dependence of the Effective Thermal Conductivity of Soil Particulate Beds on Pressure and Temperature
Technical Paper Publication. IMECE2016-65357 – *Moshe Levy, NRCN, Meitar, Israel*

4:06PM – Numerical modeling for the energy conversion and thermal transmission accompanying the process of oily cuttings agitation
Technical Paper Publication. IMECE2016-65598 – *Zhipeng Sun, Hongwu Zhu, China University of Petroleum-Beijing,Beijing,China, Beijing, China, Jian Hua, School of Mechanical Engineering,Yangtze University, Jingzhou, China*

4:27PM – The Effective Thermal Conductivity of Porous Media Predicted by Random Walk Theory
Technical Presentation. IMECE2016-65638 – *Fangzhou Wang, Farhad Mohazabrad, Xianglin Li, University of Kansas, Lawrence, KS, United States*

4:48PM – Influence of Z-Aligned Carbon Nanofibers on the Through-Thickness Thermal Conductivity of Paraffin Wax
Technical Paper Publication. IMECE2016-67795 – *Alexander Scruggs, Sebastian Kirmse, University of South Alabama, Mobile, AL, United States, Kuang-ting Hsiao, Univ Of South Alabama, Mobile, AL, United States*

10-16-2 HEAT TRANSFER IN MULTI-PHASE SYSTEMS

ROOM 121B

Session Organizer: Scott Thompson, Auburn University, Auburn, AL, United States

Session Co-Organizer: Xianming Dai, University of Texas, Dallas, Dallas, TX, United States

3:45PM – An Experimental and Numerical Study of Convective Boiling of Nanoemulsion inside Mini-channels Heat Exchanger
Technical Paper Publication. IMECE2016-65708 – *Jiajun Xu, University of the District of Columbia, Washington, DC, United States, Thanh Tran, Carderock Division of the Naval Surface Warfare Center, West Bethesda, MD, United States, Naresh Poudel, Musa Acar, University of the District of Columbia, Washington, DC, United States*

4:11PM – The Numerical Study of Turbulence Nanofluid Flow to Distinguish Multiphase Flow Models for In-House Programming
Technical Paper Publication. IMECE2016-66606 – *Anchasa Pramuanjaroenkij, Amarin Tongkratoke, Kasetsart University, Chalermphrakiat Sakon Nakhon Province Campus, Maung Sakon Nakhon, Sakon Nakhon, Thailand, Sadik Kakac, Tobb Univ Of Economics And Tech, Ankara 06560, Turkey*

4:37PM – Numerical Simulation of Transient Hydraulic Behavior in a PWR Steam Generator Secondary Side during Flashing from a Broken Feed Water Line
Technical Presentation. IMECE2016-68338 – *Jong Chull Jo, Korea Institute of Nuclear Safety, Daejon, Korea (Republic)*

5:03PM – Crystallization During Boiling
Technical Presentation. IMECE2016-68519 – *Susmita Dash, MIT, Cambridge, MA, United States, Leonid Rapoport, Massachusetts Institute of Technology, Cambridge, MA, United States, Navdeep Singh Dhillon, MIT, Cambridge, MA, United States, Kripa Varanasi, Massachusetts Institute of Technology, Cambridge, MA, United States*

TIME	
10:30AM–12:15PM	

10-9-1 RADIATIVE TRANSPORT: FROM MODELING TO APPLICATIONS

ROOM 232A

Session Organizer: Yi Zheng, University of Rhode Island, Kingston, RI, United States

10:30AM – Experiment Investigation on the Effect of Oxygen Enhancement on Radiation Distribution in Inverse Diffusion Flame
Technical Paper Publication. IMECE2016-65036 – *BAOLU WANG, Qitai Eri, Ting Li, Ran Duan, Beihang University, Beijing, Beijing, China*

10:51AM – Optical Design of Few-layer Thermal Radiation Emitters For Thermophotovoltaics
Technical Presentation. IMECE2016-65870 – *Etienne Blandre, CETHIL UMR 5008, Université de Lyon, CNRS, INSA-Lyon, Univ. Lyon 1, Villeurbanne, France, Makoto Shimizu, Tohoku University, Sendai, Japan, P.-Olivier Chapuis, Rodolphe Vaillon, CETHIL UMR 5008, Université de Lyon, CNRS, INSA-Lyon, Univ. Lyon 1, Villeurbanne, France*

11:12AM – Cryogenic-to-High-Temperature Spectrometric Platform for Characterizing Temperature-Dependent Radiative Properties
Technical Presentation. IMECE2016-66435 – *Sydney Taylor, Hao Wang, Joseph Hanson, Joshua Feinglass, Liping Wang, Arizona State University, Tempe, AZ, United States*

11:33AM – Impacts of near-field radiation on recombination mechanisms in thermophotovoltaics
Technical Presentation. IMECE2016-67357 – *John DeSutter, Department of Mechanical Engineering, University of Utah, Salt Lake City, UT, United States, Rodolphe Vaillon, CETHIL UMR 5008, Université de Lyon, CNRS, INSA-Lyon, Univ. Lyon 1, Villeurbanne, France, Mathieu Francoeur, University of Utah, Salt Lake Cty, UT, United States*

11:54AM – Near-field radiation heat transfer between arbitrarily-shaped objects and a surface
Technical Presentation. IMECE2016-67223 – *Sheila Edalatpour, Department of Mechanical Engineering, University of Utah, Salt Lake City, UT, United States, Mathieu Francoeur, University of Utah, Salt Lake Cty, UT, United States*

10-9-2 EXPERIMENTAL MEASUREMENT TECHNIQUES AND APPLICATIONS OF RADIATIVE TRANSPORT

ROOM 232B

Session Organizer: Yi Zheng, University of Rhode Island, Kingston, RI, United States

Session Co-Organizer: Leslie Phinney, Sandia National Labs, Albuquerque, NM, United States

10:30AM – A novel thermal emitter for thermophotovoltaic applications
Technical Presentation. IMECE2016-65368 – *Alok Ghanekar, University of Rhode Island, Kingston, RI, United States, Laura Lin, TU Braunschweig, Braunschweig, Germany, Yi Zheng, University of Rhode Island, Kingston, RI, United States*

10:51AM – Enhanced thermal rectification of near-field thermal diode using surface gratings
Technical Paper Publication. IMECE2016-65369 – *Alok Ghanekar, University of Rhode Island, Kingston, RI, United States, Jun Ji, Shanghai Maritime University, Shanghai, China, Mingdi Sun, CANATAL Environ Tech. Co., Nanjing, Jiangsu, China, Zongqin Zhang, Canatal Environmental Technology Corp., Nanjing, China, Yi Zheng, University of Rhode Island, Kingston, RI, United States*

11:12AM – Visibly Transparent SiC Metasurface for Enhanced Radiative Cooling
Technical Presentation. IMECE2016-65758 – *Yue Yang, Sydney Taylor, Hassan AlShehri, Hao Wang, Liping Wang, Arizona State University, Tempe, AZ, United States*

11:33AM – Near-field Radiation between Nanowire-Based Dual Uniaxial Electromagnetic Metamaterials
Technical Presentation. IMECE2016-65759 – *Jui-Yung Chang, Soumyadipta Basu, Yue Yang, Liping Wang, Arizona State University, Tempe, AZ, United States*

11:54AM – Characterization of Nano-Particle Aggregates using Bayesian Inference via Light Scattering Experiments
Technical Paper Publication. IMECE2016-66780 – *Ozan B. Ericok, Bogazici University, Bebek, Istanbul, Turkey, Hakan Erturk, Bogazici University, Istanbul, Turkey*

10-9-3 NANOSCALE RADIATIVE TRANSPORT

ROOM 232C

Session Organizer: Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan

10:30AM – Measurement of near-field radiative heat transfer between macroscale planar surfaces separated by a tunable nanosize gap
Technical Presentation. IMECE2016-66954 – *Michael Bernardi, Department of Mechanical Engineering, University of Utah, Salt Lake City, UT, United States, Mathieu Francoeur, University of Utah, Salt Lake Cty, UT, United States*

10:51AM – Active Radiative Cooling with Near-field Thermal Radiation
Technical Presentation. IMECE2016-67996 – *Taeyong Kim, Ding Ding, California Institute of Technology, Pasadena, CA, United States, Austin Minnich, Caltech, Pasadena, CA, United States*

11:12AM – Experimental Investigation of Plane-Plane Near-field Thermal Radiation for Sub-100-nm Gap Distances
Technical Presentation. IMECE2016-67081 – *Mohammad Ghashami, University of Utah, Salt Lake City, UT, United States, Hongyao Geng, Sung K Cho, University of Pittsburgh, Pittsburgh, PA, United States, Keunhan (Kay) Park, University of Utah, Salt Lake City, UT, United States*

11:33AM – Heat Transfer by Propagating Surface Polaritons in Nanoparticle Chains
Technical Presentation. IMECE2016-67516 – *Eric Tervo, Georgia Institute of Technology, Atlanta, GA, United States, Baratunde Cola, Georgia Inst of Tech, Atlanta, GA, United States*

11:54AM – Influences of weak profile periodicity on optical reflectance from Au rough surfaces
Technical Presentation. IMECE2016-67527 – *Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan*

10-11-1 HIGH HEAT FLUX AND ENHANCED HEAT TRANSFER I

ROOM 221A

Session Organizer: Mark Kedzierski, NIST, Gaithersburg, MD, United States

Session Co-Organizer: Tiruvadi Ravigururajan, Wichita State University, Wichita, KS, United States

10:30AM – PASSIVE CONTROL AND ENHANCEMENT OF THE HEAT TRANSFER PERFORMANCE OF CONFINED AND SUBMERGED IMPINGING SLOT JETS
Technical Paper Publication. IMECE2016-66683 – *Andrew Sexton, Jeffrey Punch, Stokes Laboratories, Limerick, Ireland, Nicholas Jeffers, Jason Stafford, Nokia, Dublin 15, Ireland*

10:51AM – Investigation of the Effect of Vortex Generation on Heat Transfer Enhancement in Horizontal Channel Flow
Technical Paper Publication. IMECE2016-65446 – *Saleh Morjan, Badih Jawad, Liping Liu, Kingman Yee, Vernon Fernandez, Lawrence Technological University, Southfield, MI, United States*

11:12AM – Thermophysical Properties of Dielectric Nanofluids with Low Viscosity
Technical Presentation. IMECE2016-65990 – *Joong Bae Kim, KAIST, Daejeon, Korea (Republic), Bong Jae Lee, Korea Advanced Institute of Science and Technology, Daejeon, Korea (Republic)*

11:33AM – Experimental Investigation on Convective Heat Transfer Enhancement of Laminar Slot Jet Impingement in the Presence of Porous Media
Technical Paper Publication. IMECE2016-66564 – *Sampath Kumar Chinige, Arvind Pattamatta, Indian Institute of Technology Madras, Chennai, TamilNadu, India*

11:54AM – Heat transfer and hydraulic characteristics of cooling water in a flat plate heat sink for high heat flux IGBT
Technical Paper Publication. IMECE2016-66717 – *Changnian Chen, Shandong University, Jinan, Shandong, China, Tien-Chien Jen, University of Johannesburg, Johannesburg, Gauteng, South Africa, Jitian Han, Weiping Gong, Shandong University, Jinan, China*

TIME

10:30AM–12:15PM

10-12-1 THERMAL MANAGEMENT CHALLENGES

ROOM 221C

Session Organizer: Ali Khounsary, Illinois Institute of Technology, Chicago, IL, United States

10-17-1 CONDENSATION HEAT TRANSFER

ROOM 222A

Session Organizer: Sunil Mehendale, Michigan Technological University, Houghton, MI, United States

10:30AM – Evaluation of the Predictive Capability of Two-Phase Flow Maps for Microchannel Condensation of R-134a at Low Mass Flux Conditions
Technical Presentation. IMECE2016-67265 – *Michael VanderPutten, Brian Fronk, Oregon State University, Corvallis, OR, United States*

10:51AM – Modelling of Shell and Tube Transport Membrance Condenser Heat Exchangers in Low Grade Waste Heat and Water Recovery Applications
Technical Paper Publication. IMECE2016-67906 – *Soheil Soleimanikutanaei, Esmaiil Ghasemisahebi, Cheng-xian Lin, Florida International University, Miami, FL, United States, Dexin Wang, Gas Technology Institute, Indian Creek, IL, United States*

11:12AM – Study of Condensation Flow Patterns and Heat Transfer Characteristic on a Horizontal Tube Bundle
Technical Paper Publication. IMECE2016-67459 – *Hongfang Gu, Qi Chen, Zhe Zhang, Haiyang Guo, Xi'an Jiaotong University, xi'an, Shaanxi, China*

11:33AM – Shellside Vacuum Condensation with a Noncondensable Gas
Technical Paper Publication. IMECE2016-67417 – *Susan Ritchey, Heat Transfer Research Inc, Navasota, TX, United States*

10-19-1 BOILING/EVAPORATION HEAT TRANSFER

ROOM 221B

Session Organizer: Xianming Dai, University of Texas, Dallas, Dallas, TX, United States

Session Co-Organizer: Majid Molki, Southern Ill Univ/ Edwardsville, Edwardsville, IL, United States

10:30AM – Two-Phase Heat Transfer in a Wall-Driven Cubical Heat Sink
Technical Paper Publication. IMECE2016-65236 – *Majid Molki, Southern Ill Univ/Edwardsville, Edwardsville, IL, United States*

10:51AM – FLOW DISTRIBUTION CONTROL BETWEEN TWO PARALLEL MESO-SCALE EVAPORATORS WITH ELECTROHYDRODYNAMIC CONDUCTION PUMPING
Technical Paper Publication. IMECE2016-66222 – *Lei Yang, Worcester Polytechnic Institute, Worcester, MA, United States, Michal Talmor, Worcester Polytechnic Institute, Waltham, MA, United States, Jamal Seyed-Yagoobi, WPI-ME Dept, Worcester, MA, United States*

11:12AM – Thermal Performance of Asymmetrical Saw-toothed Microchannels with Phase Change
Technical Paper Publication. IMECE2016-66240 – *Le Gao, James M. Pool, Sushil H. Bhavnani, Auburn University, Auburn, AL, United States*

11:33AM – Multi Parameter Estimation in an Induced Draft Cooling Tower using Genetic Algorithm
Technical Paper Publication. IMECE2016-66864 – *Kuljeet Singh, Ranjan Das, Indian Institute of Technology Ropar, Rupnagar, Punjab, India*

10-27-1 HEAT AND MASS TRANSFER IN BUILDINGS AND TRANSPORTATION

ROOM 229B

Session Organizer: Cheng-xian Lin, Florida International University, Miami, FL, United States

Session Co-Organizer: Michael Pate, Texas A&M University, College Station, TX, United States, S.A. Sherif, University of Florida, Gainesville, FL, United States

10:30AM – THE STUDY OF THERMAL PERFORMANCE OF A DOUBLE-PATTERNED GLASS MATERIAL UNDER SOLAR RADIATION
Technical Paper Publication. IMECE2016-66510 – *Shiang-Jiun Lin, Ya-Ru Yang, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan*

10:51AM – Numerical investigation on thermal and fluid dynamics behaviors of the exit section effect in inclined ventilated roofs
Technical Paper Publication. IMECE2016-67431 – *Vincenzo Bianco, Università degli Studi di Genova, Genova, Italy, Bernardo Buonomo, Seconda Universita' degli Studi di Napoli, Aversa, Caserta, Italy, Alessandra Diana, Università degli Studi di Genova, Genova, Italy, Oronzio Manca, Seconda Universita' degli Studi di Napoli, Aversa (CE), Italy, Sergio Nardini, Seconda Universita' degli Studi di Napoli, Aversa, Caserta, Italy*

11:12AM – Incorporating phase change materials to mitigate extreme temperatures in asphalt concrete pavements
Technical Paper Publication. IMECE2016-67765 – *Bhagya Athukorallage, Darryl James, Texas Tech University, Lubbock, TX, United States*

11:33AM – Multi-objective Optimization of a Data Center Modeling Using Response Surface
Technical Paper Publication. IMECE2016-67800 – *Long Phan, Cheng-xian Lin, Florida International University, Miami, FL, United States*

11:54AM – Effects Of Entrance Geometry On Solar Chimney's Performance
Technical Paper Publication. IMECE2016-67816 – *B. Phuoc Huynh, Univ Of Tech Sydney, Broadway Nsw 2007, Australia*

TIME		
1:30PM–3:15PM	**10-11-2 HIGH HEAT FLUX AND ENHANCED HEAT TRANSFER II** **ROOM 223** *Session Organizer: Mark Kedzierski, NIST, Gaithersburg, MD, United States* *Session Co-Organizer: Tiruvadi Ravigururajan, Wichita State University, Wichita, KS, United States* **1:30PM – Effectiveness of Sierpinski Carpet Extended Surfaces in a Forced Convection Experiment** **Technical Paper Publication.** IMECE2016-67164 – *David Calamas, Gyunay Keten, Georgia Southern University, Statesboro, GA, United States, Daniel Dannelley, Embry-Riddle Aeronautical University, Prescott, AZ, United States* **1:51PM – Two-Phase Spray Cooling with Water/2-Propanol Binary Mixtures: Investigation of Mass Diffusion Resistance** **Technical Paper Publication.** IMECE2016-67514 – *Sai Sujith Obuladinne, Huseyin Bostanci, University of North Texas, Denton, TX, United States* **2:12PM – Rational hierarchical structures for suppression of Leidenfrost phenomenon** **Technical Presentation.** IMECE2016-67666 – *Seyed Mohammad Sajadi, Nazanin Farokhnia, Peyman Irajizad, Hadi Ghasemi, University of Houston, Houston, TX, United States* **2:33PM – Effect of streamwise vortex strength on heat transfer enhancement of a flat plate** **Technical Paper Publication.** IMECE2016-67723 – *Aditya Raman, University of Texas At Arlington, Arlington, TX, United States, Siddarth Chintamani, University of Texas at Arlington, Irving, TX, United States, Brian Dennis, University of Texas arlington, Arlington, TX, United States* **2:54PM – Working Fluid Enhancement With Galinstan Nano-sized Droplets For High Heat-Flux Thermal Management** **Technical Presentation.** IMECE2016-67836 – *Gordon Yip, Washginton State University Vancouver, Vancouver, WA, United States, Jong-Hoon Kim, Yoon Jo Kim, Washington State University Vancouver, Vancouver, WA, United States*	**10-18-1 EVAPORATION HEAT TRANSFER** **ROOM 224B** *Session Organizer: Kaushik Das, Giant Magellan Telescope Organization, Pasadena, CA, United States* *Session Co-Organizer: Debjyoti Banerjee, Texas A&M University, College Station, TX, United States* **1:30PM – Assessment of Water Droplet Evaporation path in a Full Separation MED Desalination System** **Technical Paper Publication.** IMECE2016-65656 – *Penghua Guo, Xi'an Jiaotong University, Xi'an, Shaanxi, Shaanxi, China, Peiwen Li, Univ Of Arizona, Tucson, AZ, United States, Jingyin Li, Xi'an Jiaotong University, Xi'an, Shaanxi, China* **1:51PM – Modeling of Transport During Droplet Deposition and Spreading on Smooth and Microstructured Superhydrophilic Surfaces** **Technical Paper Publication.** IMECE2016-66148 – *Jordan Mizerak, University of California at Berkeley, Berkeley, CA, United States, Van Carey, University Of California, Berkeley, CA, United States* **2:12PM – A New Model for Predicting Flow Boiling Heat Transfer Coefficients in Horizontal Microfin Tubes** **Technical Paper Publication.** IMECE2016-66964 – *Reem Merchant, Sunil Mehendale, Michigan Technological University, Houghton, MI, United States* **2:33PM – A new model for predicting falling film evaporation heat transfer coefficients** **Technical Paper Publication.** IMECE2016-66975 – *Apurva Baruah, Sunil Mehendale, Michigan Technological University, Houghton, MI, United States*
	10-19-2 MICRO/NANOSCALE TWO-PHASE HEAT TRANSFER **ROOM 224A** *Session Organizer: Hadi Ghasemi, University of Houston, Houston, TX, United States* *Session Co-Organizer: Chuanhua Duan, Boston University, Boston, MA, United States* **1:30PM – Bio-inspired smart thermal spreaders** **Technical Presentation.** IMECE2016-67752 – *Nazanin Farokhnia, Peyman Irajizad, Seyed Mohammad Sajadi, Hadi Ghasemi, University of Houston, Houston, TX, United States* **1:51PM – Exploring Kinetic-Limited Water Capillary Evaporation in Hydrophilic NanoChannels** **Technical Presentation.** IMECE2016-67808 – *Yinxiao Li, Mohammad Amin Alibakhshi, Quan Xie, Chuanhua Duan, Boston University, Boston, MA, United States* **2:12PM – Morphology Origin of Gradually Weakened Thermal-conductivity Enhancement for HDPE/MWCNTs Nanocomposites** **Technical Paper Publication.** IMECE2016-65345 – *Xiao-Hong Yin, Can Yang, Shiju E, Xiping Li, Jianbo Cao, Zhejiang Normal University, Jinhua, Zhejiang, China* **2:33PM – Fluid Dynamics of Thin Liquid Flows over High-Curvature Surfaces for Direct-Contact Heat and Mass Exchange Applications** **Technical Presentation.** IMECE2016-67479 – *Abolfazl Sadeghpour, Y. Sungtaek Ju, UCLA, Los Angeles, CA, United States*	

TIME

3:45PM–5:30PM

10-7-1 PHONON TRANSPORT IN 2D MATERIALS AND CONFINED STRUCTURES

ROOM 225A

Session Organizer: Wee-Liat Ong, Columbia University, New York, NY, United States

3:45PM – Revealing the Origins of Three-Dimensional Anisotropic Thermal Conductivities of Black Phosphorus
Technical Presentation. IMECE2016-66925 – *Jie Zhu, University of Minnesota, twin cities, Minneapolis, MN, United States, Haechan Park, Stony Brook University, Stony Brook, NY, United States, Jun-Yang Chen, University of Minnesota, twin cities, Minneapolis, MN, United States, Xiaokun Gu, University of Colorado, Boulder, CO, United States, Hu Zhang, Sreejith Karthikeyan, Nathaniel Wendel, University of Minnesota, twin cities, Minneapolis, MN, United States, Steve Campbell, Univ Of Minnesota, Minneapolis, MN, United States, Matthew Dawber, Xu Du, Stony Brook University, Stony Brook, NY, United States, Mo Li, Jian-Ping Wang, University of Minnesota, twin cities, Minneapolis, MN, United States, Ronggui Yang, University of Colorado, Boulder, CO, United States, Xiaojia Wang, University of Minnesota, twin cities, Minneapolis, MN, United States*

4:06PM – Thermoelectric Property Measurements of Graphene Antidot Lattices on Different Substrates
Technical Presentation. IMECE2016-67295 – *Dongchao Xu, Hongbo Zhao, University of Arizona, Tucson, AZ, United States, Xu Du, Stony Brook University, Stony Brook, NY, United States, Qing Hao, University of Arizona, Tucson, AZ, United States*

4:27PM – 1-D Thermoreflectance Measurement Technique for Freestanding Micro/Nano Cantilever Beams
Technical Paper Publication. IMECE2016-67377 – *Mirza Elahi, Mohammadhosein Ghasemi Baboly, Zayd Leseman, University of New Mexico, Albuquerque, NM, United States*

4:48PM – First Principles Based Prediction of Four-Phonon Scattering Rates in Two-Demensional Materials
Technical Presentation. IMECE2016-67496 – *Tianli Feng, Purdue University, West Lafayette, IN, United States, Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States*

5:09PM – Thermal Transport in Lithium Intercalated MoS2/ Graphene Composites
Technical Presentation. IMECE2016-67951 – *Xin Qian, University of Colorado Boulder, Boulder, CO, United States, Xiaokun Gu, Ronggui Yang, University of Colorado, Boulder, CO, United States*

10-20-1 PULSATING AND LOOP HEAT PIPES

ROOM 224A

Session Organizer: Scott Thompson, Auburn University, Auburn, AL, United States

3:45PM – A Numerical and Optimization Study of Compressible Phase-change Heat Transfer in a Part-unit-cell Model of a Pulsating Heat Pipe (PHP)
Technical Paper Publication. IMECE2016-66440 – *Nikhilesh Ghanta, Arvind Pattamatta, Indian Institute of Technology Madras, Chennai, TamilNadu, India*

4:06PM – Experimental study on heat transfer capability of a miniature loop heat pipe
Technical Paper Publication. IMECE2016-66566 – *Guohui Zhou, Ji Li, Lucang Lv, University of Chinese Academy of Sciences, beijing, China*

4:27PM – Thermal characteristics of pulsating heat pipes operating in a circulation mode
Technical Presentation. IMECE2016-68226 – *Hyung Yun Noh, KAIST (Korea Advanced Institue of Science and Technology), Daejeon, Daejeon, Korea (Republic), Sung Jin Kim, Kaist, Taejon 305 701, Korea (Republic)*

4:48PM – Experimental study on the effect of the cooling capacity of condenser section on the thermal performance of pulsating heat pipes
Technical Presentation. IMECE2016-68227 – *Juno Kim, KAIST(Korea Advanced Institute of Science and Technology), Daejeon, Korea (Republic), Sung Jin Kim, Kaist, Taejon 305 701, Korea (Republic)*

10-21-1 GAS PATH HEAT TRANSFER AND FUNDAMENTAL FILM/PIN-FIN STUDIES

ROOM 224B

Session Organizer: Forrest Ames, Univ Of North Dakota, Grand Forks, ND, United States

Session Co-Organizer: Jong-shang Liu, Honeywell Aerospace, peoria, AZ, United States

3:45PM – Unsteady Heat Transfer Around Low Aspect Ratio Cylinders in an Array
Technical Paper Publication. IMECE2016-66783 – *Shawn Siroka, Penn State Univeristy, University Park, PA, United States, Melissa Shallcross, Pennsylvania State University, University Park, PA, United States, Stephen Lynch, Penn State University, University Park, PA, United States*

4:06PM – INFLUENCES OF TARGET SURFACE CYLINDRICAL ROUGHNESS ON IMPINGEMENT JET ARRAY HEAT TRANSFER: EFFECTS OF ROUGHNESS HEIGHT, ROUGHNESS SHAPE, AND REYNOLDS NUMBER
Technical Paper Publication. IMECE2016-67655 – *Zhong Ren, Warren Buzzard, Phil Ligrani, University of Alabama in Huntsville, Huntsville, AL, United States*

4:27PM – Investigation of heat transfer and fluid flow over a pocket cavity in the rear part of a gas turbine
Technical Paper Publication. IMECE2016-66059 – *Bengt Sunden, Lund University, Lund, Sweden, Jian Liu, Lund University, Energy Sciences, Lund, Sweden, Chenglong Wang, Lund University, Lund, Sweden, Lei Wang, Lund University, Energy Sciences, Lund, Sweden, Martin Andersson, Lund University, Lund, Sweden, Gongnan Xie, Northwestern Polytechnical University, Xi'an, China, Hans Abrahamsson, Carlos Arroyo, GKN Aerospace Engine Systems, Trollhättan, Sweden*

4:48PM – Experimental heat transfer distributions over an aft loaded vane with a large leading edge at very high turbulence levels
Technical Paper Publication. IMECE2016-67029 – *Justin W. Varty, Univeristy of North Dakota, Grand Forks, ND, United States, Forrest Ames, Univ Of North Dakota, Grand Forks, ND, United States*

TIME

8:00AM–9:45AM

10-7-2 THERMAL TRANSPORT IN ORGANIC AND INORGANIC NANOSTRUCTURED MATERIALS

ROOM 221B

Session Organizer: **Gisuk Hwang**, *Wichita State University, Wichita, KS, United States*

8:00AM – Enhancement of Thermal Conductivity of Indium Arsenide Nanowires via Sulfur Passivation
Technical Presentation. IMECE2016-65502 – *Yucheng Xiong, Hao Tang, Xiaomeng WANG, The Chinese University of Hong Kong, Shatin, Hong Kong, Yang Zhao, Juekuan Yang, Southeast University, Nanjing, China, Dongyan Xu, The Chinese University of Hong Kong, Shatin, Hong Kong*

8:21AM – Thermal Transport across Surfactant Layers on Gold Nanorods in Aqueous Solution
Technical Presentation. IMECE2016-66842 – *Xuewang Wu, Yuxiang Ni, Jie Zhu, University of Minnesota, Twin Cities, Minneapolis, MN, United States, Nathan Burrows, Catherine J. Murphy, University of Illinois, Urbana, IL, United States, Traian Dumitrica, Xiaojia Wang, University of Minnesota, twin cities, Minneapolis, MN, United States*

8:42AM – Thermal conductivity of C60 superatom solids spans crystalline and amorphous behaviors
Technical Presentation. IMECE2016-66863 – *Wee-Liat Ong, Evan O'Brien, Columbia University, New York, NY, United States, Patrick Dougherty, Cecil Higgs, Carnegie Mellon University, Pittsburgh, PA, United States, Alan McGaughey, Carnegie Mellon Univ, Pittsburgh, PA, United States, Xavier Roy, Columbia University, New York, NY, United States, Jonathan Malen, Carnegie Melon University, Pittsburgh, PA, United States*

9:03AM – Thermal Rectification in Tapered Bottlebrush Polymers
Technical Presentation. IMECE2016-67072 – *Hao Ma, Zhiting Tian, Virginia Tech, Blacksburg, VA, United States*

9:24AM – Thermal Conductance of Mixed Self-assembled Monolayer Junctions
Technical Presentation. IMECE2016-66758 – *Shubhaditya Majumdar, Carnegie Mellon University, Pittsburgh, PA, United States, Jonathan Malen, Carnegie Melon University, Pittsburgh, PA, United States, Alan McGaughey, Carnegie Mellon Univ, Pittsburgh, PA, United States*

10-10-1 THERMAL MANAGEMENT OF SOLAR AND ALTERNATIVE ENERGY EQUIPMENT

ROOM 222A

Session Organizer: Sandra Boetcher, Embry Riddle Aeronautical Univ, Daytona Beach, FL, United States

8:00AM – Investigating the effect of Al2O3/water nanofluid on the efficiency of a thermosyphon Flat-plate Solar Collector
Technical Paper Publication. IMECE2016-66039 – *Mohamed Nabeel A. Negm, The British University in Egypt, El-Shorouk City, Egypt, Ahmed A. Abdel-Rehim, The British University in Egypt, El-Shorouk, Egypt, Ahmed A. A. Attia, Mechanical Engineering Dept., Shoubra Faculty of Engineering, Benha University, Cairo, Egypt, Cairo, Egypt*

8:21AM – A CFD (computational fluid dynamics) based thermal performance of solar air heater with rib-roughened channels.
Technical Paper Publication. IMECE2016-66375 – *Mumtaz QURESHI, Muhammad shakaib shakaib, NED University of Engineering and Technology Karachi,Pakistan., Karachi, Sindh,Pakistan, Pakistan*

8:42AM – Design of a Clamp for a Thermoelectric Generator Using Bimetallic Thermal Properties
Technical Paper Publication. IMECE2016-68179 – *Robert Dell, The Cooper Union, New York, NY, United States, Chih Shing Wei, Cooper Union, New York, NY, United States, Nicholas Mitchell, The Cooper Union for the Advancement of Science and Art, New York City, NY, United States, Runar Unnthorsson, University of Iceland, Reykjavik, Iceland*

9:03AM – Analysis of a Compact Heat Exchanger Using Porous Media Cooling for use in a SCO2 Rankine Cycle
Technical Paper Publication. IMECE2016-65012 – *Kevin Anderson, California State Polytech Univ, Pomona, CA, United States, Thomas Gross, Calif. State Polytechnic Univ. at Pomona, Pomona, CA, United States, Christopher McNamara, Cal Poly Pomona, Brea, CA, United States, Maryam Shafahi, California State Polytechnic University, Pomona, Pomona, CA, United States*

9:24AM – Thermal Analysis of Solar Energy Assisted Cement Production
Technical Presentation. IMECE2016-67024 – *Ilker Tari, METU, Ankara, Turkey*

10-23-1 TRANSPORT PHENOMENA IN EXTREME CONDITIONS - PART 1

ROOM 221A

Session Organizer: Qiuwang Wang, Xi'an Jiao Tong University, Xi'an, China

Session Co-Organizer: Xinwei Wang, Iowa State University, Ames, IA, United States

8:00AM – Analysis of a Multi-Cascade Methyl Linoleate / SCO2 / Transcritical CO2 / R410-A Refrigeration Cycle for use in High Temperature, High Pressure Environments
Technical Paper Publication. IMECE2016-65547 – *Kevin Anderson, California State Polytech Univ, Pomona, CA, United States, Christopher McNamara, Cal Poly Pomona, Brea, CA, United States, Ariel Gatti, Ingenium Consulting Services, Inc., San Gabriel, CA, United States*

8:21AM – Near-field Thermal Radiation between Hyperbolic Metamaterials
Technical Presentation. IMECE2016-6598 – *Jaeman Song, KAIST, Daeeon, Korea (Republic), Mikyung Lim, Seung S. Lee, KAIST, Daejeon, Korea (Republic), Bong Jae Lee, Korea Advanced Institute of Science and Technology, Daejeon, Korea (Republic)*

8:42AM – Effects of Ambient Pressure on the Mass Burning Rate and Heat Release Rate of n-Heptane Pool Fire
Technical Paper Publication. IMECE2016-66037 – *Qiuju Ma, Quanyi Liu, Runhe Tian, Junjian Ye, Rui Yang, Hui Zhang, Tsinghua University, Beijing, China*

9:03AM – Combustion in a hybrid porous burner packed with alumina pellets and silicon carbide foams with a gap
Technical Presentation. IMECE2016-68733 – *Zhiguo Qu, Xi'an Jiaotong University, Xi'an, Shaanxi, Shaanxi, China, Huaibin Gao, Xiangbo Feng, Xi'an Jiaotong University, Xi'an, Shaanxi, China*

10-29-1 COOLING THE BUILT ENVIRONMENT

ROOM 231A

Session Organizer: Michael Pate, Texas A&M University, College Station, TX, United States

TIME	
8:00AM–9:45AM	**10-30-1 COMPUTATIONAL HEAT TRANSFER: GENERAL (TECHNICAL SESSION)** **ROOM 221C** *Session Organizer: Shima Hajimirza, Texas A&M University, College Station, TX, United States* *Session Co-Organizer: Prodip Das, Newcastle University, Newcastle, United Kingdom* **8:00AM – On Flame-Flow Interaction Under Distributed Combustion Condition** **Technical Paper Publication.** IMECE2016-65255 – *Ahmed Khalil, University of Maryland, College Park, MD, United States, Ashwani K. Gupta, Univ Of Maryland, College Park, MD, United States* **8:21AM – Chemistry in oxygen enriched flames and the effect on CFD modeling of combustion chambers** **Technical Presentation.** IMECE2016-65610 – *Rene Prieler, Bernhard Mayr, Graz University of Technology, Graz, Austria, Daniela Viehböck, University of Applied Sciences Upper Austria, Wels, Austria, Martin Demuth, Messer Austria GmbH ? Kompetenzzentrum Metallurgie, Gumpoldskirchen, Austria, Christoph Hochenauer, Graz University of Technology, Graz, Austria* **8:42AM – Three Dimensional Numerical Simulation of Particle Deposition in Cold Gas Dynamic Spray Process** **Technical Paper Publication.** IMECE2016-65806 – *Tien-Chien Jen, University of Johannesburg, Johannesburg, Gauteng, South Africa, Yen-Ting Pan, The Boeing company, Taipei, Taiwan, Zhu Lin, Anhui Agriculture University, Hefei city, Anhui Provence, China, Qinghua Chen, Chongqing University, Chongqing, China* **9:03AM – FEA AND FUNDAMENTAL COLLOCATION SOLUTIONS IN TWO-DIMENSIONAL HEAT DIFFUSION** **Technical Paper Publication.** IMECE2016-66210 – *Amir Khalilollahi, Penn State-Erie, Erie, PA, United States, Enayat Mahajerin, Saginaw Valley State Univ, Saginaw, MI, United States, Gary Burgess, Michigan State University, East Lansing, MI, United States* **9:24AM – Molecular Dynamics Study of Water-Hexagonal Boron Nitride Interface** **Technical Presentation.** IMECE2016-66775 – *Tolga Akiner, Jeremy K. Mason, Bogazici University, Bebek, Istanbul, Turkey, Hakan Erturk, Bogazici University, Istanbul, Turkey* **10-35-1 MULTISCALE COMPUTATIONAL HEAT TRANSFER MODELING AND SIMULATION** **ROOM 231B** *Session Organizer: Shima Hajimirza, Texas A&M University, College Station, TX, United States* *Session Co-Organizer: Prodip Das, Newcastle University, Newcastle, United Kingdom* **8:00AM – Enhancement in cooling efficiency of NDDCT under crosswind** **Technical Paper Publication.** IMECE2016-65204 – *Nasser Keshavarz Molaei, University of Texas, Arlington, Arlington, TX, United States* **8:21AM – Three Dimensional Anisotropic Brillouin Zone Boltzmann Transport Solver for Simulation of Fin Field Effect Transistor (FinFET) Arrays** **Technical Presentation.** IMECE2016-67779 – *Francis VanGessel, Peter Chung, University of Maryland, College Park, MD, United States* **8:42AM – Magnetic Resonance Thermometry Experimental Setup: A Portable Heat Transfer Experiment** **Technical Paper Publication.** IMECE2016-67818 – *Elliott Williams, Jonathan Spirnak, United States Military Academy at West Point, West Point, NY, United States, Michael Benson, U.S. Military Academy, West Point, NY, United States, Marc Samland, United States Military Academy, West Point, NY, United States, Brant G. Tremont, Alfred L. McQuirter, Bret Van Poppel, Claire M. Verhulst, United States Military Academy at West Point, West Point, NY, United States, Christopher J. Elkins, Lauren S. Burton, John K. Eaton, Stanford University, Stanford, CA, United States* **9:03AM – Ab-initio Multiscale Modeling of Nanostructured Materials.** **Technical Presentation.** IMECE2016-67835 – *Giuseppe Romano, Alexie Kolpak, MIT, Cambridge, MA, United States, David Broido, Boston College, Chestnut Hill, MA, United States*
10:00AM–11:45AM	**10-7-3 MODELING OF SPECTRAL PHONON SCATTERING AND TRANSPORT** **ROOM 222A** *Session Organizer: Zayd Leseman, University of New Mexico, Albuquerque, NM, United States* **10:00AM – Free-path Reconstruction From Transient Thermal Spectroscopy Data Using Solutions Of The Boltzmann Transport Equation** **Technical Presentation.** IMECE2016-65403 – *Mojtaba Forghani, Massachusetts Institute of Technology, Cambridge, MA, United States, Nicolas Hadjiconstantinou, Mass Inst Of Technology, Cambridge, MA, United States* **10:21AM – Molecular simulations of nanophononic metamaterials** **Technical Presentation.** IMECE2016-67493 – *Hossein Honarvar, University of Colorado Boulder, Boulder, CO, United States, Mahmoud Hussein, University of Colorado, Boulder, CO, United States* **10:42AM – Importance of Four-Phonon Scattering in High-Thermal Conductivity Bulk Materials: a First-Principles Study** **Technical Presentation.** IMECE2016-67536 – *Tianli Feng, Purdue University, West Lafayette, IN, United States, Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States* **11:03AM – Study of Phonon Modal Non-Equilibrium based on Molecular Dynamics** **Technical Presentation.** IMECE2016-67550 – *Tianli Feng, Purdue University, West Lafayette, IN, United States, Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States* **11:24AM – How Surface Resonators Influence Phonon Transport in Nanophononic Metamaterials** **Technical Presentation.** IMECE2016-67903 – *Sanghamitra Neogi, University of Colorado at Boulder, Boulder, CO, United States, Davide Donadio, University of California Davis, Davis, CA, United States*

TIME	
10:00AM–11:45AM	**10-23-2 TRANSPORT PHENOMENA IN EXTREME CONDITIONS - PART 2** **ROOM 221C** *Session Organizer: Patrick Mensah, Southern University, Baton Rouge, LA, United States* *Session Co-Organizer: Qiuwang Wang, Xi'an Jiao Tong University, Xi'an, China* **10:00AM – Morphological characterization of fouling on air cooled fin fan heat exchangers** **Technical Paper Publication.** IMECE2016-66972 – *Arjun Sharma, The Petroleum Institute, Abu Dhabi, United Arab Emir., Tariq Khan, Petroleum Institute, Abu Dhabi, Abu Dhabi, United Arab Emir., Ebrahim Al-Hajri, Petroleum Institute of Abu Dhabi, Abu Dhabi, United Arab Emir., Md. Islam, The Petroleum Institute, Abu Dhabi, United Arab Emir.* **10:21AM – Critical Heat Balance Error for a General Imbalanced Heat Exchanger** **Technical Paper Publication.** IMECE2016-68049 – *Zhifeng Zhang, PENN State University, State College, PA, United States, Bofeng Bai, Lab of Multiphase Flow, Xi'An Jiaotong University, Xi'An, China* **10:42AM – Severe Thermal Artefacts Induced by Focused Ion Beam Milling of Polymer Ceramic Nanocomposites** **Technical Presentation.** IMECE2016-65396 – *Konrad Rykaczewski, Daniel Mieritz, Minglu Liu, Yuanyu Ma, Arizona State University, Tempe, AZ, United States, Erick B. Iezzi, Navy Research Laboratory, Washington DC, DC, United States, Liping Wang, Kiran Solanki, Dong-Kyun Seo, Arizona State University, Tempe, AZ, United States, Robert Wang, Arizona State University, Arizona State Univ, AZ, United States* **11:03AM – Heat Transfer in Annular Shear-Thinning non-Newtonian Flows Over a Sudden Pipe Expansion** **Technical Paper Publication.** IMECE2016-66171 – *Khaled J. Hammad, Central Connecticut State University, Simsbury, CT, United States* **11:24AM – EFFECT OF ALIGNMENT ON THERMAL CONDUCTIVITY ENHANCEMENT OF POLYETHYLENE/ GRAPHENE NANOPLATELET COMPOSITE MATERIALS** **Technical Paper Publication.** IMECE2016-66987 – *Mortaza Saeidijavash, Jivtesh Garg, Bin Wang, University of Oklahoma, Norman, OK, United States*	**10-30-2 COMPUTATIONAL HEAT TRANSFER: GENERAL (TECHNICAL SESSION)** **ROOM 222B** *Session Organizer: Peter Chung, University of Maryland, College Park, MD, United States* *Session Co-Organizer: Shima Hajimirza, Texas A&M University, College Station, TX, United States, Prodip Das, Newcastle University, Newcastle, United Kingdom* **10:00AM – Optimal thermal design of fin-and-tube heat exchangers by integration of a SUMT method with a SCGM** **Technical Paper Publication.** IMECE2016-66227 – *Xinyi Li, Xi'an Jiaotong University, xi?an, China, Ting Ma, Xi`An Jiao Tong University, Xi`An, China, Qiuwang Wang, Xi'an Jiao Tong University, Xi'an, China* **10:21AM – Direct Numerical Simulations of flow over superhydrophobic surfaces: A thermal transport perspective** **Technical Presentation.** IMECE2016-66333 – *Fuaad P A, Indian Institute of Technology Madras, Chennai,, Tamil Nadu, India, Arul Prakash K, Indian Institute of Technology Madras, Chennai, Tamil Nadu, India* **10:42AM – Pressure effects on the thermal properties of graphite** **Technical Paper Publication.** IMECE2016-66379 – *Shuang Cai, Yun Dong, Zaoqi Duan, Chenhan Liu, Yi Tao, Yunfei Chen, Southeast University, Nanjing, China* **11:03AM – Computational study of thermal transport in folded molybdenum disulphide (MoS2) nanostructure** **Technical Presentation.** IMECE2016-67191 – *Jie Peng, Peter Chung, University of Maryland, College Park, MD, United States* **11:24AM – An Analytical Solution to Inverse Transient Convection Problem on Semi-Infinite Flat Wall** **Technical Presentation.** IMECE2016-68553 – *Ardeshir Bangian Tabriz, Rutgers University, New Brunswick, NJ, United States, Yogesh Jaluria, Rutgers Univ, Piscataway, NJ, United States*
	10-40-1 NOVEL INTERFACIAL MATERIALS **ROOM 231A** *Session Organizer: Ali Khounsary, Illinois Institute of Technology, Chicago, IL, United States*	

TIME		
1:15PM–3:00PM	**10-7-4 PHONON TRANSPORT ACROSS INTERFACES** **ROOM 222A** *Session Organizer:* **Zhiting Tian**, *Virginia Tech, Blacksburg, VA, United States* **1:15PM – Phonon induced heat transfer across a vacuum gap** **Technical Presentation.** IMECE2016-66541 – *Karthik Sasihithlu, John Pendry, Imperial College, London, United Kingdom* **1:36PM – Computational Test of the Diffuse Mismatch Model at Disordered Interfaces** **Technical Presentation.** IMECE2016-67722 – *Rohit Kakodkar, Joseph Feser, University of Delaware, Newark, DE, United States* **1:57PM – Phonon Mode Conversion at Dimensionally-Mismatched Interfaces: Carbon Nanotube-Graphene Junction** **Technical Presentation.** IMECE2016-67689 – *Jingjing Shi, Purdue University, West Lafayette, IN, United States, Jonghoon Lee, Air Force Research Laboratory, Dayton, OH, United States, Yalin Dong, The University of Akron, Akron, OH, United States, Ajit Roy, Air Force Reserach Lab, Dayton, OH, United States, Timothy Fisher, Purdue, West Lafayette, IN, United States, Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States* **2:18PM – Decomposition of Thermal Boundary Resistance Across Carbon Nanotube-Graphene Junctions** **Technical Presentation.** IMECE2016-67889 – *Jingjing Shi, Purdue University, West Lafayette, IN, United States, Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States, Timothy Fisher, Purdue, West Lafayette, IN, United States*	**10-30-3 COMPUTATIONAL HEAT TRANSFER: GENERAL** **ROOM 222B** *Session Organizer: Prodip Das, Newcastle University, Newcastle, United Kingdom* *Session Co-Organizer: Shima Hajimirza, Texas A&M University, College Station, TX, United States, Peter Chung, University of Maryland, College Park, MD, United States* **1:15PM – Advanced heat transfer analysis of continuous variable transmissions (CVTs)** **Technical Presentation.** IMECE2016-68377 – *Johannes Wurm, Graz University of Technology, Graz, Styria, Austria, Matthias Fitl, BRP-Rotax GmbH & Co KG, Gunskirchen, Austria* **1:36PM – Numerical Analysis of Two Square Cylinders of Smaller and Larger Size With and Without Corner Modification** **Technical Paper Publication.** IMECE2016-65148 – *Y.T. Krishne Gowda, Professor in Mechanical Engineering, Mysore,Karnataka, India, Vikram C.K, P.E.S college of Engineering, Mandya,Karnataka, India, Holalu Venkatdas Ravindra, P E S College of Engineering, Mandya, Karnataka, India* **1:57PM – Transient Characterisation of Data Center on Racks** **Technical Paper Publication.** IMECE2016-66870 – *Yogesh Fulpagare, Indian Institue of Technology Gandhinagar, Gujarat, India, Yogendra Joshi, Georgia Tech, Atlanta, GA, United States, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India* **2:18PM – Energy simulations of data centers with hybrid cooling and waste heat re-use** **Technical Paper Publication.** IMECE2016-67625 – *Seungho Mok, Georgia institute of technology, Atlanta, GA, United States, Yogendra Joshi, Georgia Tech, Atlanta, GA, United States, Satish Kumar, Georgia Institute of Technology, Atlanta, GA, United States, Ronald R. Hutchins, University of Virginia, Charlottesville, VA, United States* **2:39PM – Data assimilation based on thermal network method to estimate temperature characterisitc coefficients for peltier device** **Technical Presentation.** IMECE2016-67565 – *Wataru Sato, Hitachi, Ltd. Hitachi Research Laboratory, Hitachinaka, Japan, Nobuyuki Isoshima, Hitachi High-Technologies Corporation, Ibaraki, Japan*
	10-36-1 COMPUTATIONAL HEAT TRANSFER IN EDUCATION **ROOM 231B** *Session Organizer: Gerard Jones, Villanova University, Villanova, PA, United States* *Session Co-Organizer: Prodip Das, Newcastle University, Newcastle, United Kingdom, Sandip Mazumder, Ohio State Univ, Columbus, OH, United States*	**10-41-1 THERMAL, THERMO-MECHANICAL CHALLENGES IN PACKAGING** **ROOM 231A** *Session Organizer: Seungbae Park, Binghamton Univ, Binghamton, NY, United States*

TIME		
3:30PM–5:15PM	**10-7-5 PHONON TRANSPORT AND ELECTRON-PHONON COUPLING** **ROOM 222A** *Session Organizer: Xiaojia Wang, University of Minnesota, twin cities, Minneapolis, MN, United States* **3:30PM – First-principles based monte carlo simulation of electron-phonon coupled thermal transport across metal-dielectric interfaces** **Technical Presentation.** IMECE2016-67656 – *Yan Wang, Zexi Lu, Purdue University, West Lafayette, IN, United States*, *Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States* **3:51PM – Thermoelectric Properties of Polypyrrole from First-principles Calculations** **Technical Presentation.** IMECE2016-67739 – *Chen Li, Virgnia Tech, Blacksburg, VA, United States*, *Hao Ma, Zhiting Tian, Virginia Tech, Blacksburg, VA, United States* **4:12PM – Uncertainties of thermal conductivities from equilibrium molecular dynamics simulations** **Technical Paper Publication.** IMECE2016-68083 – *Zuyuan Wang, Purdue University, West Lafayette, IN, United States*, *Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States* **4:33PM – Phononvoltaic Material Design and the Interband Electron-Phonon Coupling** **Technical Presentation.** IMECE2016-68325 – *Corey Melnick, University of Michigan, Ann Arbor, MI, United States*, *Massoud Kaviany, Univ Of Michigan, Ann Arbor, MI, United States*	**10-14-1 PANEL ON ABET ACCREDITATION** **ROOM 231A** *Session Organizer: S.A. Sherif, University of Florida, Gainesville, FL, United States* **3:30PM – Overview of ABET Accreditation in the United States** **Panel Presentation.** IMECE2016-68748 – *S.A. Sherif, University of Florida, Gainesville, FL, United States*
	10-42-1 THERMAL MANAGEMENT OF DATA CENTERS **ROOM 222C** *Session Organizer: Yogendra Joshi, Georgia Tech, Atlanta, GA, United States* *Session Co-Organizer: Susmita Dash, MIT, Cambridge, MA, United States*	

MON. NOV. 14 TRACK 11: Materials: Genetics to Structures

TIME	
10:30AM–12:15PM	**11-1-1 PLENARY LECTURE I** **ROOM 221B** *Session Organizer: Yong Zhu, North Carolina State University, Raleigh, NC, United States* *Session Co-Organizer: Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States* **10:30AM – Electrochemical stiffness in lithium-ion batteries - a new concept for understanding electrode response** **Track Plenary Presentation.** IMECE2016-68670 – *Nancy Sottos, Department of Materials Science and Engineering, University of Illinois, Urbana, IL, United States*
1:30PM–3:15PM	**11-1-2 PLENARY LECTURE II** **ROOM 226A** *Session Organizer: Yong Zhu, North Carolina State University, Raleigh, NC, United States* *Session Co-Organizer: Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States* **1:30PM – Architectures of soft robotic locomotion enabled by simple mechanical principles** **Track Plenary Presentation.** IMECE2016-68776 – *Xi Chen, Columbia University, New York, NY, United States*
3:45PM–5:30PM	**11-2-1 AWARD LECTURES** **ROOM 227B** *Session Organizer: Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States* *Session Co-Organizer: Yong Zhu, North Carolina State University, Raleigh, NC, United States* **3:45PM – An analytical model of reactive diffusion for transient electronics** **Invited Presentation.** IMECE2016-68348 – *Yonggang Huang, Northwestern Univ, Evanston, IL, United States* **4:20PM – Advanced Nano and Smart Materials Based 3D/4D Bioprinting** **Invited Presentation.** IMECE2016-68525 – *Lijie Zhang, The George Washington University, Washington, DC, DC, United States* **4:55PM – Fracture in Functionally Graded Materials** **Invited Presentation.** IMECE2016-68653 – *Addis Kidane, University of South Carolina, Columbia, SC, United States* **11-4-1 NANOMECHANICS AND NANOMATERIALS IN MATERIALS 1** **ROOM 227A** *Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States* *Session Co-Organizer: Jeffrey Kysar, Columbia University, New York, NY, United States, George Voyiadjis, Louisiana State University, Baton Rouge, LA, United States, Pedro Peralta, Arizona State University, Tempe, AZ, United States* **3:45PM – Geometrical and Micromechanical Characterization of the Shear Transformation Zones in Amorphous Polymers Using Nanoindentation** **Technical Presentation.** IMECE2016-65943 – *Leila Malekmotiei, George Voyiadjis, Louisiana State University, Baton Rouge, LA, United States* **4:06PM – Analysis of Anisotropic Multilayered Materials with Misfit Dislocations Considering Interface Stress and Interface Elasticity** **Technical Presentation.** IMECE2016-6517 – *Hideo Koguchi, Nagaoka Univ Of Tech, Nagaoka, Japan, Yusuke Tanaka, Nagaoka University of Technology, Nagaoka, Niigata, Japan* **4:27PM – Three-Dimensional Singular Stress Fields at the Fronts of Interfacial Cracks in Bicrystals of Orthorhombic/Cubic Symmetries** **Technical Presentation.** IMECE2016-65282 – *Reaz Chaudhuri, University of Utah, Salt Lake City, UT, United States* **4:48PM – Crystal Plasticity Modeling of Tensile Testing of Textured Nanocrystalline Films: Effects of Microstructure Heterogeneity** **Technical Presentation.** IMECE2016-67849 – *Saul Opie, Arizona State University, Tempe, AZ, United States, Prashanth Ganeshbaabu, Arizona State Univ, Tempe, AZ, United States, Ehsan Izadi, Jagannathan Rajagopalan, Pedro Peralta, Arizona State University, Tempe, AZ, United States*

TIME	
3:45PM–5:30PM	**11-12-1 MECHANICAL BEHAVIOR OF MATERIALS.** **ROOM 226C** *Session Organizer: Sridhar Santhanam, Villanova University, Villanova, PA, United States* **3:45PM – Improving thermal shock resistance of castable refractories** **Technical Presentation.** IMECE2016-67106 – *Kamran Makarian, Sridhar Santhanam, Villanova University, Villanova, PA, United States, Zachary Wing, Advanced Ceramics Manufacturing, Tucson, AZ, United States* **4:06PM – Design Of Ultra-lightweight And High-strength Cellular Structural Composites** **Technical Presentation.** IMECE2016-66090 – *Zhong Hu, South Dakota State Univ, Brookings, SD, United States, Kaushik Thiyagarajan, Todd Letcher, Qi Hua Fan, South Dakota State University, Brookings, SD, United States* **4:27PM – UNDERSTANDING PROGRESSIVE BUCKLING IN EXTRUDED SQUARE TUBES USING MULTIPLE MEASUREMENT TECHNIQUES** **Technical Paper Publication.** IMECE2016-65484 – *Girija Sethy, Indian Institute of Technology Madras, 600036, Tamilnadu, India, Raghu Prakash, Indian Institute of Technology Madras, Chennai, Tamilnadu, India* **4:48PM – Influence of Basic Parameters for Fiber Reinforced Polymer Crushing Simulation** **Technical Paper Publication.** IMECE2016-66635 – *Benoit Stalin, Tsinghua University, Beijing, China, Yang Dongyang, Tsinghua University, Beijing City, Beijing, China, Yong Xia, Qing Zhou, Tsinghua University, Beijing, China* **5:09PM – Strength and Hardness Assessment of Copper and Copper Alloy Coatings on Stainless Steel Substrates** **Technical Paper Publication.** IMECE2016-66612 – *Mohamed Ibrahim, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, Khaled Al-Athel, King Fahd University of Petroleum & Minerals (KFUP, Dhahran, Saudi Arabia, Abul Fazal M. Arif, King Fahd Univ of Petroleum & Minerals (KFUPM), Dhahran, Saudi Arabia* **11-27-1 ELECTROCHEMICAL AND THERMAL ENERGY CONVERSION AND STORAGE 1** **ROOM 226B** *Session Organizer: Haleh Ardebili, University of Houston, Houston, TX, United States* *Session Co-Organizer: Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States, Michael Pettes, University of Connecticut, Storrs, CT, United States, Huanyu Cheng, Pennsylvania State University, University Park, PA, United States* **3:45PM – A Study of Silicon Nanowires for Solar Thermal Energy Harvesting and Utilization** **Technical Presentation.** IMECE2016-67844 – *Ming-Tsang Lee, National Chung Hsing University, Taichung, Taiwan, Yu-bin Chen, National Cheng Kung University, Tainan City, Taiwan, Ming-Chang Lu, National Chiao Tung University, Hsinchu, Taiwan* **4:06PM – Dual Element-Doped Graphene as Efficient Catalysts for Fuel Cells and Metal-air Batteries** **Technical Presentation.** IMECE2016-65923 – *Zhenghang Zhao, Zhenhai Xia, University of North Texas, Denton, TX, United States* **4:27PM – Co substituted MnO-multiwall carbon nanotube hybrid as a high performance anode material for lithium ion battery applications** **Technical Presentation.** IMECE2016-67201 – *Sajad Yazdani, The University of Connecticut, Storrs, CT, United States, Raana Kashfi-Sadabad, Alessandro Palmieri, William E. Mustain, Michael Pettes, University of Connecticut, Storrs, CT, United States* **4:48PM – Fabrication of Bulk Skinless Polyetherimide (PEI) Nanofoams** **Technical Paper Publication.** IMECE2016-66055 – *Sriharsha Srinivas Sundarram, David Jose, Christopher Gutierrez, Fairfield University, Fairfield, CT, United States*

TIME		
10:30AM–12:15PM	**11-6-1 ICME: A SUCCESS STORY I** **ROOM 224A** *Session Organizer: Natasha Vermaak, Lehigh University, Bethlehem, PA, United States* *Session Co-Organizer: Evan Pineda, NASA Glenn Research Center, Cleveland, OH, United States* **10:30AM – Microstructure-Sensitive Modeling for Decision Support in Materials Design and Development** **Technical Presentation.** IMECE2016-65470 – *David McDowell, Georgia Institute of Technology, Atlanta, GA, United States* **10:51AM – Microstructure-Sensitive Modeling for Decision Support in Materials Design and Development** **Technical Presentation.** IMECE2016-65471 – *David McDowell, Georgia Institute of Technology, Atlanta, GA, United States* **11:12AM – INVITED TALK: Materials Forensics for For inverse Microstructure and Processing Path Design, PART I** **Technical Presentation.** IMECE2016-65499 – *Hamid Garmestani, Georgia Inst Of Tech, Atlanta, GA, United States* **11:33AM – INVITED TALK: Materials Forensics for For inverse Microstructure and Processing Path Design, Part II** **Technical Presentation.** IMECE2016-65501 – *Hamid Garmestani, Georgia Inst Of Tech, Atlanta, GA, United States*	**11-9-1 DISSOLVABLE ELECTRONIC DEVICES** **ROOM 222B** *Session Organizer: Huanyu Cheng, Pennsylvania State University, University Park, PA, United States* *Session Co-Organizer: Lan Yin, Tsinghua University, Beijing, Choose Any State/Province, China* **10:30AM – Recent development of transient electronics** **Technical Presentation.** IMECE2016-67900 – *Huanyu Cheng, Pennsylvania State University, University Park, PA, United States* **10:51AM – "Transient electronics": Biocompatible/Biodegradable Electronic Devices Dissolve in Body, Environment** **Invited Presentation.** IMECE2016-68382 – *Suk-Won Hwang, Korea University, Seoul, Korea (Republic)* **11:33AM – Biodegradable Materials for Transient Electronics** **Invited Presentation.** IMECE2016-68406 – *Lan Yin, Tsinghua University, Beijing, Choose Any State/Province, China*
	11-12-2 EFFECT OF PROCESSING ON MECHANICAL BEHAVIOR OF MATERIALS. **ROOM 225A** *Session Organizer: Kishore Pochiraju, Stevens Institute Of Technology, Hoboken, NJ, United States* **10:30AM – Effect of Heat Treatment on Mechanical Properties of Laminated Carbon Fiber Reinforced Polymeric Composites** **Technical Paper Publication.** IMECE2016-65206 – *ABM I Islam, JSNN, North Carolina A&T State University, Greensboro, NC, United States, Ajit Kelkar, North Carolina A&T, Greensboro, NC, United States, Lifeng Zhang, North Carolina A&T State University — Dept. of Nanoengineering, Greensboro, NC, United States* **10:51AM – Effects of Annealing Parameters on Nickel Catalyst Nanoparticle Size for Carbon Nanotube Synthesis Applications** **Technical Paper Publication.** IMECE2016-65514 – *Jonathan W. Cody, Sungwon S. Kim, Minnesota State University, Mankato, Department of Mechanical and Civil Engineering, Mankato, MN, United States* **11:12AM – Effects Of various Cooling Techniques On Grain Refinement Of Aluminium 7075-T651 During Friction Stir Process (FSP)** **Technical Paper Publication.** IMECE2016-66161 – *Vivek Patel, Pandit deendayal petroleum university, gandhinagar, Gujarat, India, Vishvesh Badheka, Pandit deendayal petroleum university, gandhinagar,Gujarat, India, Samarth Zala, PDPU, Himatnagar, India, Sagar Patel, Utsav Dineshbhai Patel, Swarg Patel, Pandit deendayal petroleum university, Gandhinagar,Gujarat, India* **11:33AM – Fabrication Parameters and Performance Relationship of Twisted and Coiled Polymer Muscles** **Technical Paper Publication.** IMECE2016-67314 – *Lokesh Kumar Saharan, The University of Texas at Dallas, Richardson, TX, United States, Yonas Tadesse, The University of Texas At Dallas (UTD), Richardson, TX, United States*	**11-17-1 MATERIAL PROCESSING OF FLEXIBLE ELECTRONICS, SENSORS, AND DEVICES I** **ROOM 225B** *Session Organizer: Cunjiang Yu, University of Houston, Pearland, TX, United States* *Session Co-Organizer: Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States* **10:30AM – "Cut-and-Paste" Fabrication of 2D Materials for Transparent and Stretchable Epidermal Sensor System** **Invited Presentation.** IMECE2016-67782 – *Nanshu Lu, University of Texas, Austin, TX, United States* **11:12AM – Solution processed piezoelectric nanowires array for self-powered wearable electronics** **Technical Presentation.** IMECE2016-65956 – *Wenzhuo Wu, Purdue University, West Lafayette, IN, United States* **11:33AM – Multiscale modeling based study of solution processed deposition of electron transport layers on perovskite crystal surface** **Technical Presentation.** IMECE2016-67089 – *Mohammad F.N. Taufique, SM Mortuza, Soumik Banerjee, Washington State University, Pullman, WA, United States* **11:54AM – Skin-like Sensing based on Resistive Networks for Paper-based Electronics** **Technical Presentation.** IMECE2016-67771 – *Xiyue Zou, Chuyang Chen, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States*

TIME		
10:30AM–12:15PM	**11-22-1 MODELING, SIMULATION AND DESIGN OF MULTIFUNCTIONAL MATERIALS - I** **ROOM 226A** *Session Organizer: Ling Liu, Utah State University ENGR 419R, Logan, UT, United States* *Session Co-Organizer: Zhenhai Xia, University of North Texas, Denton, TX, United States* **10:30AM – Role of grain boundary on the sources of size effects** **Technical Presentation.** IMECE2016-66155 – *George Voyiadjis, Mohammadreza Yaghoobi, Louisiana State University, Baton Rouge, LA, United States* **10:51AM – Large scale atomistic simulation of size effects in micropillars** **Technical Presentation.** IMECE2016-66158 – *Mohammadreza Yaghoobi, George Voyiadjis, Louisiana State University, Baton Rouge, LA, United States* **11:12AM – The Effect of Interfacial Microstructures on Joining Strength of Polymer-Metal Hybrid Interface** **Technical Paper Publication.** IMECE2016-65811 – *Le Shen, Lingyu Sun, Lijun Li, Bincheng Huang, Beihang University, Beijing, China, Xiao Ye, Siemens Industry Software (Beijing) Co., Ltd., Beijing, China* **11:33AM – Improving Interfacial Thermal Conductance between Graphene and Polymer via Hierarchical Heat Spreaders** **Technical Presentation.** IMECE2016-66350 – *Lin Zhang, Zhitong Bai, Utah State University, Logan, UT, United States, Ling Liu, Utah State University ENGR 419R, Logan, UT, United States* **11:54AM – Multi-Objective Design of Actively-Cooled Microvascular Materials** **Technical Presentation.** IMECE2016-66728 – *Marcus Hwai Yik Tan, Stephen Pety, University of Illinois, Urbana-Champaign, Urbana, IL, United States, Ahmad Najafi, University of Illinois-Champaign, Urbana, IL, United States, Scott White, Univ Of Illinois, Urbana, IL, United States, Philippe Geubelle, University of Illinois, Urbana, IL, United States*	**11-27-2 ELECTROCHEMICAL AND THERMAL ENERGY CONVERSION AND STORAGE 2** **ROOM 224B** *Session Organizer: Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States* *Session Co-Organizer: Michael T. Pettes, University of Connecticut, Storrs, CT, United States, Huanyu Cheng, Pennsylvania State University, University Park, PA, United States* **10:30AM – SnS based materials for environmentally friendly, earth abundant and high performance thermoelectric applications** **Technical Presentation.** IMECE2016-67271 – *Sajad Yazdani, The University of Connecticut, Storrs, CT, United States, Yufei Liu, Clemson University, Clemson, SC, United States, Raana Kashfi-Sadabad, University of Connecticut, Storrs, CT, United States, Jian He, Clemson University, Clemson, SC, United States, Michael Pettes, University of Connecticut, Storrs, CT, United States* **10:51AM – Compressive buckling enabled 3D assembly of micro/nano-structures** **Technical Presentation.** IMECE2016-67916 – *Huanyu Cheng, Pennsylvania State University, University Park, PA, United States* **11:12AM – Direct Measurements of Li-Si Composition, Volume Expansion and Modulus Variation of Amorphous Si after Electrochemical Lithiation** **Technical Presentation.** IMECE2016-68108 – *Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States, Xu Wang, Sudhanshu Singh, Nikhilesh Chawla, Arizona State University, Tempe, AZ, United States* **11:33AM – Solution-Phase Synthesis Routes to Thermoelectric Thin Films and Nanocomposites** **Technical Presentation.** IMECE2016-65370 – *Yuanyu Ma, Prathamesh Vartak, Prajwal Nagaraj, Shrinil Shah, Arizona State University, Tempe, AZ, United States, Robert Wang, Arizona State University, Arizona State Univ, AZ, United States*
1:30PM–3:15PM	**11-4-2 NANOMECHANICS AND NANOMATERIALS IN MATERIALS 2** **ROOM 227A** *Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States* *Session Co-Organizer: Jeffrey Kysar, Columbia University, New York, NY, United States, Reaz Chaudhuri, University of Utah, Salt Lake City, UT, United States, Xinnan Wang, North Dakota State University, Fargo, ND, United States* **1:30PM – Crack Turning in Macroscopically Isotropic Tungsten (W) Single Crystals and Griffith's Fracture Criterion** **Technical Presentation.** IMECE2016-65279 – *Reaz Chaudhuri, University of Utah, Salt Lake City, UT, United States* **1:51PM – Uncoupling Anelastic and Elastic Deformation in TiAl Metallic Glass Thin Films using in situ Electron Diffraction** **Technical Presentation.** IMECE2016-66848 – *Rohit Sarkar, Arizona State University, Tempe, AZ, United States, Christian Ebner, Univeristy of Vienna, Vienna, Austria, Ehsan Izadi, Arizona State University, Tempe, AZ, United States, Christian Rentenberger, Univeristy of Vienna, Vienna, Austria, Jagannathan Rajagopalan, Arizona State University, Tempe, AZ, United States* **2:12PM – Effect of Loading Direction and Plastic Anisotropy on Mechanical Behavior of Bicrystalline Aluminum Films** **Technical Presentation.** IMECE2016-67914 – *Ehsan Izadi, Pedro Peralta, Jagannathan Rajagopalan, Arizona State University, Tempe, AZ, United States* **2:33PM – Engineering Surfaces for Enhanced Nucleation and Droplet Removal During Dropwise Condensation** **Technical Presentation.** IMECE2016-68449 – *Sameera Khan, UIC, Chicago, IL, United States, Sushant Anand, Raheel Jafarani, Rukmava Chatterjee, University of Illinois at Chicago, Chicago, IL, United States* **2:54PM – Mechanical Property of Tobacco Mosaic Virus superlattice** **Technical Presentation.** IMECE2016-67650 – *Xinnan Wang, North Dakota State University, Fargo, ND, United States*	**11-6-2 ICME: A SUCCESS STORY II** **ROOM 227B** *Session Organizer: Natasha Vermaak, Lehigh University, Bethlehem, PA, United States* *Session Co-Organizer: Evan Pineda, NASA Glenn Research Center, Cleveland, OH, United States* **1:30PM – Enhancement of macroscopic properties via microstructure design PART I** **Technical Presentation.** IMECE2016-65527 – *Min Zhou, Georgia Inst Of Tech, Atlanta, GA, United States* **1:51PM – Enhancement of macroscopic properties via microstructure design PART II** **Technical Presentation.** IMECE2016-65528 – *Min Zhou, Georgia Inst Of Tech, Atlanta, GA, United States* **2:12PM – INVITED TALK: Development of a Combinatorial High-throughput (CHT) Alloy Synthesis Technique using Dry Powder Printing and Controlled Laser Melting - PART I** **Technical Presentation.** IMECE2016-68198 – *Suman Das, Georgia Institute of Technology, Atlanta, GA, United States* **2:33PM – INVITED TALK: Development of a Combinatorial High-throughput (CHT) Alloy Synthesis Technique using Dry Powder Printing and Controlled Laser Melting - PART II** **Technical Presentation.** IMECE2016-68199 – *Suman Das, Georgia Institute of Technology, Atlanta, GA, United States*

TIME

1:30PM–3:15PM

11-9-2 MULTIFUNCTIONAL ELECTRONIC DEVICES

ROOM 228B

Session Organizer: Huanyu Cheng, Pennsylvania State University, University Park, PA, United States

Session Co-Organizer: Baoxing Xu, University of Virginia, Charlottesville, VA, United States

1:30PM – Controlled mechanical buckling for origami-inspired construction of 3D microstructures in advanced materials
Invited Presentation. IMECE2016-68147 – *Yihui Zhang, Tsinghua University, Beijing, China, Yonggang Huang, Northwestern Univ, Evanston, IL, United States*

2:22PM – A Multifunctional Skin-Like Device That Possesses Stimulation and Sensing Capabilities
Invited Presentation. IMECE2016-68361 – *Baoxing Xu, University of Virginia, Charlottesville, VA, United States*

11-12-3 TRIBOLOGICAL CHARACTERISTICS OF MATERIALS.

ROOM 227C

Session Organizer: Ahsan Mian, Wright State University Dept. Of Mechanical & Materials Engineering, Dayton, OH, United States

Session Co-Organizer: Patricia Iglesias, Rochester Institute of Technology, Rochester, NY, United States

1:30PM – Characterization of Novel High Performance Lubricants
Technical Paper Publication. IMECE2016-67012 – *Leah Matczak, Thomas Smith, Rochester Institute of Technology, Rochester, NY, United States, Michael Schertzer, RIT, Rochester, NY, United States, Patricia Iglesias, Rochester Institute of Technology, Rochester, NY, United States*

1:51PM – PTFE and MoS2 Additives for Mineral Oil Film Formation In EHL Point Contacts
Technical Paper Publication. IMECE2016-65056 – *Glenn Kwabena Gyimah, Guangdong University of Technology, Guangzhou, Guangdong, China, Zhongning Guo, Guangdong University Of Technology, Guangdong, Guangdong, China, Ping Huang, South China University Of Technology, Guangzhou, China, Shuzhen Jiang, Guangdong University of Technology, Faculty of Electromechanical Engineering, Guangzhou, Guangdong, China, Gary Barber, Oakland Univ, Rochester, MI, United States*

2:12PM – Effect of Halogen-Free Ionic Liquids as Additives of Biolubricants for Room Temperature Titanium-Steel Contact
Technical Paper Publication. IMECE2016-66048 – *Patricia Iglesias, Jose Salas, Matthew DeRosa, Kyle Bossung, Rochester Institute of Technology, Rochester, NY, United States*

2:33PM – The Effect Of Processes Parameter On The Abrasive Wear Resistance Of Boronized AISI 1050 Steel
Technical Paper Publication. IMECE2016-65354 – *Mete Han Boztepe, Melih Bayramoglu, Cukurova University, Adana, Turkey*

2:54PM – Synthetic and Organic Supercharger Lubrication: The Tribological Performance of Ionic Liquids as Additives to Lubricants
Technical Paper Publication. IMECE2016-66073 – *Patricia Iglesias, Derek Bain, Dana Fisk, Camila Gomez Serrano, Samantha Orlando, Rochester Institute of Technology, Rochester, NY, United States*

11-12-5 NANO MATERIALS

ROOM 228A

Session Organizer: Devdas Pai, North Carolina A&T State University, Greensboro, NC, United States

Session Co-Organizer: Jagannathan Sankar, North Carolina A&T State Univ, Greensboro, NC, United States

1:30PM – SYNTHESIS AND PROPERTIES EVALUATION OF BIOPOLYMER COMPOSITES
Technical Presentation. IMECE2016-67820 – *Radhakrishnan Muruganandhan, Anna University, Chennai Tamil Nadu, India*

1:51PM – Effects of Intrinsic Strain On the Structural Stability and Mechanical Properties of Phosphorene Nanotubes
Technical Paper Publication. IMECE2016-65911 – *Xiangbiao Liao, Xi Chen, Columbia University, New York, NY, United States*

2:12PM – Tribology behaviour of Aluminium/Lignite Fly Ash/Graphite Nano Composites
Technical Presentation. IMECE2016-67812 – *Radhakrishnan Muruganandhan, Anna University, Chennai Tamil Nadu, India, Ilangovan Murugesan, Anna University, Chennai, Tamil Nadu, India*

2:33PM – Carbon Nanofiber and PDMS based Nanocomposite with Sensing Functions
Technical Paper Publication. IMECE2016-67604 – *Shoieb Chowdhury, Mark Olima, Yingtao Liu, Mrinal Saha, University of Oklahoma, NORMAN, OK, United States*

2:54PM – Taguchi Experimental Design in Carbon Nanomaterials Synthesis
Technical Paper Publication. IMECE2016-65731 – *Jose de Jesus Contreras-Navarrete, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, Mexico, Francisco Gabriel Granados-Martinez, Alejandro Duran-Navarro, Lada Domratcheva-Lvova, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Michoacán, Mexico, Omar Aguilar-Garcia, Instituto Tecnologico de Morelia, Morelia, Michoacán, Mexico, María de Lourdes Mondragón-Sánchez, Instituto Tecnólogico de Morelia, Morelia, Michoacán, Mexico, Carmen Judtih Gutierrez-Garcia, Nelly Flores-Ramirez, Universidad Michoacana de San Nicolas de Hidalgo, morelia, Mexico*

TIME	
3:45PM–5:30PM	**11-4-3** **NANOMECHANICS AND NANOMATERIALS IN MATERIALS 3** **ROOM 227A** *Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States* *Session Co-Organizer: Jeffrey Kysar, Columbia University, New York, NY, United States, Navid Zarif Karimi, University of Bologna, Bologna, BO, Italy, Ehsan Izadi, Arizona State University, Tempe, AZ, United States* **3:45PM – Particles Size Analysis of Carbon Nanostructures Obtained by Chemical Vapor Deposition** **Technical Presentation.** IMECE2016-65715 – *Carmen Judtih Gutierrez-Garcia, Diana Litzajaya Garcia-Ruiz, Universidad Michoacana de San Nicolas de Hidalgo, morelia, Mexico, Jose de Jesus Contreras-Navarrete, Universidad Michoacana de San Nicolás de Hidalgo, Morelia, Michoacán, Mexico, Francisco Gabriel Granados-Martinez, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Michoacán, Mexico, Luis Zamora-Peredo, universidad veracruzana, Boca de Rio, Michoacán, Mexico, Leandro Garcia-Gonzalez, Universidad de Veracruz, Boca de Rio, Veracruz, Mexico, Lada Domratcheva-Lvova, Universidad Michoacana de San Nicolas de Hidalgo, Morelia, Michoacán, Mexico* **4:06PM – Study of delamination in drilling E-glass-epoxy/ MWCNT composites** **Technical Presentation.** IMECE2016-65891 – *Navid Zarif Karimi, University of Bologna, Bologna, BO, Italy, Hossein Heidary, University of Tafresh, Tafresh, Iran, Jalal Yousefi, Amirkabir university of technology, Tehran, Tehran, Iran, Giangiacomo Minak, University of Bologna, Bologna, BO, Italy, Parnian Kianfar, Amirkabir University of Technology, Tehran, Iran* **4:27PM – In Situ TEM Study on deformation behavior of Ultrafine-grained Aluminum Films of Different Textures with Automated Crystal Orientation Mapping** **Technical Presentation.** IMECE2016-67921 – *Ehsan Izadi, Arizona State University, Tempe, AZ, United States, Amith Darbal, NanoMEGAS USA, Tempe, AZ, United States, Pedro Peralta, Jagannathan Rajagopalan, Arizona State University, Tempe, AZ, United States* **4:48PM – Fabrication of nanopore in graphene by ion irradiation: influence of ion energy and incident angle** **Technical Presentation.** IMECE2016-67078 – *Zhitong Bai, Utah State University, LOGAN, UT, United States, Ling Liu, Utah State University ENGR 419R, Logan, UT, United States, Lin Zhang, Utah State University, Logan, UT, United States, hengyang li, dalian university of technology, dalian, hebei, China* **11-6-3** **ICME: A SUCCESS STORY III** **ROOM 227B** *Session Organizer: Natasha Vermaak, Lehigh University, Bethlehem, PA, United States* *Session Co-Organizer: Evan Pineda, NASA Glenn Research Center, Cleveland, OH, United States* **3:45PM – INVITED TALK: DATA SCIENCE ENABLED ACCELERATED DEVELOPMENT OF HIERARCHICAL MATERIALS PART I** **Technical Presentation.** IMECE2016-65558 – *Surya Kalidindi, Georgia Tech, Atlanta, GA, United States* **4:06PM – INVITED TALK: DATA SCIENCE ENABLED ACCELERATED DEVELOPMENT OF HIERARCHICAL MATERIALS PART II** **Technical Presentation.** IMECE2016-65560 – *Surya Kalidindi, Georgia Tech, Atlanta, GA, United States* **4:27PM – INVITED TALK: ICME for Structural Materials in the Hot Section of Gas Turbines PART I** **Technical Presentation.** IMECE2016-67052 – *R.W. Neu, Georgia Inst Of Tech, Atlanta, GA, United States* **4:48PM – INVITED TALK: ICME for Structural Materials in the Hot Section of Gas Turbines PART II** **Technical Presentation.** IMECE2016-67054 – *R.W. Neu, Georgia Inst Of Tech, Atlanta, GA, United States* **11-9-3** **DISSOLVABLE AND MULTIFUNCTIONAL ELECTRONIC DEVICES** **ROOM 228B** *Session Organizer: Huanyu Cheng, Pennsylvania State University, University Park, PA, United States* **3:45PM – Development of bioresorbable electronics for biomedical applications** **Invited Presentation.** IMECE2016-68374 – *Chi Hwan Lee, Purdue University, West Lafayette, IN, United States* **4:37PM – Bioinspired Multifunctional Adaptively Reconfigurable Material Microsystems for Artificial Homeostasis** **Invited Presentation.** IMECE2016-68595 – *Ximin He, Zhi Zhao, Hanqing Nan, Arizona State University, Tempe, AZ, United States*

TIME		
3:45PM–5:30PM	**11-12-4 POLYMER MATERIALS.** **ROOM 227C** *Session Organizer: Ram Mohan, North Carolina A&T, Greensboro, NC, United States* **3:45PM – Shape Recovery Characteristics of 3D printed Soft Photo-Polymers** **Technical Paper Publication.** IMECE2016-67286 – *Wenbo Liu, Nan Wu, Kishore Pochiraju, Stevens Institute of Technology, Hoboken, NJ, United States* **4:06PM – A Novel Test for Viscoelastic Characterization of Polyurea at Mid-Level (kHz) Frequencies** **Technical Presentation.** IMECE2016-68086 – *Wiroj Nantasetphong, Zhanzhan Jia, University of California, San Diego, La Jolla, CA, United States, Alirea V. Amirkhizi, University of Massachusetts, Lowell, Lowell, MA, United States, Siavouche Nemat-Nasser, University of California, San Diego, La Jolla, CA, United States* **4:27PM – High Temperature Graphene-PEEK Adhesive** **Technical Presentation.** IMECE2016-68398 – *Andrew Littlefield, Stephen Bartolucci, US Army RDECOM-ARDEC Benét Labs, Watervliet, NY, United States* **4:48PM – Permeability Characterize of Polymeric Materials at High-Temperature and Pressure** **Technical Paper Publication.** IMECE2016-67174 – *Nooshin Nassr, University of Oklahoma, Norman, OK, United States, Zahed Siddique, The University of Oklahoma, Norman, OK, United States, Jon Keegan, University of Oklahoma, Norman, OK, United States* **5:09PM – The Influence of Laser Irradiation Parameters on Tribological behavior of Commercially Pure Titanium for Dental Prostheses** **Technical Paper Publication.** IMECE2016-66524 – *Karibeeran Shanmuga Sundaram, Anna University, Chennai Tamil Nadu, India, Gurusami K, Senthil Kumaran S, Anna University, Chennai, Tamilnadu, India*	**11-12-6 MATERIALS PROCESSING** **ROOM 228A** *Session Organizer: Kishore Pochiraju, Stevens Institute Of Technology, Hoboken, NJ, United States* **3:45PM – Ceramic-based, Fully-Enclosed Microburner Using One-Pot Powder Processing** **Technical Presentation.** IMECE2016-67861 – *Truong Do, Changseop Shin, Patrick Kwon, Junghoon Yeom, Michigan State University, East Lansing, MI, United States* **4:06PM – Mg- and Ca-Releasing Tissue Engineered Scaffolds for Bone Regeneration** **Technical Paper Publication.** IMECE2016-66835 – *Udhab Adhikari, Nava Rijal, Shalil Khanal, Devdas Pai, North Carolina A&T State University, Greensboro, NC, United States, Jagannathan Sankar, North Carolina A&T State Univ, Greensboro, NC, United States, Narayan Bhattarai, North Carolina A&T State University, Greensboro, NC, United States* **4:27PM – Synthesis and Characterization of Alginate - Based Hydrogel Microbeads for Magnesium Release** **Technical Paper Publication.** IMECE2016-66900 – *Shalil Khanal, Udhab Adhikari, Nava Rijal, Devdas Pai, Narayan Bhattarai, North Carolina A&T State University, Greensboro, NC, United States, Jagannathan Sankar, North Carolina A&T State Univ, Greensboro, NC, United States* **4:48PM – Gas-Phase Synthesis of Gallium Nitride (GaN) Nanocrystals using a Non-Thermal Plasma Reactor** **Technical Presentation.** IMECE2016-66979 – *Rajib Mandal, Rebecca Anthony, Michigan State University, East Lansing, MI, United States* **5:09PM – Investigation Of The Flexural And Impact Behaviour Of The Sandblasted Duralumin Reinforced FMLs.** **Technical Paper Publication.** IMECE2016-66924 – *Senthil Kumaran S, Anna University, Chennai, Tamilnadu, India, Vasudevan A, Edwin Samson P, CIPET, Chennai-600 025, India*

TIME	
10:30AM–12:15PM	**11-10-1 FRACTURE AND DAMAGE** **ROOM 224A** *Session Organizer: Raghu Prakash, Indian Institute of Technology Madras, Chennai, Tamilnadu, India* *Session Co-Organizer: Sridhar Santhanam, Villanova University, Villanova, PA, United States* **10:30AM – Numerical Study of Cruciform Specimens for Biaxial Tensile Tests** **Technical Paper Publication.** IMECE2016-67452 – *Luis Fernando Puente Medellin, José Angel Diosdado De la Peña, Antonio Balvantín, Universidad de Guanajuato, Salamanca, Guanajuato, Mexico* **10:51AM – Post-Impact Thermo-Mechanical Response of Woven Mat Composites Subjected to tensile Loading** **Technical Paper Publication.** IMECE2016-66343 – *Raghu Prakash, Deepika Sudevan, Indian Institute of Technology Madras, Chennai, Tamilnadu, India* **11:12AM – Application of Infrared Imaging Technology in Fatigue Failure Prediction of Vehicle Wheel in Wheel Bending Fatigue Test** **Technical Paper Publication.** IMECE2016-66539 – *Weihao Chai, Beihang University, China, Beijing, China, Xiandong Liu, Yingchun Shan, Beihang University, Beijing, China, Jiegong Wang, CEMAX Co.,Ltd, Longkou, China* **11:33AM – NONLOCAL GRADIENT DAMAGE MODEL COUPLED TO VIS-COPLASTICTY FOR DUCTILE MATERIALS USING PHASE FIELD METHOD** **Technical Presentation.** IMECE2016-65913 – *Navid Mozaffari, Bentley Systems Inc., Metairie, LA, United States, George Voyiadjis, Louisiana State University, Baton Rouge, LA, United States* **11:54AM – Study of Crack Closure and Stress Ratio effects in a forged IN 718 alloy** **Technical Presentation.** IMECE2016-66511 – *Arun Kumar, Indian Institute of Technology, Madras., Chennai, India, Raghu Prakash, Indian Institute of Technology Madras, Chennai, Tamilnadu, India* **11-17-2 MATERIAL PROCESSING OF FLEXIBLE ELECTRONICS, SENSORS AND DEVICES II** **ROOM 225B** *Session Organizer: Karthik Shankar, NRC - National Institute For Nanotechnology, Edmonton, AB, Canada* *Session Co-Organizer: Rebecca Kramer, Purdue University, West Lafayette, IN, United States* **10:30AM – Active Composites for Manufacturing and Wearable Device Applications** **Invited Presentation.** IMECE2016-67941 – *Placid Ferreira, University of Illinois, Urbana, IL, United States, Nishana Ismail, University of Illinois, Urbana-Champaign, Urbana, IL, United States* **11:12AM – Variational formulations, instabilities and critical loadings of space curved beams** **Invited Presentation.** IMECE2016-66176 – *Liping Liu, Rutgers University, Piscataway, NJ, United States, Nanshu Lu, University of Texas, Austin, TX, United States* **11:33AM – Rotary Actuators Based on Pneumatically-Driven Elastomeric Structures** **Technical Presentation.** IMECE2016-66906 – *Xiangyu Gong, Ke Yang, Jingjin Xie, Yanjun Wang, Parth Kulkarni, Alexander Hobbs, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States* **11:54AM – Centrifugal Forming and Mechanical Properties of Silicone-based Elastomers for Soft Robotic Actuators** **Technical Presentation.** IMECE2016-66891 – *Parth Kulkarni, Jingjin Xie, Jihyun Ryu, Rutgers University, Piscataway, NJ, United States, Shawn Chester, New Jersey Institute of Technology, North Caldwell, NJ, United States, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States* **11-20-1 BIOINSPIRED MATERIALS AND STRUCTURES** **ROOM 224B** *Session Organizer: Seyed Allameh, Northern Kentucky Univ, Highland Heights, KY, United States* *Session Co-Organizer: Zhenhai Xia, University of North Texas, Denton, TX, United States* **10:30AM – Effect of Reinforcement Fiber Length on the Mechanical Behavior of Biomimicked Composites** **Technical Paper Publication.** IMECE2016-65202 – *Seyed Allameh, Northern Kentucky Univ, Highland Heights, KY, United States* **10:51AM – Self-cleaning Mechanism of Gecko Feet and Biomimetic Micromanipulators** **Technical Presentation.** IMECE2016-65924 – *Yiyang Wan, Zhenhai Xia, University of North Texas, Denton, TX, United States* **11:12AM – Towards A Safer Design of Helmets - Finite Element and Experimental Assessment** **Technical Paper Publication.** IMECE2016-66778 – *Sarah Siblini, Sari Kassar, Bilal Wehbi, Omar Abro, Mutasem Shehadeh, American University of Beirut, Beirut, Lebanon* **11:33AM – Architectures of Soft Robot Locomotion, Part I** **Technical Presentation.** IMECE2016-66794 – *Zhu Liangliang, Xi Chen, Columbia University, new york, NY, United States* **11:54AM – Architectures of Soft Robot Locomotion, Part II** **Technical Presentation.** IMECE2016-66798 – *Zhu Liangliang, Xi Chen, Columbia University, New York, NY, United States*

TIME

10:30AM–12:15PM

11-22-2 MODELING, SIMULATION AND DESIGN OF MULTIFUNCTIONAL MATERIALS - II

ROOM 226A

Session Organizer: Jun Xu, Beihang University, Beijing, China

Session Co-Organizer: Ling Liu, Utah State University ENGR 419R, Logan, UT, United States

10:30AM – Thermal Characteristics and Strength of Resin Composite Materials Containing Microencapsulated Phase Change Material (MPCM) for Thermal Management of Mobile Devices
Technical Presentation. IMECE2016-66457 – *Yusuke Tomizawa, Hokkaido University, Sapporo, Hokkaido, Japan, Katsuhiko Sasaki, Hokkaido Univ, Sapporo 0608628, Hokkaido, Japan, Akiyoshi Kuroda, Ryo Takeda, Hokkaido University, Sapporo, Hokkaido, Japan*

10:51AM – Computational Design and Development of Alumina-nickel droplet Composites
Technical Paper Publication. IMECE2016-67071 – *Syed Sohail Akhtar, Department of Mechanical Engineering, King Fahad University of Petroleum & Miner, Dhahran, Saudi Arabia, Abul Fazal M. Arif, King Fahd Univ of Petroleum & Minerals (KFUPM), Dhahran, Saudi Arabia, M. Usama Siddiqui, King Fahd University of Petroleum & Minerals, Dhahran, Saudi Arabia, LEMBOYE TAIWO Kareem, KABEER RAZA, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, Saudi Arabia, Abbas Saeed Hakeem, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia, Dhahran, Please Select, Saudi Arabia*

11:12AM – Multi-physics modelling of Lithium-ion Battery subject to Nail Penetration
Technical Presentation. IMECE2016-65791 – *Binghe Liu, Beijing University of Aeronautics and Astronautics, Beijing, China, Jun Xu, Beihang University, Beijing, China*

11:33AM – DESIGN OF BROADBAND ACOUSTIC CLOAK USING TOPOLOGY OPTIMIZATION
Technical Paper Publication. IMECE2016-68135 – *Weiyang Lin, University of Tennessee, Chattanooga, TN, United States, James C. Newman III, W. Kyle Anderson, University of Tennessee at Chattanooga, Chattanooga, TN, United States*

11:54AM – Improving Low-Energy B/N Ion Implantation in Graphene by Ion Bombardment at Oblique Angles
Technical Presentation. IMECE2016-65751 – *Zhitong Bai, Lin Zhang, Utah State University, LOGAN, UT, United States*

12:15PM – Charge-induced water patterns on graphene: A molecular dynamics study
Technical Presentation. IMECE2016-67279 – *Feng Hao, Xi Chen, Columbia University, New York, NY, United States*

11-24-1 MULTIFUNCTIONAL MATERIALS IN EXTREME ENVIRONMENTS - I

ROOM 225A

Session Organizer: Baoxing Xu, University of Virginia, Charlottesville, VA, United States

Session Co-Organizer: Weiyi Lu, Michigan State University, East Lansing, MI, United States, Jie Yin, Temple University, Haverford, PA, United States

10:30AM – Multifunctional and Flexible Fabric Sensors for Human Performance and Health Monitoring
Invited Presentation. IMECE2016-65556 – *Kenneth Loh, Sumit Gupta, Long Wang, University of California, San Diego, La Jolla, CA, United States, Helen Koo, University of California, UC Davis, Davis, CA, United States*

11:12AM – Thermal Gradient on Hybrid Composite Propellant Tank Materials at Cryogenic Temperatures
Technical Paper Publication. IMECE2016-65727 – *Raudel Avila, Md Shariful Islam, University of Texas At El Paso, El Paso, TX, United States, Pavana Prabhakar, University of Wisconsin-Madison, Madison, TX, United States*

11:33AM – Tunable Elastic Properties of a Two-Dimensional Cellular Material with a Star-shaped Re-entrant Microstructure
Technical Presentation. IMECE2016-65973 – *Li Ai, Xin-Lin Gao, Southern Methodist University, Dallas, Upper Volta Africa*

11-24-2 MULTIFUNCTIONAL MATERIALS IN EXTREME ENVIRONMENTS - II

ROOM 231B

10:30AM – Bioinspired Catecholic Flame Retardant: Investigation of Thermal Degradation with Flexible Polyurethane Foam
Technical Presentation. IMECE2016-68624 – *Bonnie C. Roberts, Amanda R. Jones, Ofodike A. Ezekoye, Christopher J. Ellison, Michael E. Webber, The University of Texas At Austin, Austin, TX, United States*

10:51AM – A Hybrid Elastomeric Foam-core/Solid-shell Spherical Structure for Enhanced Energy Absorption Performance
Technical Presentation. IMECE2016-66637 – *Baoxing Xu, University of Virginia, Charlottesville, VA, United States*

11:12AM – Design of unit geometry in kirigami metamaterials for extreme expandability and compactness
Technical Presentation. IMECE2016-66970 – *Yichao Tang, Temple University, Philadelphia, PA, United States, Jie Yin, Temple University, Haverford, PA, United States*

11:33AM – Buckling Profile of a Thin Elastic Rod Embedded In a Fractured Elastic Medium
Technical Presentation. IMECE2016-67970 – *Amir Mohammadi Nasab, University of Nevada, Reno, Reno, NV, United States, Zi Chen, Dartmouth College, Hanover, NH, United States, Wanliang Shan, University of Nevada Reno, Reno, NV, United States*

11-27-3 ELECTROCHEMICAL AND THERMAL ENERGY CONVERSION AND STORAGE 3

ROOM 226B

Session Organizer: Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States

Session Co-Organizer: Michael T. Pettes, University of Connecticut, Storrs, CT, United States, Huanyu Cheng, Pennsylvania State University, University Park, PA, United States

10:30AM – Edible supercapacitors
Technical Presentation. IMECE2016-68109 – *Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States, Xu Wang, Wenwen Xu, Prithwish Chatterjee, Arizona State University, Tempe, AZ, United States*

10:51AM – Using Gas-Phase Methods for Silicon Nanorod Growth
Technical Presentation. IMECE2016-66969 – *Alborz Izadi, Rebecca Anthony, Michigan State University, East Lansing, MI, United States*

11:12AM – Prediction of a Two-dimensional Trisulfur Dinitride (S3N2) Solid for Nanoscale Optoelectronic Applications
Technical Presentation. IMECE2016-67698 – *Hang Xiao, Xi Chen, Columbia University, New York, NY, United States*

11:33AM – Hydrothermal Synthesis of PZT Nanocrystals for Energy Applications
Technical Presentation. IMECE2016-67958 – *Mrinal Saha, Wenyuan Luo, Ian Byrne, Yingtao Liu, University of Oklahoma, Norman, OK, United States*

TIME	
1:30PM–3:15PM	**11-12-7 MODELING MATERIAL PROCESSING, PROPERTIES.** **ROOM 227C** *Session Organizer: Jie Shen, University of Michigan, Dearborn, MI, United States* **1:30PM – Two-Scale Thermo-crystal Plasticity Finite Element Analysis of Dynamic-Recrystallization Texture Evolution** **Technical Paper Publication.** IMECE2016-66437 – *Yuhei Ueda, Yu Goto, Doshisha University, Kyotanabe, Kyoto, Japan, Yoshihiro Tomita, Kobe University, Kobe 651 2277, Japan, Yusuke Morita, Doshisha University, Kyotanabe, Kyoto, Japan, Eiji Nakamachi, Doshisha Univ, Kyotanabe, Kyoto, Japan, Toshihiko Yamaguchi, Doshisha University, Osaka, Japan* **1:51PM – AFM study of mechanical and tribological properties of magnesium-ceramics nano-layered thin films.** **Technical Paper Publication.** IMECE2016-67227 – *Svitlana Fialkova, Ruben Kotoka, NC A&T SU, Greensboro, NC, United States, Sergey Yarmolenko, NC A & T Su, Greensboro, NC, United States, Jagannathan Sankar, North Carolina A&T State Univ, Greensboro, NC, United States* **2:12PM – Scale Effect in Axisymmetric FEM Simulation of Hot Micro-Extrusion of Aluminum Alloys** **Technical Paper Publication.** IMECE2016-67546 – *André L.M. Costa, Federal University of Sergipe, São Cristóvão, Sergipe, Brazil, Henry S. Valberg, Norwegian University of Science and Technology, Trondheim, Norway, Wojciech Z. Misiolek, Lehigh University, Bethlehem, PA, United States* **2:33PM – Development of a New Dynamic Modulus Predictive Model Based on Binder Viscosity for the Superpave Mixtures of New Mexico** **Technical Paper Publication.** IMECE2016-66317 – *A.S.M. Rahman, The University of New Mexico, Albuquerque, NM, United States, Rafiqul Tarefder, University of New Mexico, Albuquerque, NM, United States* **2:54PM – Exergy Analysis of Metal Cutting Processes** **Technical Paper Publication.** IMECE2016-68035 – *Mohamed Gadalla, American Univ of Sharjah, Sharjah, United Arab Emir., Salman Pervaiz, Ameerican University of Sharjah, Sharjah, Sharjah, United Arab Emir.*	**11-14-1 MODELING AND ANALYTICAL INVESTIGATIONS** **ROOM 228B** *Session Organizer: Mohammed Zikry, North Carolina State Univ, Raleigh, NC, United States* *Session Co-Organizer: Ram Mohan, North Carolina A&T, Greensboro, NC, United States, Xi Chen, Columbia University, New York, NY, United States* **1:30PM – Oxidation-induced negative Poisson?s ratio of phosphorene: A first-principles study** **Technical Presentation.** IMECE2016-66127 – *Feng Hao, Xi Chen, Columbia University, New York, NY, United States* **1:51PM – Self-Assembly of Protruding Islands on Spherical Substrates by Surface Instability** **Technical Paper Publication.** IMECE2016-66221 – *Xiangbiao Liao, Xi Chen, Columbia University, New York, NY, United States* **2:12PM – Modeling of the Heterogeneous Behavior and Fracture Degradation of Organic Thin-Film Polymers** **Technical Presentation.** IMECE2016-68239 – *B. Zhao, North Carolina State University, Raleigh, NC, United States, Mohammed Zikry, North Carolina State Univ, Raleigh, NC, United States* **2:33PM – Constitutive Stiffness of Cement Paste as a Multi-Phase Material Chemistry Level Composite System** **Technical Presentation.** IMECE2016-68620 – *Ingrid Padilla, North Carolina A&T State University, Greensboro, NC, United States, Ram Mohan, North Carolina A&T, Greensboro, NC, United States, John Murill, North Carolina A&T State University, Greensboro, NC, United States, Wayne Hodo, US Army - ERDC, Vicksburg, MS, United States*
	11-31-1 MODELING AND EXPERIMENTAL CHARACTERIZATION OF POLYMERS AND COMPOSITES **ROOM 228A** *Session Organizer: Frank J. Shih, Seattle Univ, Seattle, WA, United States* **1:30PM – Strain Localization In Determining the Constitutive Response of Polymers** **Technical Paper Publication.** IMECE2016-65147 – *Soondo Kweon, Southern Illinois University Edwardsville, Edwardsville, IL, United States, Ahmed Amine Benzerga, Texas A&M Univ, College Station, TX, United States* **1:51PM – Mechanical Properties of GF/CF Hybrid ABS Composite by DFFIM** **Technical Paper Publication.** IMECE2016-66280 – *Yuuki Hisakura, Kenichi Kitahara, KONICA MINOLTA, INC., Toyokawa-shi, Japan, Makoto Sugihara, KONICAMINOLTA,INC., Toyokawa-shi, Japan, Akihiko IMAJO, Hiroyuki HAMADA, Kyoto Institute of Technology, kyoto, Japan* **2:12PM – Characterization of Mechanical Properties of Date Palm Frond Reinforced Composites** **Technical Paper Publication.** IMECE2016-66573 – *Khalid Alzebdeh, Mahmmoud Nassar, Hani Al Rawahi, Nasr Al-Hinai, Sultan Qaboos University, Al-Khod, Oman* **2:33PM – A New Evolution Equation for Nonlinear Maxwell Models with Rotational Retardation** **Technical Presentation.** IMECE2016-65472 – *Donggang Yao, Georgia Institute of Technology School of Materials Science and Engineering, Atlanta, GA, United States* **2:54PM – Experimental Characterization of Low Velocity Impact Energy Dissipation in Sandwich Composites with Porous Cores with Tailored Structure and Morphology** **Technical Paper Publication.** IMECE2016-67901 – *Kerry V. Lane, Nathan K. Yasuda, Michael E. Lo, Emily R. Mather, Seattle University, Seattle, WA, United States, Frank J. Shih, Seattle Univ, Seattle, WA, United States*	**11-36-1 SYMPOSIUM PART I** **ROOM 229A** *Session Organizer: Huajian Gao, Brown Univ, Providence, RI, United States* *Session Co-Organizer: Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States, Yong Zhu, North Carolina State University, Raleigh, NC, United States* **1:30PM – Puncture of Silicone Rubber Membranes by Rigid Cylindrical Indenters** **Technical Presentation.** IMECE2016-67658 – *Shaoxing Qu, Zhejiang University, Hangzhou, Zhejiang, Zhejiang, China, Junjie Liu, Zhe Chen, Zhejiang University, Hangzhou, China* **1:51PM – Stable fatigue response of nanotwinned metals governed by correlated necklace dislocations** **Technical Presentation.** IMECE2016-68444 – *Haofei Zhou, Huajian Gao, Brown Univ, Providence, RI, United States* **2:12PM – Origami and Kirigami-based Reconfigurable Structures** **Technical Presentation.** IMECE2016-68518 – *Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States* **2:33PM – Wearable tattoo electronics capable of dissolving in the human body** **Technical Presentation.** IMECE2016-68584 – *Huanyu Cheng, Pennsylvania State University, University Park, PA, United States*

TIME

3:45PM–5:30PM

11-12-8 MODELING MATERIALS PROCESSING-II

ROOM 227C

Session Organizer: Raghu Prakash, Indian Institute of Technology Madras, Chennai, Tamilnadu, India

11-14-2 EXPERIMENTAL INVESTIGATIONS

ROOM 228B

Session Organizer: Wayne Hodo, US Army - ERDC, Vicksburg, MS, United States

Session Co-Organizer: Ali Ghahremaninezhad, University of Miami, Coral Gables, FL, United States

3:45PM – Seed Layer Mediated Crystallization of Amorphous Intermetallic Films to Obtain Tailored Microstructures
Technical Presentation. IMECE2016-66995 – *Rohit Sarkar, Arizona State University, Tempe, AZ, United States, Amith Darbal, NanoMEGAS USA, Tempe, AZ, United States, Jagannathan Rajagopalan, Arizona State University, Tempe, AZ, United States*

4:06PM – Effects of Structure and Property Variations within Hierarchal Biomineralized Composites Using Finite Element Methods
Technical Paper Publication. IMECE2016-67612 – *Matt Nelms, University of Mississippi, Oxford, MS, United States, Kenneth Livi, Bryan Crawford, Johns Hopkins University, Baltimore, MD, United States, Arunchalam Rajendran, University of Mississippi, University, MS, United States, Wayne Hodo, US Army - ERDC, Vicksburg, MS, United States*

4:27PM – Structure-Mechanical Property Relations of Layered Polymer Nanocomposite
Technical Presentation. IMECE2016-67614 – *Ali Ghahremaninezhad, Kristina Carlson, University of Miami, Coral Gables, FL, United States*

4:48PM – Multiscale Experimental Characterization of the Delamination Resistant Mechanisms Found In The Biomineralized Exoskeleton Fish Scale Composite
Technical Paper Publication. IMECE2016-67724 – *Wayne Hodo, US Army - ERDC, Vicksburg, MS, United States, Matt Nelms, University of Mississippi, Oxford, MS, United States, Bryan Crawford, Kenneth Livi, Johns Hopkins University, Baltimore, MD, United States, Arunchalam Rajendran, University of Mississippi, University, MS, United States*

5:09PM – MULTISCALE EXPERIMENTAL CHARACTERIZATION OF THE DELAMINATION RESISTANT MECHANISMS FOUND IN THE BIOMINERALIZED EXOSKELETON FISH SCALE COMPOSITE
Technical Presentation. IMECE2016-68448 – *Wayne Hodo, US Army - ERDC, Vicksburg, MS, United States*

11-31-2 SIMULATION AND PROPERTIES OF POLYMERS AND COMPOSITES

ROOM 228A

Session Organizer: Frank J. Shih, Seattle Univ, Seattle, WA, United States

3:45PM – MECHANICAL PROPERTIES OF GLASS FIBER REINFORCED PET COMPOSITES MADE BY DFFIM
Technical Paper Publication. IMECE2016-66276 – *Wiranphat Thodsaratpreeyakul, Kyoto Institute of Technology, kyoto, Japan, Akio Kataoka, Hirofumi Ichikawa, NIHON YUKI Co.,Ltd, kanagawa, Japan, Akihiko IMAJO, Takanori Negoro, Kyoto Institute of Technology, kyoto, Japan, Putinun Uawongsuwan, King Mongkut's University of Technology North Bangkok, Bangkok, Thailand, Supaphorn Thumsorn, Hiroyuki Inoya, Hiroyuki Hamada, Kyoto Institute of Technology, kyoto, Japan*

4:06PM – Characterization and Prediction of Fiber Orientation in Short Fiber Reinforced Thermoplastics
Technical Presentation. IMECE2016-66391 – *Matthias Morak, Daniel Tscharnuter, Polymer Competence Center Leoben GmbH, Leoben, Austria, Thomas Lucyshyn, Montanuniversitaet Leoben, Leoben, Austria, Thomas Gross, Robin Steinberger, Hirtenberger Automotive Safety GmbH & Co KG, Hirtenberg, Austria, Michael Göttlinger, HILTI AG, Kaufering, Germany, Wolfram Hahn, HILTI AG, Schaan, Liechtenstein*

4:27PM – Reconfigurable Polymer Surfaces
Technical Presentation. IMECE2016-67042 – *Lewis Cox, Chen Wang, University of Colorado, Boulder, CO, United States, Zhengwei Li, University of Colorado Boulder, Boulder, CO, United States, Xiaohao Sun, Nancy Sowan, University of Colorado, Boulder, CO, United States, Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States, Jason Killgore, NIST, Boulder, CO, United States, Rong Long, University of Colorado Boulder, Boulder, CO, United States, Christopher Bowman, Yifu Ding, University of Colorado, Boulder, CO, United States*

4:48PM – Identification of shear properties for woven fiber reinforced polymer simulation
Technical Paper Publication. IMECE2016-66263 – *Yang Dongyang, Tsinghua University, Beijing City, Beijing, China, Benoit Stalin, Yong Xia, Qing Zhou, Tsinghua University, Beijing, China*

11-36-2 SYMPOSIUM PART II

ROOM 229A

Session Organizer: Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States

Session Co-Organizer: Yong Zhu, North Carolina State University, Raleigh, NC, United States, Huajian Gao, Brown Univ, Providence, RI, United States

3:45PM – Understanding Confinement and Interfaces in Structural Nanocomposites
Technical Presentation. IMECE2016-68454 – *Sinan Keten, Northwestern Univ, Evanston, IL, United States*

4:06PM – Time-Scaling in Atomistics and the Rate-Dependent Mechanical Behavior of Nanostructures
Technical Presentation. IMECE2016-68507 – *Xin Yan, Pradeep Sharma, University of Houston, Houston, TX, United States*

4:27PM – One-Dimensional Nanomaterials for Stretchable Electronics
Technical Presentation. IMECE2016-68531 – *Yong Zhu, North Carolina State University, Raleigh, NC, United States*

4:48PM – Third-Order Polynomials Model for Analyzing Multilayer Hard/Soft Materials in Flexible Electronics
Technical Presentation. IMECE2016-68692 – *Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States*

TIME

10:30AM–12:15PM

12-1-1 PERIDYNAMIC MATERIAL MODELING

ROOM 226B

Session Organizer: Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States

Session Co-Organizer: John Foster, The University of Texas At Austin, Austin, TX, United States

10:30AM – Combined Lagrangian and Eulerian Approaches in Peridynamic Material Modeling
Technical Presentation. IMECE2016-68046 – *Stewart Silling, Sandia National Lab, Albuquerque, NM, United States*

10:51AM – A Mechanical Sub-Element Formulation of Plasticity in Ordinary State-Based Peridynamics
Technical Presentation. IMECE2016-65884 – *Sayna Ebrahimi, UC Berkeley, Berkeley, CA, United States, Michael Taylor, Santa Clara University, Santa Clara, CA, United States, David Steigmann, UC Berkeley, Berkeley, CA, United States*

11:12AM – A variational approach to couple peridynamics with traditional finite elements
Technical Presentation. IMECE2016-65551 – *Erdogan Madenci, Atila Barut, University of Arizona, Tucson, AZ, United States, Nam Phan, US NAVY, Patuxent River, MD, United States*

11:33AM – Surface effect analysis and correction in peridynamics
Technical Presentation. IMECE2016-66796 – *Pablo Seleson, Oak Ridge National Laboratory, Oak Ridge, TN, United States*

11:54AM – Advantages of using the constructive peridynamic kernel for elasticity
Technical Presentation. IMECE2016-68060 – *Ziguang Chen, Drew Bakenhus, University of Nebraska-Lincoln, Lincoln, NE, United States, Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States*

12-3-1 MULTI-PHYSICS SIMULATION AND EXPERIMENTS OF FOR SOLIDS - I

ROOM 227A

Session Organizer: Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States

Session Co-Organizer: Yashashree Kulkarni, University of Houston, Houston, TX, United States

10:30AM – Suspended Mirco-Origami
Technical Presentation. IMECE2016-68110 – *Hanqing Jiang, Arizona State Univ, Tempe, AZ, United States, Zeming Song, Arizona State University, Tempe, AZ, United States*

10:51AM – Effect of Impurities on Grain Boundary Motion from Interface Random Walk
Technical Presentation. IMECE2016-68642 – *Dengke Chen, Georgia Institute of Technology, Atlanta, GA, United States, Yashashree Kulkarni, University of Houston, Houston, TX, United States*

11:12AM – Multiscale Simulation of Thermal Transport in Heterogeneous Materials under Transient Heat Pulse Loadings
Technical Presentation. IMECE2016-67121 – *Xiang Chen, University of Florida, Gainesville, FL, United States, Liming Xiong, Iowa State University, Ames, IA, United States, Youping Chen, University of Florida, Gainesville, FL, United States*

11:33AM – Carbon Nanotube Sheet Scrolled Fiber Composite for Enhancement in Interfacial Shear Strength
Technical Presentation. IMECE2016-65736 – *Tingge Xu, Gyu-ho Kim, University of Texas at Dallas, Richardson, TX, United States, Jing Lu, Huaqiao University, Xiamen, Fujian, China, Huiyang Luo, Ray Baughman, University of Texas at Dallas, Richardson, TX, United States, Samit Roy, Univ Of Alabama, Tuscaloosa, AL, United States, Hongbing Lu, University of Texas, Richardson, TX, United States*

11:54AM – Nonlinear Magnetoelastic Laser Shock Response: Experimental and Numerical Analysis
Technical Presentation. IMECE2016-68674 – *John Domann, Ryan Crum, Vijay Gupta, Greg Carman, University of California, Los Angeles, Los Angeles, CA, United States*

12-4-1 MULTI-SCALE COMPUTATIONS I

ROOM 228B

Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States

Session Co-Organizer: Glaucio Paulino, University of Illinois, Urbana, IL, United States, Karel Matous, University of Notre Dame, Notre Dame, IN, United States

10:30AM – Effective Material Properties of a Composite with Uncoated and Coated Inhomogeneities
Technical Presentation. IMECE2016-65196 – *Yozo Mikata, Bechtel, Niskayuna, NY, United States*

10:51AM – Micromechanics of random heterogeneous materials. New background, opportunities and prospects.
Technical Paper Publication. IMECE2016-65840 – *Valeriy Buryachenko, Micromechanics & Composites LLC, Dayton, OH, United States*

11:12AM – Micromechanical Analysis for Thermal Stresses in Heterogeneous Materials
Technical Presentation. IMECE2016-66305 – *Seiichi Nomura, University of Texas, Arlington, TX, United States*

11:33AM – An Adaptive Interface-Enriched Generalized Finite Element Scheme for the Multiscale Analysis of Heterogeneous Materials with Complex Microstructures
Technical Presentation. IMECE2016-66382 – *David Brandyberry, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Masoud Safdari, Department of Aerospace Engineering, University of Illinois, Urbana, IL, United States, Qi Dang, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Philippe Geubelle, University of Illinois, Urbana, IL, United States*

11:54AM – Virtual Materials Design
Technical Presentation. IMECE2016-68370 – *Karel Matous, University of Notre Dame, Notre Dame, IN, United States*

12-7-1 INSTABILITIES IN MICRO-STRUCTURED MATERIALS

ROOM 228A

Session Organizer: Ryan S. Elliott, University of Minnesota, Minneapolis, MN, United States

Session Co-Organizer: Stavros Gaitanaros, Johns Hopkins University, Baltimore, MD, United States

10:30AM – Dynamics of Multistable Structures: From Domain Evolution and Switching to Phase Transitions
Technical Presentation. IMECE2016-68443 – *Michael Frazier, Dennis Kochmann, California Institute of Technology, Pasadena, CA, United States*

10:51AM – LOCALIZATION OF DEFORMATION AND LOSS OF MACROSCOPIC ELLIPTICITY IN MICROSTRUCTURED SOLIDS
Technical Presentation. IMECE2016-68336 – *Guang Yang WEN, Solid Mechanics Laboratory, Palaiseau, France, Nicolas Triantafyllidis, Ecole Polytechnique, Palaiseau, France*

11:12AM – Atomistic Simulations of Instability in Silicon under Pressure and Shear
Technical Presentation. IMECE2016-67149 – *Valery I. Levitas, Hao Chen, Liming Xiong, Iowa State University, Ames, IA, United States*

11:33AM – On the compressive response of open-cell polydisperse foams
Technical Presentation. IMECE2016-68668 – *Stavros Gaitanaros, Johns Hopkins University, Baltimore, MD, United States, Stelios Kyriakides, University of Texas, Austin, TX, United States, Andrew Kraynik, Sandia National Labs (retired), Albuquerque, NM, United States*

11:54AM – Multiaxial Crushing of Open Cell Foams
Technical Presentation. IMECE2016-68407 – *Chenglin Yang, University of Texas at Austin, Austin, TX, United States, Stelios Kyriakides, University of Texas, Austin, TX, United States*

TIME

10:30AM–12:15PM

12-12-1 FULL-FIELD EXPERIMENTAL TECHNIQUES FOR QUANTIFYING FRACTURE & FAILURE

ROOM 222A

Session Organizer: Leslie Lamberson, Drexel University, Philadelphia, PA, United States

Session Co-Organizer: Natasha Vermaak, Lehigh University, Bethlehem, PA, United States, Ali Ghahremaninezhad, University of Miami, Coral Gables, FL, United States, Veronica Eliasson, Univ. of Southern California, Los Angeles, CA, United States

10:30AM – Gap Effects on Porosity and Mechanical Performance of Laser Welds
Technical Presentation. IMECE2016-65740 – *Helena (huiqing) Jin, Kevin Nelson, Sandia National Lab, Livermore, CA, United States, Jonathan Madison, Sandia National Lab NM, Albuquerque, NM, United States, James Foulk, Sandia National Lab, Livermore, CA, United States, Scott Murawski, Kansas City Plant, Kansas City, MO, United States*

10:51AM – Loading Rate Effects on Crack Penetration vs. Branching at a Weak Interface in Brittle Bilayers: An Optical Study
Technical Presentation. IMECE2016-65873 – *Balamurugan M. Sundaram, Auburn University, Auburn, AL, United States, Hareesh Tippur, Auburn Univ, Auburn, AL, United States*

11:12AM – Stress Corrosion Cracking in Generic Aluminum Foil under 3.5% NaCl Solution
Technical Paper Publication. IMECE2016-66296 – *Eduardo Garcia, University of Texas at El Paso, El Paso, TX, United States, Calvin M Stewart, The University of Texas At El Paso, El Paso, TX, United States*

11:33AM – LARGE DEFORMATION MEASUREMENT USING DIGITAL IMAGE CORRELATION TECHNIQUE DURING AXIAL CRUSHING OF AN EXTRUDED AA-6063 TUBE
Technical Paper Publication. IMECE2016-66339 – *Arunkumar Sudalaiyandi, Indian Space Research Organization, Chennai, Tamilnadu, India, Ramesh Krishnamurthi, Indian Institute, Chennai, Tamilnadu, Tamilnadu, India, Raghu Prakash, Indian Institute of Technology Madras, Chennai, Tamilnadu, India*

12-14-1 DEFORMATION AND FAILURE OF ENERGY MATERIALS

ROOM 222B

Session Organizer: Siva Nadimpalli, New Jersey Institute of Technology, Newark, NJ, United States

Session Co-Organizer: Ali Ghahremaninezhad, University of Miami, Coral Gables, FL, United States, Huck Beng Chew, University of Illinois at Urbana-Champaign, Urbana-Champaign, IL, United States, Hsiao-Ying Shadow Huang, North Carolina State University, Raleigh, NC, United States, Shuman Xia, Georgia Institute of Technology, Atlanta, GA, United States

10:30AM – Numerical Investigation of the Cyclic Performance of a Silicon Half-cell
Technical Presentation. IMECE2016-68314 – *Xiaoxuan Zhang, Christian Linder, Stanford University, STANFORD, CA, United States*

10:51AM – Compliant Multifunctional Skin Materials for Harvesting and Utilizing Solar Energy in Aerospace Applications
Technical Presentation. IMECE2016-65925 – *Hugh Bruck, Univ of Maryland, College Park, MD, United States, Satyandra Gupta, University of Maryland-College Park, College Park, MD, United States, Alex Holness, University of Maryland, Silver Spring, MD, United States*

11:12AM – Numerical Investigation of Chemo-Mechanical Coupling in Amorphous Si Anodes
Technical Presentation. IMECE2016-66195 – *Miao Wang, Xinran Xiao, Michigan State University, Lansing, MI, United States*

11:33AM – Chemo-Mechanical Modeling of Nanoindentation of LixSi Alloys in Lithium Ion Battery
Technical Presentation. IMECE2016-67003 – *HUI YANG, Jianmin Qu, Tufts University, Medford, MA, United States*

11:54AM – Debonding at the interface between active particles in Li-ion batteries
Technical Presentation. IMECE2016-67333 – *Wei Lu, University of Michigan, Ann Arbor, MI, United States, Seungjun Lee, Dongguk University, Seoul, Korea (Republic)*

12-26-1 MULTIFUNCTIONAL AND MICRO/NANO-STRUCTURED MATERIALS: MODELING AND CHARACTERIZATION (I)

ROOM 226A

Session Organizer: Xin-Lin Gao, Southern Methodist University, Dallas, TX, United States

Session Co-Organizer: Lifeng Wang, State University of New York at Stony Brook, Stony Brook, NY, United States

10:30AM – Flexible Sensing Skins using Multiscale Carbon Components for Co-Robots
Technical Presentation. IMECE2016-66878 – *Hugh Bruck, Univ of Maryland, College Park, MD, United States, Elisabeth Smela, Miao Yu, Ying Chen, Joshua Spokes, Eli Barnett, University of Maryland, College Park, MD, United States*

10:51AM – Mechanical Strength Responses of Poled Lead Zirconate Titanate under Extreme Electric Field and Various Temperature Conditions
Technical Paper Publication. IMECE2016-67310 – *Hong Wang, Oak Ridge National Laboratory, Oak Ridge, TN, United States, Tadashi Matsunaga, Ube Industries, Ltd, Yamaguchi-Pref, Japan, Kewei Zhang, Hua-Tay Lin, Andrew Wereszczak, Oak Ridge National Laboratory, Oak Ridge, TN, United States*

11:12AM – Tunable Superhydrophobic Surfaces with Robust Adhesion by Crumpled Graphene Paper
Technical Presentation. IMECE2016-67874 – *Changyong Cao, Yaying Feng, Jianfeng Zang, Duke University, Durham, NC, United States, Xuanhe Zhao, MIT, Cambridge, MA, United States*

11:33AM – A Universal Theoretical Model for Wettability-driven Motion of Droplet on Solid Surfaces
Technical Presentation. IMECE2016-67063 – *Qingchang Liu, Baoxing Xu, University of Virginia, Charlottesville, VA, United States*

11:54AM – Characterization of Interlaminar Fracture Properties of Advanced Polymer Matrix Composites Interleaved with Buckypaper
Technical Paper Publication. IMECE2016-66943 – *Masoud Yekani Fard, John Woodward, Siddhant Datta, Arizona State University, Tempe, AZ, United States, Brian Raji, Pipe Reconstruction, Scottsdale, AZ, United States, Aditi Chattopadhyay, Arizona State Univ, Tempe, AZ, United States*

12-27-1 DURABILITY AND LIFE PREDICTION OF ADVANCED MATERIALS

ROOM 222C

Session Organizer: Mohammad Kamal Hossain, Tuskegee University, Tuskegee, AL, United States

Session Co-Organizer: Hassan Mahfuz, Florida Atlantic University, Boca Raton, FL, United States

10:30AM – Design Optimisation And Life Estimation Of Split Hub Geometry Of FSAE Car
Technical Paper Publication. IMECE2016-66981 – *Suraj R, Pavan Kumar AV, Varun S Kumar, Nikhil Manjunath, Harish Nagaraj, Nitte Meenakshi Institute Of Technology, Bangalore, Choose, India*

10:51AM – COMPARISONS OF BENDING STIFFNESS OF 3D PRINTED SAMPLES OF DIFFERENT MATERIALS
Technical Paper Publication. IMECE2016-65119 – *Mahbub Ahmed, Md Islam, Justin Vanhoose, Lionel Hewavitharana, Aaron Stanich, Southern Arkansas University, Magnolia, AR, United States, Mohammad Kamal Hossain, Tuskegee University, Tuskegee, AL, United States*

11:12AM – Observations on the Residual Martensite Phase of NiTi Shape Memory Alloy Micro-tubes under Uniaxial and Multiaxial Fatigue-loadings
Technical Paper Publication. IMECE2016-65478 – *Di Song, University of Electronic Science and Technology of China, Chengdu, China, Guozheng Kang, Qianhua Kan, Chao Yu, Southwest Jiaotong University, Chengdu, China*

11:33AM – Viscoelastic Properties of Carbon/Epoxy-Amino-Functionalized Graphene Nanoplatelet Composite
Technical Paper Publication. IMECE2016-67856 – *Mohammad Kamal Hossain, Md. Mahmudur R. Chowdhury, Tuskegee University, Tuskegee, AL, United States, Mahesh Hosur, Tuskegee Univ, Tuskegee, AL, United States, Nydeia Bolden, Air Force Research Laboratory Munitions Directorate, Eglin AFB, FL, United States*

11:54AM – Deformation and Failure Mechanisms of Austenitic Piping Under the Influence of Oxyhydrogen Reactions
Technical Paper Publication. IMECE2016-66692 – *Stefan Offermanns, Stefan Weihe, University of Stuttgart, Stuttgart, Germany*

TIME	
10:30AM–12:15PM	

12-29-1 MECHANICAL METAMATERIALS - MECHANICS, DESIGN, AND MANUFACTURING

ROOM 221C

Session Organizer: Jaehyung Ju, Shanghai Jiao Tong University, Shanghai, China

Session Co-Organizer: Jongmin Shim, University at Buffalo, Buffalo, NY, United States, Yaning Li, University of New Hampshire, Durham, NH, United States

10:30AM – Instability-induced pattern transformation in diatomic soft granular crystals
Technical Presentation. IMECE2016-66179 – *Bodhi Rudra, ABM Tahidul Haque, University at Buffalo, Buffalo, NY, United States, Yaning Li, University of New Hampshire, Durham, NH, United States, Jongmin Shim, University at Buffalo, Buffalo, NY, United States*

10:51AM – Optimal Sinusoidal Cellular Structures for Energy Absorption
Technical Paper Publication. IMECE2016-66824 – *Yunyao Jiang, Yaning Li, University of New Hampshire, Durham, NH, United States*

11:12AM – Thermo-mechanically tunable metamaterials with compliant porous structures
Technical Presentation. IMECE2016-68302 – *Hyeonu Heo, Ye Kang, University of North Texas, Denton, TX, United States, Jaehyung Ju, Shanghai Jiao Tong University, Shanghai, China*

11:33AM – Evaluating Analytical Models For Failure In Metallic Square Honeycomb Structures
Technical Presentation. IMECE2016-68580 – *Ziv Arzt, Natasha Vermaak, Lehigh University, Bethlehem, PA, United States*

11:54AM – Design, Fabrication, and Testing of Low-Density, High-Strength, Defect Resistant Materials
Technical Presentation. IMECE2016-68664 – *Andrew Gross, Harvard, Cambridge, MA, United States, Katia Bertoldi, Harvard University, Cambridge, MA, United States*

12-31-1 MECHANICAL CHARACTERIZATION IN EXTREME TEMPERATURE ENVIRONMENTS

ROOM 225A

Session Organizer: Ryan B. Berke, Utah State University, Logan, UT, United States

Session Co-Organizer: Natasha Vermaak, Lehigh University, Bethlehem, PA, United States

10:30AM – The Hardness Prediction of Ion-irradiated Metals by Nanoindentation: A Theoretical Model and Finite Element Simulation
Technical Presentation. IMECE2016-66146 – *Xiazi Xiao, HUI YANG, Tufts University, Medford, MA, United States, Huiling Duan, Peking Univ, Beijing, China, Jianmin Qu, Tufts University, Medford, MA, United States*

10:51AM – Experiments and Simulation in Ni-based Superalloys Failure at High Temperatures
Technical Presentation. IMECE2016-67464 – *Thomas Siegmund, Purdue Univ, West Lafayette, IN, United States, Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States, Jamie J. Kruzic, Oregon State University, Corvallis, OR, United States, Trung Nguyen, Philipp Seiler, Purdue University, West Lafayette, IN, United States*

11:12AM – Thermomechanical Behavior Assessment Of Stainless Steel During Thermal Shocks Using Optical Methods
Technical Presentation. IMECE2016-68510 – *Ali Charbal, Lehigh University, Bethlehem, PA, United States, Ludovic Vincent, CEA-Saclay, Gif-sur-Yvette, France, France, Francois Hild, Stéphane Roux, Lmt-Cachan, Cachan, France*

11:33AM – Full-field Thermal Strain Measurements on Graphite at Extreme Temperatures
Technical Presentation. IMECE2016-68656 – *Ryan B. Berke, Thinh Thai, Ethan Nickerson, Utah State University, Logan, UT, United States*

11:54AM – Mechanical Testing and Irradiation Assisted Stress Corrosion Cracking testing capability at INL
Technical Presentation. IMECE2016-68688 – *Michael P Heighes, Sebastien P Teysseyre, John H Jackson, Idaho National Laboratory, Idaho Falls, ID, United States*

12-34-1 FATIGUE AND FRACTURE OF JOINING METHODS FOR LIGHTWEIGHT AND HIGH STRENGTH MATERIALS I

ROOM 225B

Session Organizer: J. Brian Jordon, The University of Alabama, Tuscaloosa, AL, United States

Session Co-Organizer: Kiran Solanki, Arizona State University, Tempe, AZ, United States

10:30AM – STRUCTURAL STRESS CORRECTION METHODS FOR LINEAR ELASTIC FINITE ELEMENT ANALYSIS OF SPOT WELDED JOINTS
Technical Paper Publication. IMECE2016-66884 – *Hong-tae Kang, The University of Michigan, Dearborn, MI, United States, Xiao Wu, The University of Michigan-Dearborn, Dearborn, MI, United States*

10:51AM – The Strength of Dissimilar Fractal Joints
Technical Paper Publication. IMECE2016-66830 – *Mona Monsef Khoshhesab, Yaning Li, University of New Hampshire, Durham, NH, United States*

11:12AM – Characterization of Adhesive Joints under Shock-Wave Loading
Technical Paper Publication. IMECE2016-66757 – *Salih Yildiz, The City College of New York, New York, NY, United States, Daniel Shaffren, US Army TARDEC, Warren, MI, United States, Doug Jahnke, The City College of New York, New York, NY, United States, Feridun Delale, City College, New York, NY, United States, Yiannis Andreopoulos, The City College of New York, New York, NY, United States*

11:33AM – Characterization of Adhesive Materials Under High Strain Rate Loading
Technical Paper Publication. IMECE2016-66729 – *Kenneth Gollins, Jack Chiu, The City College of New York, New York, NY, United States, Daniel Shaffren, US Army TARDEC, Warren, MI, United States, Feridun Delale, City College, New York, NY, United States, Niell Elvin, Benjamin Liaw, The City College of New York, New York, NY, United States*

12-36-1 HETEROGENEOUS STRUCTURES

ROOM 223

Session Organizer: Shuodao Wang, Oklahoma State Univ, Stillwater, OK, United States

10:30AM – Characterization of the Mechanical Behavior of Tympanic Membranes after Exposure to Blast Waves Using Fluorescent Micro-Stereo Digital Image Correlation
Technical Presentation. IMECE2016-68645 – *Zhenxing Hu, Tingge Xu, Junfeng Liang, The University of Texas at Dallas, Richardson, TX, United States, Huiyang Luo, University of Texas at Dallas, Richardson, TX, United States, Don Nakmali, Rong Z. Gan, University of Oklahoma, Norman, OK, United States, Hongbing Lu, University of Texas, Richardson, TX, United States*

10:51AM – Harnessing Surface Wrinkling-Cracking Patterns for Optical Applications
Technical Presentation. IMECE2016-68720 – *Zhengwei Li, Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States*

11:12AM – Mechanics in Stretchable, Nano-Networks of Copper Wires with Superior Mechanical Properties
Technical Presentation. IMECE2016-68136 – *Shuodao Wang, Oklahoma State Univ, Stillwater, OK, United States*

11:33AM – Design of Composite Systems for Wear Performance
Technical Presentation. IMECE2016-68504 – *Xiu Jia, Mark Sidebottom, Brandon Krick, Natasha Vermaak, Lehigh University, Bethlehem, PA, United States*

11:54AM – Compression properties and failure mechanisms of stitched sandwich composites
Technical Paper Publication. IMECE2016-68011 – *Jing Chen, Duoqi Shi, Yuchao Guo, Xiaoguang Yang, Shuangqi Lv, Hongyu Qi, Beihang University, Beijing, China*

TIME		
10:30AM–12:15PM	**12-37-1 SOFT ELECTRONICS AND STRUCTURES** **ROOM 224A** *Session Organizer: Cunjiang Yu, University of Houston, Pearland, TX, United States* **10:30AM – Tunable electrical conductivity of embossed cellulose-based paper** **Technical Presentation.** IMECE2016-67645 – *Tongfen Liang, Xiyue Zou, Yunjian Cui, Jingjin Xie, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States* **10:51AM – A SOFT GRIPPER WITH RIGIDITY TUNABLE MULTIFUNCTIONAL COMPOSITES AS TENDON** **Technical Presentation.** IMECE2016-68114 – *Amir Nasab, Amin Sabzezar, Milad Tatari, University of Nevada, Reno, Reno, NV, United States, Wanliang Shan, University of Nevada Reno, Reno, NV, United States* **11:12AM – A mechanically driven form of Kirigami as a route to 3D mesostructures in micro/nanomembranes** **Technical Presentation.** IMECE2016-68146 – *Yonggang Huang, Northwestern Univ, Evanston, IL, United States* **11:33AM – Multifunctional Highly Stretchable 3D Architectures** **Technical Presentation.** IMECE2016-68376 – *Qiming Wang, University of Southern California, Los Angeles, CA, United States* **11:54AM – Strain-dependent and hysteretic resistance of stretchable carbon nanotube electrodes under cyclic loadings** **Technical Presentation.** IMECE2016-68564 – *Lihua Jin, Alex Chortos, Christian Linder, Zhenan Bao, Wei Cai, Stanford University, Stanford, CA, United States*	**12-38-1 MEDALIST SYMPOSIUM** **ROOM 224B** *Session Organizer: Balakumar Balachandran, Univ Of Maryland, College Park, MD, United States* **10:30AM – Multi-Particle Statistics in Fully Resolved Simulation of Disperse Flows** **Invited Presentation.** IMECE2016-67278 – *Andrea Prosperetti, University of Houston, Houston, TX, United States, Adam Sierakowski, Daniel Willen, Yayun Wang, Johns Hopkins University, Baltimore, MD, United States* **11:12AM – The Advancement of Ruga Mechanics and Its Applications in Molecular Engineering** **Technical Presentation.** IMECE2016-68662 – *Kyung-Suk Kim, Brown University, Providence, RI, United States*
	12-50-1 CONSTITUTIVE/CHARACTERIZATION OF ENERGETIC MATERIALS I **ROOM 229A** *Session Organizer: Cheng Liu, Los Alamos National Laboratory, Los Alamos, NM, United States* *Session Co-Organizer: Suhithi Peiris, AFRL-RW, Shalimar, FL, United States* **10:30AM – Meso-macro scale experimental study of compaction wave propagation in polymer bonded explosives** **Technical Presentation.** IMECE2016-68663 – *Suraj Ravindran, Peter Malchow, Addis Tessema, Addis Kidane, University of South Carolina, Columbia, SC, United States* **10:51AM – Sample Size Effects When Determining Mechanical Properties Of Surrogate Energetic Materials From Low Frequency Base Excitation Tests** **Technical Presentation.** IMECE2016-68699 – *Jelena Paripovic, Allison Range, Jaylon Tucker, Patricia Davies, Purdue University, West Lafayette, IN, United States* **11:12AM – Modeling Energy Localization Mechanisms During Low-Speed Compaction of a Dispersed Energetic Powder** **Technical Presentation.** IMECE2016-68522 – *Otmar Yakaboski, Univ. of Florida, Gainesville, FL, United States* **11:33AM – Localized Heating due to Stress Concentrations Induced in a Lossy Elastic Medium via the Scattering of Compressional Waves by a Rigid Spherical Inclusion** **Technical Paper Publication.** IMECE2016-68219 – *Jesus Mares, Jr., Purdue University, West Lafayette, IN, United States, Daniel Woods, Purdue University, Carrollton, KY, United States, Caroline Baker, Steven Son, Jeffrey Rhoads, J. Stuart Bolton, Purdue University, West Lafayette, IN, United States, Marcial Gonzalez, Purdue University, Lafayette, IN, United States*	**12-53-1 DAMAGE AND FAILURE MECHANICS: MULTISCALE APPROACH, EXPERIMENTAL CHARACTERIZATION, AND MODELING I** **ROOM 229B** *Session Organizer: Kiran Solanki, Arizona State University, Tempe, AZ, United States* *Session Co-Organizer: Mark Tschopp, Army Research Laboratory, Aberdeen Proving Ground, MD, United States* **10:30AM – Back-stress strengthening and strain hardening in heterogeneous materials** **Technical Presentation.** IMECE2016-68358 – *Xiaolei Wu, Institute of Mechanics, Chinese Academy of Sciences,, Beijing, China, Yuntian Zhu, NC State University, Raleigh, NC, United States* **11:12AM – Recoverable Plasticity in Twinned Metallic Nanowires** **Technical Presentation.** IMECE2016-68534 – *Yong Zhu, North Carolina State University, Raleigh, NC, United States* **11:33AM – Mechanical properties of a high strength Cu?Ta composite** **Technical Presentation.** IMECE2016-68397 – *Kris Darling, ARL, Aberdeen, MD, United States, Emily Huskins, USNA, Annapolis, MD, United States, Brian Schuster, ARL, Aberdeen, MD, United States, Qiuming Wei, UNCC, Charlotte, NC, United States, Laszlo Kecskes, ARL, Aberdeen, MD, United States*

TIME		
10:30AM–12:15PM	**12-54-1 HIGH RATE EFFECTS AND MATERIALS** **ROOM 227B** *Session Organizer: Arunchalam Rajendran, University of Mississippi, University, MS, United States* *Session Co-Organizer: Peter Chung, University of Maryland, College Park, MD, United States* **10:30AM – Anisotropic Boundary Condition Development and Implementation for Highly Heterogeneous Biomineralized Fish Scale Layered Composites** **Technical Paper Publication.** IMECE2016-67746 – *Matt Nelms, University of Mississippi, Oxford, MS, United States, Ram Mohan, Ajit Kelkar, North Carolina A&T, Greensboro, NC, United States, Arunchalam Rajendran, University of Mississippi, University, MS, United States, Wayne Hodo, US Army - ERDC, Vicksburg, MS, United States* **10:51AM – Mesoscale Modeling of Dynamic Failure of Metallic Materials** **Technical Presentation.** IMECE2016-68044 – *Garvit Agarwal, Avinash Dongare, University of Connecticut, Storrs, CT, United States* **11:12AM – Spall Failure of Nanocrystalline Cu-Ta Systems at the Atomic Scales** **Technical Presentation.** IMECE2016-68059 – *Jie Chen, University of Connecticut, Storrs, CT, United States, Mark Tschopp, Army Research Laboratory, Aberdeen Proving Ground, MD, United States, Avinash Dongare, University of Connecticut, Storrs, CT, United States* **11:33AM – Multiscale Deformation and Damage in Ductile Mg Alloys** **Technical Presentation.** IMECE2016-67234 – *Ali Ghahremaninezhad, Khashayar Farzanian, University of Miami, Coral Gables, FL, United States* **11:54AM – Investigation of Shock Waves Generated by Electrical Wire Explosion** **Technical Paper Publication.** IMECE2016-65491 – *Ben Liu, China University of Petroleum, Beijing, China, Deguo Wang, China University of Petroleum, unk., China, Yanbao Guo, China University of Petroleum, Beijing, China*	**12-55-1 BIOMECHANICS AND SOFT MATERIALS** **ROOM 227C 10:30AM–12:15PM** *Session Organizer: Liping Liu, Rutgers University, Piscataway, NJ, United States* *Session Co-Organizer: Shaoxing Qu, Zhejiang University, Hangzhou, Zhejiang, Zhejiang, China* **10:30AM – A nanomechanical mechanism for lipid bilayer damage induced by carbon nanotubes confined in intracellular vesicles** **Invited Presentation.** IMECE2016-65516 – *Wenpeng Zhu, Annette von dem Bussche, Brown Univ, Providence, RI, United States, Xin Yi, Brown Univ, Riverside, RI, United States, Yang Qiu, Brown Univ, Providence, RI, United States, Zhongying Wang, Brown University, PROVIDENCE, RI, United States, Paula Weston, Brown Univ, Providence, RI, United States, Robert Hurt, Brown University, Providence, RI, United States, Agnes Kane, Huajian Gao, Brown Univ, Providence, RI, United States* **10:51AM – Voltage Induced Wrinkling of an Inflated Dielectric Elastomer Balloon** **Technical Presentation.** IMECE2016-66604 – *Shaoxing Qu, Zhejiang University, Hangzhou, Zhejiang, Zhejiang, China, Guoyong Mao, Xiaoqiang Huang, Junjie Liu, Mazen Diab, Zhejiang University, Hangzhou, China* **11:12AM – Growth morphology of molecular materials** **Technical Presentation.** IMECE2016-67266 – *Wei Lu, University of Michigan, Ann Arbor, MI, United States* **11:33AM – Micro 3D Printing of Soft Active Materials** **Technical Presentation.** IMECE2016-67859 – *Howon Lee, Daehoon Han, Chen Yang, Rutgers University, Piscataway, NJ, United States* **11:54AM – Interfacial Mechanics of a Monolayer Graphene** **Technical Presentation.** IMECE2016-68533 – *Yong Zhu, North Carolina State University, Raleigh, NC, United States*
	12-56-1 MECHANICS OF BIOLOGICAL TISSUES I **ROOM 226C** *Session Organizer: Eliot Fang, Sandia National Laboratories, Albuquerque ,, NM, United States* **10:30AM – Biomechanics of Knee Soft Tissue Structures and Incorporation into Full Knee Computational Models** **Invited Presentation.** IMECE2016-68660 – *Ellen Arruda, Kaitlyn F. Mallett, Ben Marchi, University of Michigan, Ann Arbor, MI, United States* **11:12AM – Biomechanical and Structural Properties at Tendon-Bone Insertion** **Technical Presentation.** IMECE2016-68497 – *Sandhya Chandrasekaran, NC State, Raleigh, NC, United States, Hsiao-Ying Shadow Huang, North Carolina State University, Raleigh, NC, United States* **11:33AM – Modeling Microstructure of Biological Materials** **Technical Presentation.** IMECE2016-65688 – *Mei Chandler, USACE-ERDC, Vicksburg, MS, United States, Jing-Ru C. Cheng, U.S. Army Engineer Research and Development Center, Vicksburg, MS, United States* **11:54AM – Study on the Mechanical Response of Panicum miliaceum Seedcoat under Quasi-static Compression** **Technical Presentation.** IMECE2016-68548 – *Yaning Li, Benjamin Hasseldine, Chao Gao, Joseph Collins, University of New Hampshire, Durham, NH, United States*	

TIME		
1:30PM–3:15PM	**12-1-2 MATERIAL FAILURE AT THE MICRO-SCALE: INTERFACES AND FRACTURE** **ROOM 231A** *Session Organizer: Erkan Oterkus, University of Strathclyde, Glasgow, United Kingdom* *Session Co-Organizer: Ziguang Chen, University of Nebraska-Lincoln, Lincoln, NE, United States, Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States* **1:30PM – A Simple Way to Couple Peridynamic Grids to FEM Meshes for the Solution of Static Problems** **Technical Presentation.** IMECE2016-68222 – *Ugo Galvanetto, University of Padova, Padova, Italy, Mirco Zaccariotto, University of Padua, Padova, Padova, Italy, Teo Mudric, Arman Shojaei, Soheil Bazazzadeh, Davide Tomasi, University of Padova, Padova, Italy* **1:51PM – Fracture Modelling of Polycrystalline Materials by Using Peridynamics** **Technical Presentation.** IMECE2016-65892 – *Ning Zhu, Dennj De Meo, Cagan Diyaroglu, Erkan Oterkus, Selda Oterkus, University of Strathclyde, Glasgow, United Kingdom* **2:12PM – Peridynamic Mechano-Chemical Modeling of Crack Initiation and Damage Evolution in Stress Corrosion Cracking** **Technical Presentation.** IMECE2016-66993 – *Ziguang Chen, Guanfeng Zhang, Quang Le, Zhanping Xu, University of Nebraska-Lincoln, Lincoln, NE, United States, Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States* **2:33PM – Peridynamic simulations of dynamic fracture across a material interface** **Technical Presentation.** IMECE2016-67361 – *Quang Le, University of Nebraska-Lincoln, Lincoln, NE, United States, Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States* **2:54PM – Intersonic Crack Propagation in Fiber-reinforced Composites by Peridynamics** **Technical Presentation.** IMECE2016-68067 – *Yenan Wang, University of Nebraska-Lincoln, Lincoln, NE, United States, Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States*	**12-2-1 HYDROGEN EMBRITTLEMENT: PART I** **ROOM 230** *Session Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States* **1:30PM – The Role of Grain Boundary Character in H-Assisted Intergranular Fracture** **Invited Presentation.** IMECE2016-65493 – *Matteo Seita, John Hanson, Silvija Gradecak, MIT, Cambridge, MA, United States, Michael Demkowicz, TAMU, College Station, TX, United States* **2:22PM – Hydrogen Embrittlement Susceptibility in Tension and Fatigue of Austenitic Stainless Steels with Variations in Stacking Fault Energy** **Invited Presentation.** IMECE2016-65541 – *Kip O. Findley, Alex L. Ly, Colorado School of Mines, Golden, CO, United States, Brian Somerday, Sandia National Laboratories, Livermore, CA, United States*
	12-3-2 MULTI-PHYSICS SIMULATIONS AND EXPERIMENTS FOR SOLIDS - II **ROOM 227A** *Session Organizer: Dong Qian, University of Texas At Dallas, Dallas, TX, United States* *Session Co-Organizer: Alberto Cuitino, Rutgers University, Piscataway, NJ, United States* **1:30PM – Phase-Field Method of Lithium Dendrite Formation during Electrodeposition** **Technical Paper Publication.** IMECE2016-65538 – *Lei Chen, Mississippi State University, Mississippi State, MS, United States* **1:51PM – Anisotropy of microstructure and inter-particle bonding in compacted soft granular solids** **Technical Presentation.** IMECE2016-68188 – *Alberto Cuitino, Bereket Yohannes, Rutgers University, Piscataway, NJ, United States* **2:12PM – Microstructure Evolution and Deformation Behavior of Powder Materials during Field Assisted Sintering Technique** **Technical Presentation.** IMECE2016-68673 – *Sudipta Biswas, Purdue University, West Lafayette, IN, United States, Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States* **2:33PM – First-principles Calculations and Molecular Dynamics Simulations on Effect of Hydrogen Impurity in Lead Titanate Films** **Technical Paper Publication.** IMECE2016-67796 – *Lin Zhu, Jeong Ho You, Southern Methodist University, Dallas, TX, United States, Jinghong Chen, University of Houston, Houston, TX, United States* **2:54PM – A Computational Study on Microstructural Evolution in Femto-second Laser Shock Material Processing** **Technical Presentation.** IMECE2016-65670 – *Mohammad Karim, University of Texas at Dallas, Richardson, TX, United States, Vijay Vasudevan, University of Cincinnati, Cincinnati, OH, United States, Dong Qian, University of Texas At Dallas, Dallas, TX, United States*	**12-4-2 MULTI-SCALE COMPUTATIONS II** **ROOM 228B** *Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States* *Session Co-Organizer: Glaucio Paulino, University of Illinois, Urbana, IL, United States, Seiichi Nomura, University of Texas, Arlington, TX, United States, Valeriy Buryachenko, Micromechanics & Composites LLC, Dayton, OH, United States* **1:30PM – Dispersion Curves of 1D Phononic Metamaterials: Comparative Study** **Technical Presentation.** IMECE2016-65308 – *Yozo Mikata, Bechtel, Niskayuna, NY, United States* **1:51PM – A Multiscale Analysis of Functionally Graded Piezoelectric Beams** **Technical Presentation.** IMECE2016-65289 – *Chien-hong Lin, Johns Hopkins University, Baltimore, MD, United States, Anastasia Muliana, Texas A&M University, College Station, TX, United States* **2:12PM – Multi-scale Design of Nonlinear Materials Using a NURBS-Based Shape Optimization Method** **Technical Presentation.** IMECE2016-67302 – *Ahmad Najafi, University of Illinois- Champaign, Urbana, IL, United States, Masoud Safdari, Department of Aerospace Engineering, University of Illinois, Urbana, IL, United States, Daniel Tortorelli, Univ Of Illinois/urbana, Urbana, IL, United States, Philippe Geubelle, University of Illinois, Urbana, IL, United States* **2:33PM – A Coarse-Grained Molecular Model to Investigate the Effect of Crystallinity and Texture in Semicrystalline Polymers On Shock Response** **Technical Presentation.** IMECE2016-67566 – *Vipin Agrawal, Yiyang Li, Jay Oswald, Arizona State University, Tempe, AZ, United States*

TIME

1:30PM–3:15PM

12-7-2 BUCKLING AND PATTERN FORMATION IN PERIODIC MEDIA

ROOM 228A

Session Organizer: Dennis Kochmann, California Institute of Technology, Pasadena, CA, United States

Session Co-Organizer: Pedro M. Reis, Massachusetts Institute of Technology, Cambridge, MA, United States

1:30PM – Nonlocal continuum modeling of inelastic periodic truss networks
Technical Presentation. IMECE2016-68352 – *Dennis Kochmann, California Institute of Technology, Pasadena, CA, United States, Albert Desmoulins, Ecole Polytechnique, Palaiseau, France*

1:51PM – Post-bifurcation and stability of a finitely strained hexagonal honeycomb subjected to equi-biaxial in-plane loading
Technical Presentation. IMECE2016-68321 – *Christelle J. Combescure, Ecole Polytechnique, Palaiseau, France, Ryan S. Elliott, University of Minnesota, Minneapolis, MN, United States*

2:12PM – Form-finding through buckling in elastic gridshells
Technical Presentation. IMECE2016-68524 – *Pedro M. Reis, Changyeob Baek, Mohammad K. Jawed, Massachusetts Institute of Technology, Cambridge, MA, United States, Andrew Sageman-Furnas, University of Göttingen, Göttingen, Germany*

2:33PM – Localized Rule of Buckling Deformations of Periodic Square Cells Under Equi-biaxial Compression
Technical Presentation. IMECE2016-68167 – *Hiro Tanaka, Osaka University, Osaka, Japan, Yoji Shibutani, Osaka University, Suita, Osaka, Japan*

2:54PM – Eigenvalue Buckling Analysis of Swelling-Induced Pattern Transformation in Porous Gel Films Constrained on Substrate
Technical Presentation. IMECE2016-68463 – *Dai Okumura, Osaka University, Osaka, Japan, Akishi Kasugai, Nagoya University, Nagoya, Japan*

12-34-2 FATIGUE AND FRACTURE OF JOINING METHODS FOR LIGHTWEIGHT AND HIGH STRENGTH MATERIALS II

ROOM 231B

Session Organizer: Kiran Solanki, Arizona State University, Tempe, AZ, United States

Session Co-Organizer: J. Brian Jordon, The University of Alabama, Tuscaloosa, AL, United States

1:30PM – Microstructural Characterization and Strain Rate Dependence of Solid State Additive Manufactured Inconel 625
Invited Presentation. IMECE2016-68773 – *Paul Allison, University of Alabama, Tuscaloosa, AL, United States*

2:12PM – Exploring The Effect Of Residual Stresses In Dissimilar Aluminum-To-Magnesium Joining Via Self-Pierce Riveting
Technical Presentation. IMECE2016-67517 – *Joao Felipe Carvalho de Moraes, J. Brian Jordon, The University of Alabama, Tuscaloosa, AL, United States*

2:33PM – Fracture Testing and Cohesive Zone Modeling of Automotive Adhesives
Technical Presentation. IMECE2016-68542 – *Sean Teller, Veryst Engineering, Needham, MA, United States, Mark Oliver, Veryst Engineering, Charlestown, MA, United States, Gregory R. Freeburn, Veryst Engineering, Needham, MA, United States*

2:54PM – Low-Cycle Fatigue Testing of Friction Stir Welded AA7050 Aluminum
Technical Presentation. IMECE2016-67780 – *Rogie Rodriguez, Boeing, Huntsville, AL, United States, J. Brian Jordon, The University of Alabama, Tuscaloosa, AL, United States*

12-39-1 DRUCKER MEDALIST SYMPOSIUM I

ROOM 231C

Session Organizer: Qunyang Li, Tsinghua University, Beijing,, China

Session Co-Organizer: Ashraf Bastawros, Iowa State University, Ames, IA, United States

1:30PM – Topological Toughening of graphene and other 2D materials
Technical Presentation. IMECE2016-68445 – *Bo Ni, Jiaoyan Li, Huajian Gao, Brown Univ, Providence, RI, United States*

1:51PM – Direct Experimental Measures of Dynamic Twin Boundary Propagation
Technical Presentation. IMECE2016-68630 – *K.T. Ramesh, Johns Hopkins Univ, Baltimore, MD, United States, Kavan Hazeli, Vignesh Kannan, Johns Hopkins University, Baltimore, MD, United States*

2:12PM – The influence of elastic strain on catalytic activity of metal surfaces
Invited Presentation. IMECE2016-68749 – *Pradeep Guduru, Brown University, Providence, RI, United States*

2:54PM – On Percolation, Jamming, and Shock Waves in Solids
Invited Presentation. IMECE2016-68750 – *Rodney Clifton, Brown Univ, Providence, RI, United States*

12-50-2 CONSTITUTIVE/CHARACTERIZATION OF ENERGETIC MATERIALS II

ROOM 229A

Session Organizer: Addis Kidane, University of South Carolina, Columbia, SC, United States

Session Co-Organizer: David LAMBERT, USAF Research Laboratory (AFRL), Eglin Air Force Base, FL, United States

1:30PM – Optical Diagnostics for Energetic Materials Research
Technical Paper Publication. IMECE2016-67372 – *Michael Hargather, Joshua Smith, James Anderson, Kyle Winter, New Mexico Tech, Socorro, NM, United States*

1:51PM – Mechanical Property Measurements of Energetic Materials at Lawrence Livermore National Laboratory
Technical Presentation. IMECE2016-68695 – *Paul Mirkarimi, Lawrence Livermore National Laboratory, Livemore, CA, United States, S.T. Pease, Lawrence Livermore National Laboratory, Livermore, CA, United States, F.J. Gagliardi7@llnl.gov, Y. Moua, Nicole Anderson, A.J. DeHope, Veronica Harwood, T. Lorenz, Lawrence Livermore national Lab, Livermore, CA, United States, S. Oh, Lawrence Livermore National Laboratory, Livermore, CA, United States*

2:12PM – Effect of Interface Chemistry on Failure of Energetic Material Examined via Nano-Mechanical Raman Spectroscopy and Cohesive Finite Element Method
Technical Presentation. IMECE2016-68566 – *Chandra Prakash, Emre Gunduz, Purdue University, West Lafayette, IN, United States, Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States*

2:33PM – Temperature Sensors for the Real-Time Investigation of Hot-Spots in Shocked Heterogeneous Materials
Technical Presentation. IMECE2016-68476 – *Hergen Eilers, Ray Gunawidjaja, Benjamin Anderson, Washington State University, Spokane, WA, United States*

2:54PM – Modeling the effects of texture on thermal expansion in pressed PBX 9502 components
Technical Paper Publication. IMECE2016-68235 – *Darby Luscher, Miles Buechler, Nathan Miller, Ricardo Schwarz, Darla Thompson, Los Alamos National Laboratory, Los Alamos, NM, United States*

TIME	
1:30PM–3:15PM	

12-51-1 ACTIVE MATERIALS

ROOM 226B

Session Organizer: Christopher Yakacki, The University of Colorado Denver, Denver, CO, United States

Session Co-Organizer: Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States

1:30PM – A Bidirectional Self-Folding Actuator Based on Bilayer Shape Memory Polymer Composite
Technical Presentation. IMECE2016-68651 – *Shuyang Chen, Jing Li, Lichen Fang, Sung Kang, Johns Hopkins University, Baltimore, Malawi*

1:51PM – Effect of Crosslinker Geometry and Flexible Spacer Chemistry on Thermomechanics and Actuation in Main-Chain Liquid-Crystalline Elastomers
Technical Presentation. IMECE2016-68633 – *Christopher Yakacki, The University of Colorado Denver, Denver, CO, United States, Mohand Saed, University of Colorado Denver, Aurora, CO, United States*

2:12PM – Urinary catheter capable of repeated on-demand removal of infectious biofilms via active deformation
Technical Presentation. IMECE2016-68718 – *Changyong Cao, Vrad Levering, phanindhar shivapooja, Howard Levinson, Duke University, Durham, NC, United States, Xuanhe Zhao, MIT, Cambridge, MA, United States, Gabriel Lopez, Duke University, Durham, NC, United States*

2:33PM – A Predictive Parameter for the Shape Memory Behavior of Thermoplastic Polymers
Technical Presentation. IMECE2016-65814 – *Rui Xiao, Hohai University, Nanjing, Jiangsu, China, Christopher Yakacki, The University of Colorado Denver, Denver, CO, United States, Jingkai Guo, Johns Hopkins University, Baltimore, MD, United States, Carl Frick, University of Wyoming, Laramie, WY, United States, Thao Nguyen, The Johns Hopkins University, Baltimore, MD, United States*

2:54PM – Computational Modeling of Electro-Elasto-Capillary Phenomena in Dielectric Elastomers
Technical Presentation. IMECE2016-68345 – *Saman Seifi, Park Harold, Boston University, Boston, MA, United States*

12-53-2 DAMAGE AND FAILURE MECHANICS: MULTISCALE APPROACH, EXPERIMENTAL CHARACTERIZATION, AND MODELING II

ROOM 229B

Session Organizer: Mark Tschopp, Army Research Laboratory, Aberdeen Proving Ground, MD, United States

Session Co-Organizer: Mohsen Asle Zaeem, Missouri University of Science and Technology, Rolla, MO, United States

1:30PM – Use of Spherical Nanoindentation Stress-Strain Protocols in Characterizing Irradiated Samples
Invited Presentation. IMECE2016-68341 – *Surya Kalidindi, Georgia Tech, Atlanta, GA, United States, Siddhartha Pathak, University of Nevada-Reno, Reno, NV, United States, Jordan Weaver, Los Alamos National Lab, Los Alamos, NM, United States, Dipen Patel, Georgia Tech, Atlanta, GA, United States, Nathan Mara, Los Alamos National Lab, Los Alamos, NM, United States*

2:12PM – Assessment of Fatigue Damage in Materials through Multiple Measurement Techniques and Small Size Specimens
Technical Presentation. IMECE2016-68703 – *Raghu Prakash, Indian Institute of Technology Madras, Chennai, Tamilnadu, India*

2:33PM – Measurements and Simulations of Full-Field, Sub-Grain Surface Deformation in Tantalum
Invited Presentation. IMECE2016-68766 – *Corbett Battaile, Sandia National Laboratories, Albuquerque, NM, United States*

12-54-2 MODELING AND EXPERIMENTS IN MECHANICS

ROOM 227B

Session Organizer: Arunchalam Rajendran, University of Mississippi, University, MS, United States

Session Co-Organizer: Peter Chung, University of Maryland, College Park, MD, United States

1:30PM – Levy-Type Boundary Fourier Analysis of Thick Cross-ply Panels with Negative Gaussian Curvature
Technical Presentation. IMECE2016-65281 – *Reaz Chaudhuri, University of Utah, Salt Lake City, UT, United States, A. Sinan Oktem, Gebze Technical University, Kocaeli, Turkey*

1:51PM – Mechanisms for Kink Band Evolution in Polymer Matrix Composites: A Digital Image Correlation and Finite Element Study
Technical Paper Publication. IMECE2016-67482 – *Jay Patel, Pedro Peralta, Arizona State University, Tempe, AZ, United States*

2:12PM – Evaluation of Dynamic Mechanical Test Methods
Technical Paper Publication. IMECE2016-65742 – *Evan L. Breedlove, 3M, St. Paul, MN, United States, Mark Gibson, 3M, St Paul, MN, United States, Aaron T. Hedegaard, Emilie L. Rexeisen, 3M, St. Paul, MN, United States*

2:33PM – A Study on Structural Safety Evaluation Technology for Pressing Rings in a Transformer
Technical Paper Publication. IMECE2016-65246 – *Minok Yun, Hyundai Heavy Industries, Youngin-Si, Korea (Republic), Jinwoo Lee, Hyundai Heavy Industries, Seoul, Korea (Republic), Yeong Cheol Kim, Hyundai Heavy Industries, Youngin-Si, Korea (Republic)*

2:54PM – Optimizing Fluid Production From Porous Media: From Hydraulic Fractures to Plant Roots
Technical Paper Publication. IMECE2016-65773 – *Yunhu Lu, China University of Petroleum (Beijing), Beijing, China, Sriram Chandrashekar, Arizona State University, Tempe, AZ, United States, Kang Ping Chen, Arizona State Univ, Tempe, AZ, United States*

12-55-2 FUNCTIONAL MATERIALS AND MULTISCALE MODELING

ROOM 227C

Session Organizer: Weiqiu Chen, Zhejiang Univ, Hangzhou, China

Session Co-Organizer: Liping Liu, Rutgers University, Piscataway, NJ, United States

1:30PM – Prediction of Mechanical Behaviors of Radiated Fe-Cr Alloys by Plasticity Theory
Technical Presentation. IMECE2016-66295 – *Xiazi Xiao, Tufts University, Medford, MA, United States, Huiling Duan, Peking Univ, Beijing, China, Jianmin Qu, Tufts University, Medford, MA, United States, Dmitry Tenerenty, SCK-CEN, Mol, Belgium*

1:51PM – Failure analysis for 3D four-directional composites based on realistic voxel-based unit cell model
Technical Presentation. IMECE2016-67577 – *Guodong Fang, Jun Liang, Harbin Institute of Technology, Harbin, China*

2:12PM – Advances in the Method of Reverberation-Ray Matrix and its Application to Free Wave Propagation in Laminated Composites with Multifield Coupling
Technical Presentation. IMECE2016-68426 – *Weiqiu Chen, Zhejiang Univ, Hangzhou, China*

2:33PM – Tunability of phononic crystal slabs through instability induced deformation
Technical Presentation. IMECE2016-68532 – *Ronghao BAO, Zhejiang Univeristy, Hangzhou, China, Weiqiu Chen, Zhejiang Univ, Hangzhou, China*

2:54PM – On the multiplicative decomposition for general inelastic processes
Technical Presentation. IMECE2016-68648 – *Celia Reina, University of Pennsylvania, Philadelphia, PA, United States, Sergio Conti, University of Bonn, Bonn, Germany*

TIME	
1:30PM–3:15PM	**12-56-1 MECHANICS OF BIOLOGICAL TISSUES II** **ROOM 226C** *Session Organizer: Zi Chen, Dartmouth College, Hanover, NH, United States* **1:30PM – Invited Talk: Mechanical and Structural Contributions of ECM Constituents to Arterial Mechanics** **Invited Presentation.** IMECE2016-68568 – *Katherine Zhang, Boston University, Boston, MA, United States* **2:12PM – Computational Modeling of Early Brain Morphogenesis** **Technical Presentation.** IMECE2016-68717 – *Zi Chen, Dartmouth College, Hanover, NH, United States, Lina Zhang, Shanghai Jiaotong University, Shanghai, China, Qiaohang Guo, FuJian University of Technology, Fuzhou, China, Nan Hu, Dartmouth College, Hanover, NH, United States, Eric Dai, Washington University, Saint Louis, MO, United States, Nickolas Forsch, University of California, La Jolla, CA, United States, Larry Taber, Washington University, Saint Louis, MO, United States* **2:33PM – Constitutively model the structural-mechanical properties of Jugular venous valve and wall tissue.** **Technical Presentation.** IMECE2016-68494 – *Nayyan Kaul, North Carolina State University, Raleigh,, NC, United States, Hsiao-Ying Shadow Huang, North Carolina State University, Raleigh, NC, United States* **2:54PM – Stress-Relaxation of Collagen Proteolysis in Heart Valve Tissues** **Technical Presentation.** IMECE2016-68446 – *Kaitlyn Barbour, Hsiao-Ying Shadow Huang, North Carolina State University, Raleigh, NC, United States*
3:45PM–5:30PM	**12-4-3 MULTI-SCALE COMPUTATIONS III** **ROOM 228B** *Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States* *Session Co-Organizer: Glaucio Paulino, University of Illinois, Urbana, IL, United States, Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States, Hang Xiao, Columbia University, New York, NY, United States* **3:45PM – A coarse-grained model for simulating inelastic deformation of semicrystalline polyethylene** **Technical Presentation.** IMECE2016-67544 – *Yiyang Li, Vipin Agrawal, Jay Oswald, Arizona State University, Tempe, AZ, United States* **4:06PM – Development of a Transferable Reactive Force Field for Phosphorus** **Technical Presentation.** IMECE2016-68279 – *Hang Xiao, Columbia University, New York, NY, United States* **4:27PM – Electron-phonon Scattering Rates and Joule Heating in Copper at Extreme Low Temperatures** **Technical Presentation.** IMECE2016-65026 – *Tingyue Lan, University at Buffalo, The State University at New York, Buffalo, NY, United States, Tarek Ragab, SUNY at Buffalo, Buffalo, NY, United States, Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States* **4:48PM – CFD Analysis of Particle-Laden Flow Near Wellbore T-junctions** **Technical Presentation.** IMECE2016-67264 – *Jianxin Lu, Andrey Filippov, Florentina Popa, Halliburton, Houston, TX, United States* **12-7-3 INSTABILITIES LEADING TO PLASTICITY, DAMAGE, AND FAILURE IN MATERIALS** **ROOM 228A** *Session Organizer: Stelios Kyriakides, University of Texas, Austin, TX, United States* *Session Co-Organizer: Ryan S. Elliott, University of Minnesota, Minneapolis, MN, United States* **3:45PM – Modeling of the Response and Localized Deformation that Precede Failure Under Combined Tension and Shear** **Technical Presentation.** IMECE2016-68481 – *Kelin Chen, Martin Scales, University of Texas at Austin, Austin, TX, United States, Stelios Kyriakides, University of Texas, Austin, TX, United States* **4:06PM – Effect of size on necking of dynamically loaded notched bars** **Technical Presentation.** IMECE2016-68434 – *Alan Needleman, Texas A&M University, College Station, TX, United States* **4:27PM – Two dimensional evaluation of non-uniform distribution of stress and strain of polycrystalline pure copper specimen with different crystal grain sizes** **Technical Presentation.** IMECE2016-68601 – *Makoto Uchida, Osaka City Univesity, Osaka, Japan, Towa Ueno, Takahiro Abe, Yoshihisa Kaneko, Osaka city university, Osaka, Japan* **4:48PM – Effects of Phase Transformation and Dynamic Material Strength on Hydrodynamic Instability Evolution in Metals** **Technical Presentation.** IMECE2016-67561 – *Saul Opie, Dexin Kong, Elizabeth Fortin, Jenna Lynch, Arizona State University, Tempe, AZ, United States, Eric Loomis, Los Alamos National Laboratory, Los Alamos, NM, United States, Pedro Peralta, Arizona State University, Tempe, AZ, United States* **5:09PM – Localization analysis of damage-plasticity constitutive formulations with associate and non-associate flow rules in modeling of quasi brittle materials** **Technical Presentation.** IMECE2016-68045 – *Mirmohammadreza Mousavi, Masoud D Champiri, University of Houston, Houston, TX, United States, shahriyar beizaee, EMAS GROUP, Los Angeles, CA, United States, Kaspar J Willam, University of houston, houston, TX, United States*

TIME

3:45PM–5:30PM

12-24-1 STUDIES IN HETEROGENEOUS MATERIALS I

ROOM 231A

Session Organizer: Wahyu Lestari, Embry-Riddle Aeronautical University, Prescott, AZ, United States

Session Co-Organizer: Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States, Rani Elhajjar, University of Wisconsin-Milwaukee, Milwaukee, WI, United States, Arun Srinivasa, Texas A&M University, College Station, TX, United States, Anastasia Muliana, Texas A&M University, College Station, TX, United States, Ioannis Chasiotis, Univ Of Illinois, Urbana, IL, United States

3:45PM – Hysteretic Mechanical Responses of Barium Titanate and Barium Titanate-Silver Composites
Technical Presentation. IMECE2016-65869 – *Junwei Xing, Texas A&M Univ., College Station, TX, United States, Miladin Radovic, Anastasia Muliana, Texas A&M University, College Station, TX, United States*

4:06PM – Impulse Optimization in a 2D Packing of Spheres by Selective Placement of Interstitial Intruders
Technical Presentation. IMECE2016-66779 – *Robert Waymel, University of Illinois at Urbana-Champaign, Urbana, IL, United States, M. Salazar de Troya, University of Illinois at Urbana-Champagin, Urbana, IL, United States, Daniel Tortorelli, Univ Of Illinois/urbana, Urbana, IL, United States, John Lambros, University of Illinois at Urbana-Champagin, Urbana, IL, United States*

4:27PM – Strain and damage monitoring technique for CFRP composites using electrical resistance tomography and digital image correlation
Technical Presentation. IMECE2016-67300 – *Wahyu Lestari, Embry-Riddle Aeronautical University, Prescott, AZ, United States, Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States, Samuel Siewert, Embry-Riddle Aeronautical University, Prescott, AZ, United States*

4:48PM – A Gradient-Based Shape Optimization Using an Interface-Enriched Finite Element Method for Electromagnetic Design of Heterogeneous Materials
Technical Presentation. IMECE2016-67399 – *Kedi Zhang, University of Illinois at Urbana-Champaign, URBANA, IL, United States, Philippe Geubelle, University of Illinois, Urbana, IL, United States, Jian-Ming Jin, University of Illinois at Urbana-Champaign, URBANA, IL, United States*

5:09PM – Investigation on structural health monitoring of CFRP composites with Electrical Impedance Tomography and Digital Image Correlation
Technical Presentation. IMECE2016-67433 – *Travis Gildner, University of California, Davis, 95616, CA, United States, Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States*

12-39-2 DRUCKER MEDALIST SYMPOSIUM II

ROOM 231C

Session Organizer: Qunyang Li, Tsinghua University, Beijing,, China

Session Co-Organizer: Ashraf Bastawros, Iowa State University, Ames, IA, United States

3:45PM – Continuum Descriptors of Grain Boundaries: Predictors of Dislocation Emission
Technical Presentation. IMECE2016-68475 – *Huck Beng Chew, University of Illinois at Urbana-Champaign, Urbana-Champaign, IL, United States, Ruizhi Li, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

4:11PM – Brittle versus ductile fracture mechanisms in amorphous lithiated silicon
Technical Presentation. IMECE2016-68541 – *Bin Ding, Xiaoyan Li, Tsinghua University, Beijing, China, Huajian Gao, Brown Univ, Providence, RI, United States*

4:37PM – Cohesive Fracture of Elastically Heterogeneous Materials
Technical Presentation. IMECE2016-68672 – *Shuman Xia, Georgia Institute of Technology, Atlanta, GA, United States*

5:03PM – Application of Fracture Mechanics to the Forensic Match Analysis
Technical Presentation. IMECE2016-68691 – *Ashraf Bastawros, Tianyu Yu, Iowa State University, Ames, IA, United States*

12-50-3 FRACTURE/DAMAGE IN ENERGETIC MATERIALS

ROOM 229A

Session Organizer: Nirmal Kumar Rai, University of Iowa, Iowa City, IA, United States

Session Co-Organizer: Martin Schmidt, AFRL/RWML, Eglin Air Force Base, FL, United States

3:45PM – Modeling dynamic fracture in PBX: A Phase-Field Model
Technical Presentation. IMECE2016-68216 – *Marisol Koslowski, Yuesong Xie, Johanna Palsdottir, Bogdan Tanasoiu, Purdue University, West Lafayette, IN, United States*

4:06PM – Shock Initiation of Fractal Damaged Energetics
Technical Presentation. IMECE2016-68785 – *Joseph Maestas, Applied Research Associates, Inc., Niceville, FL, United States*

4:27PM – Deformation and Failure of Pressed PBX 9502: Effects of Texture
Technical Presentation. IMECE2016-68615 – *Cheng Liu, Darla Thompson, Los Alamos National Laboratory, Los Alamos, NM, United States*

4:48PM – Real-time Visualization of Dynamic Damage Evolution in Energetic Materials
Technical Presentation. IMECE2016-68280 – *Weinong Chen, Michael Harr, Zane Roberts, Emre Gunduz, Niranjan Parab, Steven Son, Purdue University, West Lafayette, IN, United States*

12-53-3 DAMAGE AND FAILURE MECHANICS: MULTISCALE APPROACH, EXPERIMENTAL CHARACTERIZATION, AND MODELING III

ROOM 229B

Session Organizer: Mohsen Asle Zaeem, Missouri University of Science and Technology, Rolla, MO, United States

Session Co-Organizer: Avinash Dongare, University of Connecticut, Storrs, CT, United States

3:45PM – Strain Rate Dependent Failure Of Interfaces In Glass/Epoxy And Energetic Materials At Nano-Microscale
Technical Presentation. IMECE2016-68346 – *Devendra Verma, Chandra Prakash, Purdue University, West Lafayette, IN, United States, Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States*

4:27PM – A Hybrid Multiscale Finite Element/Peridynamics Method
Technical Presentation. IMECE2016-68409 – *Raymond Wildman, George A. Gazonas, James T. O'Grady, US Army Research Laboratory, Aberdeen Proving Ground, MD, United States*

4:48PM – Predicting Ductility of Multi-phase Advanced High Strength Steels with Deformation Instability Theory
Technical Presentation. IMECE2016-68450 – *Guang Cheng, Xin Sun, Pacific Northwest National Laboratory, Richland, WA, United States*

5:09PM – Modeling of Dynamic Failure of Metals at the Atomic Scales and the Mesoscales
Technical Presentation. IMECE2016-68396 – *Avinash Dongare, University of Connecticut, Storrs, CT, United States*

TIME		
3:45PM–5:30PM	**12-55-3 BIOMATERIALS AND FUNCTIONAL MATERIALS** **ROOM 230** *Session Organizer: Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States* *Session Co-Organizer: Huiling Duan, Peking Univ, Beijing, China* **3:45PM – Efficient and Agile Jellyfish-like Vehicles for the Study of Unsteady Hydrodynamic Flapping** **Technical Presentation.** IMECE2016-67817 – *Ke Yang, Melanie Cotton, Jingjin Xie, Yanjun Wang, Xiangyu Gong, Suze Zhang, Chen Yang, Eugene Kim, Robert King, Mhammed Alhayek, Xiyue Zou, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States* **4:06PM – An Approximate Closed-Form Homogenization Solution for the Elastic Dielectric Response of Dielectric Elastomer Composites** **Technical Presentation.** IMECE2016-68408 – *Oscar Lopez-Pamies, Victor Lefevre, University of Illinois at Urbana-Champaign, Urbana, IL, United States* **4:27PM – Origami by frontal photopolymerization** **Technical Presentation.** IMECE2016-68735 – *Jerry Qi, Georgia Tech, Atlanta, GA, United States, Zeang Zhao, Daining Fang, Peking University, Beijing, China* **4:48PM – High Resolution, Large Deformation 3D Traction Force Microscopy** **Technical Presentation.** IMECE2016-65572 – *Jennet Toyjanova, Eyal Bar-Kochba, Brown University, Providence, RI, United States, Cristina Lopez-Fagundo, University of Zurich, Zurich, Switzerland, Diane Hoffman-Kim, Brown University, Providence, RI, United States, Jonathan Reichner, Rhode Island Hospital, Providence, RI, United States, Christian Franck, Brown University, Providence, RI, United States* **5:09PM – Enhancing critical currents in type-II superconductors by magnetic inhomogeneities** **Technical Presentation.** IMECE2016-66168 – *Hanxiong Wang, Liping Liu, Rutgers University, Piscataway, NJ, United States*	**12-56-2 BIOLOGICAL COMPOSITES** **ROOM 231B** *Session Organizer: Emmanuel Ayorinde, Wayne State Univ, Detroit, MI, United States* **3:45PM – GEOMETRICAL AND RELATED EFFECTS ON MEMBRANE META-MATERIALS DESIGN** **Technical Presentation.** IMECE2016-67966 – *Emmanuel Ayorinde, Wayne State Univ, Detroit, MI, United States, Mohammad Al Zubi, Tafila Technical University, Westland, MI, United States, Mehmet Akif DUNDAR, Wayne State University, Detroit, MI, United States* **4:06PM – Theoretical Model for Monitoring the Growth of Fusiform Aortic Aneurysm Using Elastomeric Capacitive Sensor** **Technical Presentation.** IMECE2016-68540 – *Chaofeng Lü, Yangkun Du, Zhejiang University, Hangzhou, China* **4:27PM – Multiscale modeling on cell and nanoparticle transport in tumour microvasculature** **Technical Presentation.** IMECE2016-67709 – *Ying Li, University of Connecticut, Storrs, CT, United States* **4:48PM – Parametric Study of Hydrophobic Dot Shape for Buoyancy and Heat Transfer Rate of Single Bubble Nucleation Boiling** **Technical Presentation.** IMECE2016-66557 – *Jung Shin Lee, Yonsei Univ, Seoul, Korea (Republic), Jonghyun Kim, Joon Sang Lee, Yonsei University, Seoul, Korea (Republic)* **5:09PM – Status and Industrial Uses of Bio-composites** **Technical Presentation.** IMECE2016-67832 – *Gururaj Kathawate, Athena-Engineers, Lake Orion, MI, United States, Emmanuel Ayorinde, Wayne State Univ, Detroit, MI, United States*

TIME	
10:30AM–12:15PM	**12-25-1 LECTURES** **ROOM 226B** *Session Organizer: Yonggang Huang, Northwestern Univ, Evanston, IL, United States* *Session Co-Organizer: Balakumar Balachandran, Univ Of Maryland, College Park, MD, United States* **10:30AM – Mechanics of Soft Composites: The Interplay between Geometrical Structuring and Large Deformation to Achieve Novel Behavior** **Track Plenary Presentation.** IMECE2016-68756 – *Mary Boyce, Columbia University, New York, NY, United States* **11:22AM – Koiter Medal Lecture: Nonlinear Composites: A Guided Tour** **Invited Presentation.** IMECE2016-68762 – *Pedro Ponte Castañeda, University of Pennsylvania, Philadelphia, PA, United States*
1:30PM–3:15PM	**12-1-3 COMPUTING FRACTURE EVOLUTION IN MATERIALS AND STRUCTURES** **ROOM 232A** *Session Organizer: David Littlewood, Sandia National Laboratories, Albuquerque, NM, United States* *Session Co-Organizer: Quang Le, University of Nebraska-Lincoln, Lincoln, NE, United States, Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States* **1:30PM – Combined experimental and computational study of small particle impact on glass materials** **Technical Presentation.** IMECE2016-66694 – *Ibrahim Guven, Virginia Commonwealth University, Richmond, VA, United States, Perry A. Gray, NASA Marshall Space Flight Center, Huntsville, AL, United States, Zachary B. Ratliff, Forrest Baber, Rachel Waxman, Virginia Commonwealth University, Richmond, VA, United States* **1:51PM – Identification of Fragments in a Meshfree Peridynamic Simulation** **Technical Paper Publication.** IMECE2016-65400 – *David Littlewood, Sandia National Laboratories, Albuquerque, NM, United States, Stewart Silling, Sandia National Lab, Albuquerque, NM, United States, Paul N. Demmie, Sandia National Laboratories, Albuquerque, NM, United States* **2:12PM – Peridynamic solution of an elasto-plastic plate with failure** **Technical Presentation.** IMECE2016-67352 – *Michael Miraglia, Naval Surface Warfare Center Carderock Division, Bethesda, MD, United States, Erwin Moyer, NSWCCD, Poolesville, MD, United States* **2:33PM – A Peridynamic Model for Thin Shells via Descent from Three-Dimensional State-Based and Bond-Based Peridynamics** **Technical Presentation.** IMECE2016-65886 – *Michael Taylor, Santa Clara University, Santa Clara, CA, United States, Sayna Ebrahimi, David Steigmann, UC Berkeley, Berkeley, CA, United States* **2:54PM – A MOOSE-Based Implicit Peridynamic Thermomechanical Model** **Technical Paper Publication.** IMECE2016-65552 – *Hailong Chen, Idaho National Laboratory, Idaho Falls, ID, United States, Yile Hu, The University of Arizona, Tucson, AZ, United States, Benjamin W. Spencer, Idaho National Laboratory, Idaho Falls, ID, United States* **12-2-2 STRESS CORROSION CRACKING** **ROOM 231A** *Session Organizer: Joe Ronevich, Sandia National Laboratory, Livermore, CA, United States* **1:30PM – Fatigue and Fracture Performance of High Strength Pipeline Steels in High Pressure Hydrogen Gas** **Invited Presentation.** IMECE2016-68439 – *Joe Ronevich, Sandia National Laboratory, Livermore, CA, United States, Chris San Marchi, Sandia National Laboratories, Livermore, CA, United States, Brian Somerday, Southwest Research Institute, San Antonio, TX, United States* **2:12PM – Understanding the Mechanisms of Mitigating Stress Corrosion Cracking and Irradiation Damage of Stainless Steels by Laser Shock Peening** **Invited Presentation.** IMECE2016-68421 – *Bai Cui, Fei Wang, Xiaoxing Qiu, Chenfei Zhang, Yongfeng Lu, Michael Nastasi, University of Nebraska-Lincoln, Lincoln, NE, United States* **2:54PM – Corrosion-induced Damage Layer in ZK60A Magnesium Alloy and its role in stress corrosion cracking** **Technical Presentation.** IMECE2016-67011 – *Shumin Li, Ziguang Chen, Fei Wang, Bai Cui, Li Tan, University of Nebraska-Lincoln, Lincoln, NE, United States, Florin Bobaru, Univ Of Nebraska-Lincoln, Lincoln, NE, United States*

TIME

1:30PM–3:15PM

12-7-4 HARNESSING INSTABILITIES FOR ACTIVE STRUCTURES AND MATERIALS

ROOM 229A

Session Organizer: Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States

Session Co-Organizer: Zi Chen, Dartmouth College, Hanover, NH, United States

1:30PM – Instabilities and Post-bifurcation Behavior in Fiber Composites with Hyperelastic and Rate Dependent Constituents
Technical Presentation. IMECE2016-68558 – *Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States, Viacheslav Slesarenko, Technion, Haifa, Israel*

1:51PM – Harnessing Elastic Instabilities to Design a Flat-Foldable Kirigami Mechanical Metamaterial
Technical Presentation. IMECE2016-68739 – *Ahmad Rafsanjani, Katia Bertoldi, Harvard University, Cambridge, MA, United States*

2:12PM – Tunable Multistability in Thick Panel Origami Structures
Technical Presentation. IMECE2016-68676 – *Zi Chen, Ian Trase, Nan Hu, Shicheng Huang, Walker Chieffe, Dartmouth College, Hanover, NH, United States*

2:33PM – Bistable Helical Ribbons
Technical Presentation. IMECE2016-68719 – *Zi Chen, Ian Trase, Nan Hu, Dartmouth College, Hanover, NH, United States*

2:54PM – Stability of Inflated Toroidal Membranes as the Outer Rim of Inflatable Structures
Technical Presentation. IMECE2016-65585 – *Soham Roychowdhury, Anirvan DasGupta, Indian Institute of Technology Kharagpur, Kharagpur, India*

12-24-2 STUDIES IN HETEROGENEOUS MATERIALS II

ROOM 230

Session Organizer: Anastasia Muliana, Texas A&M University, College Station, TX, United States

Session Co-Organizer: Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States, Wahyu Lestari, Embry-Riddle Aeronautical University, Prescott, AZ, United States, Arun Srinivasa, Texas A&M University, College Station, TX, United States, Rani Elhajjar, University of Wisconsin-Milwaukee, Milwaukee, WI, United States, Ioannis Chasiotis, Univ Of Illinois, Urbana, IL, United States

1:30PM – Extracting Rate Dependent Traction Separation Relations for Interfaces
Technical Presentation. IMECE2016-65894 – *Sundeep Palvadi, The University of Texas-Austin, Austin, TX, United States, Nanshu Lu, University of Texas, Austin, Austin, TX, United States, Kenneth Liechti, University of Texas, Austin, TX, United States*

1:51PM – Constitutive Modeling of the Post-Yield Behavior of Amorphous Polymers Based on the Shear Transformation Theory
Technical Presentation. IMECE2016-65945 – *Aref Samadi-Dooki, George Voyiadjis, Louisiana State University, Baton Rouge, LA, United States*

2:12PM – A Nonlinear Viscoelastic Constitutive Model based on Multiple Natural Configuration Theory
Technical Presentation. IMECE2016-66139 – *Anastasia Muliana, Texas A&M University, College Station, TX, United States, Daniel Tscharnuter, PCCL, Leoben, Austria*

2:33PM – Interconversion of Frequency Domain Complex Modulus to Time Domain Modulus and Compliance of Asphalt Concrete: Numerical Modeling and Laboratory Validation
Technical Paper Publication. IMECE2016-66292 – *A.S.M. Rahman, The University of New Mexico, Albuquerque, NM, United States, Rafiqul Tarefder, University of New Mexico, Albuquerque, NM, United States*

12-26-2 MULTIFUNCTIONAL AND MICRO/NANO-STRUCTURED MATERIALS: MODELING AND CHARACTERIZATION (II)

ROOM 231B

Session Organizer: Xin-Lin Gao, Southern Methodist University, Dallas, TX, United States

Session Co-Organizer: Lifeng Wang, State University of New York at Stony Brook, Stony Brook, NY, United States

1:30PM – STRAIN GRADIENT PLASTICITY FOR INCREMETNAL AND NON-INCREMENTAL THEORIES UNDER NON-PROPORTIONAL LOADING
Technical Presentation. IMECE2016-65643 – *George Voyiadjis, Yooseob Song, Louisiana State University, Baton Rouge, LA, United States*

1:51PM – Modeling of Pentamode Metamaterials
Technical Presentation. IMECE2016-65865 – *Ahmad Gad, Xin-Lin Gao, Southern Methodist University, Dallas, TX, United States*

2:12PM – Vibration Mitigation and Heat Conduction in Hierarchically Architected Metamaterials
Technical Presentation. IMECE2016-65928 – *Lifeng Wang, State University of New York at Stony Brook, Stony Brook, NY, United States, Yanyu Chen, Stony Brook University, Stony Brook, NY, United States, Zian Jia, Stonybrook University, stony brook, NY, United States*

2:33PM – Computational Modeling of Anterior and Posterior Pelvic Organ Prolapse (POP)
Technical Paper Publication. IMECE2016-67949 – *Arnab Chanda, University of Alabama, Tuscaloosa, AL, United States, Holly. E Richter, Mark. E Lockhart, University of Alabama at Birmingham, Birmingham, AL, United States, Vinu Unnikrishnan, University of Alabama, Tuscaloosa, AL, United States*

2:54PM – Boundary Value Problems In The Theory of Thermoelasticity For Triple Porosity Materials
Technical Paper Publication. IMECE2016-65046 – *Merab Svanadze, Ilia State University, Tbilisi, Georgia*

12-50-4 INITIATION/SHOCK FRONT IN ENERGETIC MATERIALS I

ROOM 229B

Session Organizer: Joel Stewart, US Army Research Laboratory, Aberdeen Proving Ground, MD, United States

Session Co-Organizer: Robert Dorgan, Air Force Research Laboratory, Eglin AFB, FL, United States

1:30PM – Computational Framework to Predict Reaction Initiation, Growth, and Detonation in HE Materials
Technical Presentation. IMECE2016-68682 – *Suhithi Peiris, AFRL-RW, Shalimar, FL, United States, Brian Ferri, George W. Woodruff School of Mechanical Engineering, Atlanta, GA, United States, Benjamin Hatanpaa, Kijana Effs, Sunil Dwivedi, School of Materials Science and Engineering, Atlanta, GA, United States, Yasuyuki Horie, Air Force Research Laboratory, Shalimar, FL, United States*

1:51PM – Comparison of Burn Rate Models to Reacting Chemistry Model for HMX
Technical Presentation. IMECE2016-68555 – *Matthew Schwaab, Bryan Steward, Robert Greendyke, Air Force Institute of Technology, Wright-Patterson AFB, OH, United States*

2:12PM – Detonation Initiation of Energetic Materials Using Density-based Kinetics - Towards the Coupling between Micro and Mesoscale
Technical Presentation. IMECE2016-68471 – *Thomas Jackson, University of Florida, Gainesville, FL, United States, Ju Zhang, Florida Institute of Technology, Melbourne, FL, United States*

2:33PM – A Methodology for the Calibration of Continuum Mixture Hydrocodes Using Multiphase Modeling
Technical Presentation. IMECE2016-68514 – *Michael Crochet, University of Dayton Research Institute/AFRL-RWME, Eglin AFB, FL, United States, Sunhee Yoo, Torch Technologies/AFRL, Eglin AFB, FL, United States*

2:54PM – A numerical investigation of detonation shock propagation in heterogeneous explosives
Technical Presentation. IMECE2016-68485 – *Sunhee Yoo, Torch Technologies/AFRL, Eglin AFB, FL, United States, Michael Crochet, University of Dayton Research Institute/AFRL-RWME, Eglin AFB, FL, United States*

TIME		
1:30PM–3:15PM	**12-51-2 3D PRINTED SOFT MATERIALS** **ROOM 231C** *Session Organizer: Howon Lee, Rutgers University, Piscataway, NJ, United States* *Session Co-Organizer: Jerry Qi, Georgia Tech, Atlanta, GA, United States, Yaning Li, University of New Hampshire, Durham, NH, United States, Sung Kang, Johns Hopkins University, Baltimore, MD, United States, Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States* **1:30PM – Invited Talk: 3D Printing of Soft Living Materials, Electronics and Robots. I** **Technical Presentation.** IMECE2016-68459 – *Xuanhe Zhao, MIT, Cambridge, MA, United States* **1:51PM – Invited Talk: 3D Printing of Soft Living Materials, Electronics and Robots. II** **Technical Presentation.** IMECE2016-68460 – *Xuanhe Zhao, MIT, Cambridge, MA, United States* **2:12PM – 3D Printing of Reversible Shape Changing Components** **Technical Presentation.** IMECE2016-68734 – *Jerry Qi, Georgia Tech, Atlanta, GA, United States, Martin Dunn, Singapore University of Technology and Design, Singapore, TX, Singapore* **2:33PM – Tunable Wavy Patterns in 3D Printed Layered Composites Through the Combination of Instabilities and Viscoelasticity** **Technical Presentation.** IMECE2016-68557 – *Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States, Viacheslav Slesarenko, Technion, Haifa, Israel* **2:54PM – 3D Printed Chiral Cellular Composites with Amplified Auxetic Effects due to Elevated Internal Rotation** **Technical Presentation.** IMECE2016-68549 – *Yaning Li, Yunyao Jiang, University of New Hampshire, Durham, NH, United States*	**12-53-4 DAMAGE AND FAILURE MECHANICS: MULTISCALE APPROACH, EXPERIMENTAL CHARACTERIZATION, AND MODELING IV** **ROOM 225B** *Session Organizer: Avinash Dongare, University of Connecticut, Storrs, CT, United States* *Session Co-Organizer: Kiran Solanki, Arizona State University, Tempe, AZ, United States* **1:30PM – Multiscale Approach to Engineering Microstructure in Boron-Based Armor Ceramics** **Technical Presentation.** IMECE2016-68369 – *Mark Tschopp, Army Research Laboratory, Aberdeen Proving Ground, MD, United States, Shawn Coleman, Efrain Hernandez, Army Research Laboratory, APG, MD, United States, DeCarlos Taylor, U. S. Army Research Laboratory, APG, MD, United States, Jennifer Dunn, U.S. Army Research Laboratory, APG, MD, United States* **2:12PM – Plastic Deformation of Yttria-Stabilized Tetragonal Zirconia Nanopillars Mediated by Dislocation Motion and Phase Transformation: A Molecular Dynamics Study** **Technical Presentation.** IMECE2016-68386 – *Ning Zhang, Mohsen Asle Zaeem, Missouri University of Science and Technology, Rolla, MO, United States* **2:33PM – Modeling anisotropic damage evolution in flaw-sensitive brittle materials under compressive loading** **Technical Presentation.** IMECE2016-68513 – *Nitin Daphalapurkar, Ravi Sastri Ayyagari, Johns Hopkins University, Baltimore, MD, United States, K.T. Ramesh, Johns Hopkins Univ, Baltimore, MD, United States* **2:54PM – Molecular Level Mechanisms during Deformation in Nanoscale Hydrated Cement Paste ? Atomistic Modeling Investigations** **Technical Presentation.** IMECE2016-68619 – *Ram Mohan, North Carolina A&T, Greensboro, NC, United States*
3:45PM–5:30PM	**12-2-3 HYDROGEN EMBRITTLEMENT: PART II** **ROOM 231A** *Session Organizer: Ilaksh Adlakha, Arizona State University, Tempe, AZ, United States* **3:45PM – Role of Defect Interactions during Hydrogen Embrittlement in Iron: a Multiscale Perspective** **Invited Presentation.** IMECE2016-68721 – *Ilaksh Adlakha, Kiran Solanki, Arizona State University, Tempe, AZ, United States* **4:27PM – Chemomechanical origin of Hydrogen Trapping at Grain Boundaries** **Invited Presentation.** IMECE2016-68745 – *Jun Song, McGill University,, Montréal, QC, Canada, Xiao Zhou, Daniel Marchand, McGill University, Montreal, QC, Canada, Ting Zhu, Woodruff School Of Mech Eng, Atlanta, GA, United States, David McDowell, Georgia Institute of Technology, Atlanta, GA, United States* **5:09PM – Development of a Phase Field Model in MARMOT to Describe Hydride Precipitation in Zirconium Alloy.** **Technical Presentation.** IMECE2016-68616 – *Pierre-Clement Simon, The Pennsylvania State University - Department of Mechanical and Nuclear Engineering, University Park, PA, United States, Michael Tonks, The Pennsylvania State University, State College, PA, United States, Arthur T. Motta, The Pennsylvania State University, University Park, PA, United States*	**12-7-5 WRINKLE, WAVE, AND KINK INSTABILITIES IN COMPOSITES** **ROOM 229A** *Session Organizer: Victor Birman, Missouri University of Science and Technology, St. Louis, MO, United States* *Session Co-Organizer: Henrik M. Jensen, Aarhus University, 8000 Aarhus C, Denmark* **3:45PM – Control Of Wrinkles Using External Electric Field** **Technical Presentation.** IMECE2016-67141 – *Paul Mazur, Kaushik Bhattacharya, California Institute of Technology, Pasadena, CA, United States* **4:06PM – Compressive failure of defect induced thick wavy carbon composite due to micro-kinking and/or splitting: Experimental and numerical study.** **Technical Presentation.** IMECE2016-68690 – *Paul Davidson, University of Washington, Seattle, WA, United States, Anthony M. Waas, University of Washington - Seattle, Seattle, WA, United States* **4:27PM – Numerical Methods for Kink Band Instabilities in Composites** **Technical Presentation.** IMECE2016-68484 – *Henrik M. Jensen, Aarhus University, 8000 Aarhus C, Denmark* **4:48PM – Surface Instability of Monolayer Graphene Supported by a Polymer Substrate** **Technical Presentation.** IMECE2016-67696 – *Ying Li, University of Connecticut, Storrs, CT, United States* **5:09PM – Wrinkling in Sandwich Structures with a Functionally Graded Core** **Technical Presentation.** IMECE2016-68340 – *Victor Birman, Missouri University of Science and Technology, St. Louis, MO, United States, Nam Vo, Missouri University of Science and Technology, Rolla, MO, United States*

TIME

3:45PM–5:30PM

12-16-1 IMPACT DYNAMICS AT NANOSCALE

ROOM 232A

Session Organizer: Roy Xu, University of New Mexico, Albuquerque, NM, United States

Session Co-Organizer: Jun Xu, Beihang University, Beijing, China

3:45PM – Energy Dissipation Characteristics of One-dimensional Short Single-walled Carbon Nanotube System Subject to Impact
Technical Presentation. IMECE2016-65467 – *Bowen Zheng, Jun Xu, Beihang University, Beijing, China*

4:06PM – A Method of Predicting Effective Interface Properties of Polymer-Metal hybrid Structures by Molecular Dynamics
Technical Paper Publication. IMECE2016-65813 – *Wu Yang, Lingyu Sun, Beihang University, Beijing, China, Hong Yu, Southeast University, Nanjing, China, Lijun Li, Le Shen, Sha Yin, Beihang University, Beijing, China*

4:27PM – Keynote Presentation: Nano Materials for Resilient Electronics Interconnects, Part I
Technical Presentation. IMECE2016-66912 – *Ajit Roy, Air Force Reserach Lab, Dayton, OH, United States, Chenggang Chen, University of Dayton Research Institute, Dayton, OH, United States, Sabyasachi Ganguli, Air Force Research Laboratory, Dayton, OH, United States, Amanda Schrand, Air Force Research Laboratory, Eglin AFB, FL, United States*

4:48PM – Keynote Presentation: Nano Materials for Resilient Electronics Interconnects, Part II
Technical Presentation. IMECE2016-66937 – *Ajit Roy, Air Force Reserach Lab, Dayton, OH, United States, Chenggang Chen, University of Dayton Research Institute, Dayton, OH, United States, Sabyasachi Ganguli, Air Force Research Laboratory, Dayton, OH, United States, Amanda Schrand, Air Force Research Laboratory, Eglin AFB, FL, United States*

12-24-3 STUDIES IN HETEROGENEOUS MATERIALS III

ROOM 230

Session Organizer: Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States

Session Co-Organizer: Wahyu Lestari, Embry-Riddle Aeronautical University, Prescott, AZ, United States, Rani Elhajjar, University of Wisconsin-Milwaukee, Milwaukee, WI, United States, Arun Srinivasa, Texas A&M University, College Station, TX, United States, Ioannis Chasiotis, Univ Of Illinois, Urbana, IL, United States, Anastasia Muliana, Texas A&M University, College Station, TX, United States

3:45PM – A New High Strain-Rate Biaxial Experiment to Validate Constitutive Models for Polymers
Technical Paper Publication. IMECE2016-67112 – *Sean Teller, Eric C. Schmitt, Jorgen S. Bergstrom, Veryst Engineering, Needham, MA, United States*

4:06PM – EFFECT OF THE CONVECTED TERMS IN THE TRANSIENT VISCOELASTIC FLOW
Technical Paper Publication. IMECE2016-67215 – *Iman Haki, Meysam Mohamadali, Nariman Ashrafi, IAU, Tehran, Iran*

4:27PM – Quartz/BMI Sandwich Composites under Concurrent Creep Bending and Immersion into Temperature-controlled Hydraulic Fluid
Technical Presentation. IMECE2016-67908 – *Adriana Henriquez, University of California, Davis, Davis, CA, United States, Travis Gildner, University of California, Davis, 95616, CA, United States, Valeria La Saponara, University of California, Davis, Usa, Davis, CA, United States, Landon Grace, University of Miami, Miami, FL, United States*

4:48PM – Orthotropic viscoelastic behavior of short fiber reinforced polyamide
Technical Presentation. IMECE2016-66438 – *Daniel Tscharnuter, Polymer Competence Center Leoben Gmbh, Leoben, Austria, Gerald Pinter, Montanuniversitaet Leoben, Leoben, Styria, Austria*

12-26-3 MULTIFUNCTIONAL AND MICRO/NANO-STRUCTURED MATERIALS: MODELING AND CHARACTERIZATION (III)

ROOM 231B

Session Organizer: Xin-Lin Gao, Southern Methodist University, Dallas, TX, United States

Session Co-Organizer: Lifeng Wang, State University of New York at Stony Brook, Stony Brook, NY, United States

3:45PM – Fracture and Failure of Co-Continuous Composite Materials: Experiments and Simulation
Technical Presentation. IMECE2016-66968 – *Lifeng Wang, State University of New York at Stony Brook, Stony Brook, NY, United States, Zian Jia, Stonybrook University, stony brook, NY, United States*

4:06PM – FINITE ELEMENT SIMULATION OF PZT-AIDED INTERROGATION OF COMPOSITE LAMINATES EXHIBITING DAMAGE
Technical Paper Publication. IMECE2016-66001 – *amany micheal, Center for Advanced Materials, CAM, the British University in Egypt, BUE, Cairo, Egypt, Yehia Bahei-El-Din, Centre for Advanced Materials, CAM, The British University in Egypt,BUE, Cairo, Egypt*

4:27PM – Fatigue of Coiled Tubing and Its Influencing Factors: A Comparative Study
Technical Paper Publication. IMECE2016-65972 – *Yongqiang Li, Xin-Lin Gao, Southern Methodist University, Dallas, TX, United States, Lideng Ni, GeoMark Technology, Inc., Missouri City, TX, United States, Qiangfa Hu, Yong'an Xin, Jianghan Machinery Research Institute, Jingzhou, Hubei, China*

4:48PM – Multiscale modeling of Mechanical properties of 3D Carbon Nanotube-Graphene Nanostructures
Technical Presentation. IMECE2016-65921 – *Linton Lin, Jianbing Niu, Zhenhai Xia, University of North Texas, Denton, TX, United States*

5:09PM – Prediction of hysteresis of a thermoplastic polyurethane using coarse-grained molecular dynamics
Technical Paper Publication. IMECE2016-65903 – *Md Salah Uddin, University of North Texas, Denton, TX, United States, Jaehyung Ju, Shanghai Jiao Tong University, Shanghai, China*

12-50-5 INITIATION/SHOCK FRONT IN ENERGETIC MATERIALS II

ROOM 229B

Session Organizer: Thomas Jackson, University of Florida, Gainesville, FL, United States

Session Co-Organizer: Sunil Dwivedi, School of Materials Science and Engineering, Atlanta, GA, United States

3:45PM – Effects of Microstructure on Initiation Threshold of HMX Based Materials
Technical Presentation. IMECE2016-68714 – *Eric Welle, Christopher Molek, Air Force Research Laboratory, Eglin AFB, FL, United States, Ryan Wixom, Sandia National Laboratories, Albuquerque, NM, United States*

4:06PM – Numerical Framework for Sensitivity Analysis of Heterogeneous Energetic Materials
Technical Presentation. IMECE2016-68625 – *Nirmal Kumar Rai, University of Iowa, Iowa City, IA, United States, H.S. Udaykumar, The University of Iowa, Iowa City, IA, United States, Martin Schmidt, AFRL/RWML, Eglin Air Force Base, FL, United States, Robert Dorgan, Air Force Research Laboratory, Eglin AFB, FL, United States, Michael Nixon, Jacobs Technology, Destin, FL, United States*

4:27PM – Computationally Established Ignition Thresholds of Pressed and Polymer-Bonded Explosives Subject to Shock Loading
Technical Presentation. IMECE2016-66228 – *Seokpum Kim, Yaochi Wei, Christopher Miller, Georgia Institute of Technology, Atlanta, GA, United States, Yasuyuki Horie, Air Force Research Laboratory, Fort Walton Beach, FL, United States, Christopher Molek, Eric Welle, Air Force Research Laboratory, Eglin AFB, FL, United States, Min Zhou, Georgia Inst Of Tech, Atlanta, GA, United States*

4:48PM – Multiscale simulation of energetic composites using Taylor Galerkin method
Technical Presentation. IMECE2016-68328 – *Adam Duran, University of Michigan Ann Arbor, ann arbor, MI, United States, Veera Sundararaghavan, University Of Michigan, Ann Arbor, MI, United States*

5:09PM – A Kinetic Formulation of Reacting Molecular Dynamics
Technical Paper Publication. IMECE2016-65451 – *Joseph Bass, Eric Fahrenthold, University of Texas, Austin, TX, United States*

TIME	
3:45PM–5:30PM	**12-51-3 STRUCTURES AND INSTABILITIES** **ROOM 231C** *Session Organizer: Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign, Urbana, IL, United States* **3:45PM – Compressive Crushing of 3D Printed Elastomeric Honeycombs** **Technical Presentation.** IMECE2016-68700 – *Royan J. DMello, University of Washington - Seattle, Seattle, WA, United States, Armanj D. Hasanyan, University of Michigan - Ann Arbor, Ann Arbor, MI, United States, Anthony M. Waas, University of Washington - Seattle, Seattle, WA, United States* **4:06PM – Creating reconfigurable logic gate-like metasurfaces via cuts-guided buckling** **Technical Presentation.** IMECE2016-68708 – *Gaojian Lin, Temple University, Philadephia, PA, United States, Dengteng Ge, University of Pennsylvania, philadelphia, PA, United States, Yichao Tang, Temple University, Philadelphia, PA, United States, Shu Yang, University of Pennsylvania, Philadelphia, PA, United States, Jie Yin, Temple University, Haverford, PA, United States* **4:27PM – Programmable Kiri-kirigami Mechanical Metamaterials** **Technical Presentation.** IMECE2016-68706 – *Yichao Tang, Temple University, Philadelphia, PA, United States, Gaojian Lin, Temple University, Philadephia, PA, United States, Shu Yang, Yun Kyu Yi, Randall Kamien, University of Pennsylvania, Philadelphia, PA, United States, Jie Yin, Temple University, Haverford, PA, United States* **4:48PM – Invited talk ARCHITECTED MATERIALS: PERFORMANCE THROUGH BISTABILITY** **Technical Presentation.** IMECE2016-68402 – *Katia Bertoldi, Jordan R. Raney, Harvard University, Cambridge, MA, United States, Dennis Kochmann, California Institute of Technology, Pasadena, CA, United States, Jennifer Lewis, Harvard University, Cambridge, United Arab Emir., Chiara Daraio, ETH Zurich, Zurich, Switzerland, Neel Nadkarni, California Institute of Technology, Pasadena, CA, United States* **5;09PM – Invited talk ARCHITECTED MATERIALS: PERFORMANCE THROUGH BISTABILITY** **Technical Presentation.** IMECE2016-68403 – *Katia Bertoldi, Jordan R. Raney, Harvard University, Cambridge, MA, United States, Dennis Kochmann, Neel Nadkarni, California Institute of Technology, Pasadena, CA, United States, Chiara Daraio, ETH Zurich, Zurich, Switzerland, Jennifer Lewis, Harvard University, Cambridge, United Arab Emir.*

TIME	
10:30AM–12:15PM	**12-25-2 PLENARY** **ROOM 226C** **10:30AM – Why Fracking Works and Why Not Better** **Track Plenary Presentation.** IMECE2016-68757 – *Zdenek Bazant, northwestern university, evanston, IL, United States*
1:30PM–3:15PM	**12-2-4 RADIATION/HIGH TEMPERATURE DAMAGE: PART I** **ROOM 231A** *Session Organizer: Jonathan Zimmerman, Sandia National Laboratories, Livermore, CA, United States* **1:30PM – Influence of Grain Boundary Structure on Segregation of Point Defects, Helium, and Hydrogen** **Invited Presentation.** IMECE2016-68261 – *Mark Tschopp, Army Research Laboratory, Aberdeen Proving Ground, MD, United States, Shawn Coleman, Army Research Laboratory, APG, MD, United States, Kiran Solanki, Arizona State University, Tempe, AZ, United States* **2:12PM – Correlating Grain Boundary Structure to Radiation Damage Tolerance in Nano-grained Metallic Materials** **Invited Presentation.** IMECE2016-68300 – *Garritt Tucker, Jacob Gruber, Greg Vetterick, Mitra L Taheri, Drexel University, Philadelphia, PA, United States* **2:54PM – Atomic Diffusion Induced Damage of Ni-base Superalloy at Elevated Temperature** **Technical Paper Publication.** IMECE2016-67592 – *MOTOKI TAKAHASHI, Ken Suzuki, TOHOKU University, Sendai, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan* **12-16-2 DYNAMIC BEHAVIORS OF MATERIALS AND STRUCTURES: APPLICATION** **ROOM 229B** *Session Organizer: Jun Xu, Beihang University, Beijing, China* *Session Co-Organizer: Roy Xu, University of New Mexico, Albuquerque, NM, United States* **1:30PM – Generic Steel Vehicle Front Bumper and Crush Can Assemblies Subjected to a Rigid High Speed Offset Frontal Impact** **Technical Paper Publication.** IMECE2016-65044 – *Ali Seyed Yaghoubi, Paul Begeman, wayne state university, detroit, MI, United States, Golam Newaz, Wayne State University, Ann Arbor, MI, United States, Derek Board, Yijung Chen, Omar Faruque, Ford Motor Company, Dearborn, MI, United States* **1:51PM – Deciphering the Influence on Confinement Pressure and Strain Rate on Fracture Strength of Ceramics** **Technical Presentation.** IMECE2016-65240 – *Ghatu Subhash, Univ of Florida - Gainesville, Gainesville, FL, United States* **2:12PM – Strength Analysis of AL-7F-1 Engine Turbine Rotor Blade** **Technical Paper Publication.** IMECE2016-65251 – *Marek Klimko, University of West Bohemia, Pilsen, Czech Republic, Lukas Mrozek, Doosan Skoda Power, Pilsen, Czech Republic, Tomas Noga, Jiri Linhart, University of West Bohemia, Pilsen, Czech Republic* **2:33PM – Numerical Mechanical model of 18650 Lithium-ion Battery with Coupled Strain Rate and SOC Dependencies** **Technical Presentation.** IMECE2016-65790 – *Binghe Liu, Beijing University of Aeronautics and Astronautics, Beijing, China, Xinyi Wang, Beijing Forestry University, Beijing, China, Jun Xu, Beihang University, Beijing, China* **12-51-4 MULTIPHYSICS OF SOFT MATERIALS I: HYDROGELS** **ROOM 230** *Session Organizer: Yuhang Hu, University of Illinois At Urbana-Champaign, Urbana, IL, United States* *Session Co-Organizer: Rong Long, University of Colorado Boulder, Boulder, CO, United States* **1:30PM – Mechanical Properties and Length-Scale effects of PEG-Based Hydrogels Measured by Atomic Force Microscopy** **Technical Presentation.** IMECE2016-67061 – *Brian Bush, National Institute of Standards and Technology, Gaithersburg, MD, United States, Megan Cain, West Virginia University, Morgantown, WV, United States, Frank DelRio, National Institute of Standards and Technology, Boulder, CO, United States, Jenna Shapiro, Cambridge University, Cambridge, United Kingdom, Robert F Cook, National Institute of Standards and Technology, Gaithersburg, MD, United States, Michelle Oyen, University of Cambridge, Cambridge, United Kingdom* **1:51PM – Dynamic Oscillation Indentation: a Simple Method to Characterize Local Poroelastic Properties of Soft Hydrated Materials** **Technical Presentation.** IMECE2016-68380 – *Yang Lai, UIUC, Urbana, IL, United States, Yuhang Hu, University of Illinois At Urbana-Champaign, Urbana, IL, United States* **2:12PM – Mechanics of Tough Nanocomposite Hydrogels** **Technical Presentation.** IMECE2016-68375 – *Qiming Wang, University of Southern California, Los Angeles, CA, United States* **2:33PM – Robust, Stretchable and Biocompatible Hydrogel Electronics and Devices** **Technical Presentation.** IMECE2016-68483 – *Shaoting Lin, MIT, Cambridge, MA, United States, Hyunwoo Yuk, Massachusetts Institute of Technology, Cambridge, MA, United States, Teng Zhang, Syracuse University, Providence, RI, United States, Xuanhe Zhao, MIT, Cambridge, MA, United States* **2:54PM – Chemical-Mechanical Interactions of a Hydrogel in a Porous Alkaline Medium** **Technical Presentation.** IMECE2016-67263 – *Ali Ghahremaninezhad, Khashayar Farzanian, University of Miami, Coral Gables, FL, United States*

TRACK 12: Mechanics of Solids, Structures and Fluids

TIME

8:00AM–9:45AM

12-6-1 SYMPOSIUM PART I

ROOM 227A

Session Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

Session Co-Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States

8:00AM – Ricochet of high speed aluminium projectiles from a steel plate
Technical Paper Publication. IMECE2016-65164 – *Bakhtier Farouk, Drexel University, MEM Dept, Philadelphia, PA, United States, Steven B. Segletes, Army Research Laboratory, Aberdeen, MD, United States*

8:21AM – Evaluate the Importance of Shear Modulus in Dynamic FEM of Flexible Pavement considering AC Cross-Anisotropy
Technical Paper Publication. IMECE2016-65183 – *Mesbah Ahmed, Rafiqul Tarefder, University of New Mexico, ALBUQUERQUE, NM, United States*

8:42AM – A super singular element along three-dimensional corner fronts
Technical Paper Publication. IMECE2016-65227 – *Xuecheng Ping, Tianjin University of Science and Technology, Tianjin, China, Mengcheng Chen, Wei Zhu, East China Jiaotong University, Nanchang, China*

9:03AM – Comparing Computational and Experimental Failure of Composites using XFEM
Technical Paper Publication. IMECE2016-65232 – *Andrew Hulton, Paul V. Cavallaro, Naval Undersea Warfare Center, Newport, RI, United States*

9:24AM – Can-Crush Model and Simulations for Verifying Uncertainty Quantification Method for Sparse Stress-Strain Curve Data
Technical Paper Publication. IMECE2016-65245 – *J. Franklin Dempsey, Vicente Romero, Nicole L. Breivik, George E. Orient, Sandia National Laboratories, Albuquerque, NM, United States, Bonnie R. Antoun, Sandia National Laboratories, Livermore, CA, United States, Benjamin B. Schroeder, Justin Winokur, John R. Lewis, Sandia National Laboratories, Albuquerque, NM, United States*

12-6-5 SYMPOSIUM PART V

ROOM 226C

Session Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

Session Co-Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States

8:00AM – Microstructural Modeling of GBs and Fracture in Crystalline Materials
Technical Presentation. IMECE2016-67070 – *David Bond, North Carolina State University, Raleigh, NC, United States, Mohammed Zikry, North Carolina State Univ, Raleigh, NC, United States*

8:21AM – Design of a Turbo Engine Intake Manifold
Technical Paper Publication. IMECE2016-67125 – *Guangwu Tang, Purdue University Calumet, Hammond, IN, United States, Di Wang, LHP International, LLC Wuhan, Wuhan, China, Bin Wu, Purdue University Calumet, Hammond, IN, United States, Yuchao Chen, Purdue University Northwest, Hammond, IN, United States, Xiang Liu, Purdue University Calumet, Hammond, IN, United States, Armin Silaen, Purdue University Northwest, Hammond, IN, United States, Chenn Zhou, Purdue University Calumet, Hammond, IN, United States*

8:42AM – Weldment Analysis of a Diesel Engine Exhaust Manifold
Technical Paper Publication. IMECE2016-67453 – *Masoud Mojtahed, Purdue Univ Calumet, Hammond, IN, United States, Nganh Le, Purdue University Calumet, Hammond, IN, United States, Jerry DeSoto, Purdue University Calumet, Highland, IN, United States*

9:03AM – Modeling Failure of Textile Composites: a Semi-Multiscale Computational Approach
Technical Presentation. IMECE2016-67636 – *Marco Salviato, University of Washington, Seattle, WA, United States*

9:24AM – A New Micromechanical Model and Simulation of Athabasca Oil Sands
Technical Presentation. IMECE2016-68009 – *Eric Gbadam, Missouri University of Science and Technology, Rolla, MO, United States, Samuel Frimpong, Missouri S&T, Rola, MO, United States*

12-8-1 INSTABILITIES IN SOFT MATTER COMPOSITES

ROOM 224B

Session Organizer: Ryan S. Elliott, University of Minnesota, Minneapolis, MN, United States

Session Co-Organizer: Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign, Urbana, IL, United States

8:00AM – Tensile Instability in a Thick Elastic Body
Technical Presentation. IMECE2016-68306 – *Katia Bertoldi, Johannes T.B. Overvelde, Harvard University, Cambridge, MA, United States*

8:21AM – Experiments and Numerics on Magnetorheological Elastomer Film-Substrate Blocks
Technical Presentation. IMECE2016-68502 – *Kostas Danas, CNRS, Ecole Polytechnique, Palaiseau, France*

8:42AM – Effect of substrate pre-stretch on post-wrinkling bifurcations in film/substrate bilayers
Technical Presentation. IMECE2016-68563 – *Lihua Jin, Stanford University, Stanford, CA, United States*

9:03AM – Controlling Pull-in Instabilities in Dielectric Elastomers Via the Addition of Filler Particles
Technical Presentation. IMECE2016-68413 – *Victor Lefevre, Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

9:24AM – Modeling the effect of viscoelasticity on instabilities in soft dielectric materials
Technical Presentation. IMECE2016-68552 – *Shawn Chester, New Jersey Institute of Technology, North Caldwell, NJ, United States, Shuolun Wang, New Jersey Institute of Technology, Newark, NJ, United States, David Henann, Brown University, Providence, RI, United States*

12-11-1 NUMERICAL AND EXPERIMENTAL STUDIES OF ELASTOMERS

ROOM 225A

Session Organizer: Tasneem Pervez, Sultan Qaboos Univ/ College of Engrg, Al-Khoudh, Oman

Session Co-Organizer: Sayyad Zahid Qamar, Sultan Qaboos University, Al-Khodh, Muscat, Oman

8:00AM – Impact Of Ageing On The Material Performance Of HNBR Based Elastomers Used For Oil And Gas Field Applications
Technical Presentation. IMECE2016-65419 – *Bernd Schrittesser, Winoj Balasooriya, Polymer Competence Center Leoben GmbH, Leoben, Styria, Austria, Gerald Pinter, Montanuniversitaet Leoben, Leoben, Styria, Austria, Thomas Schwarz, SKF Sealing Solutions Austria GmbH, Judenburg, Styria, Austria, Zalan Kadar, Tibor Nagy, ContiTech Rubber Industrial Kft., Szeged, Hungary*

8:21AM – Testing of Combined Fast-Swell and Low-Salinity Elastomers Under Replication of Oil-Field Conditions
Technical Presentation. IMECE2016-68474 – *Tasneem Pervez, Sultan Qaboos Univ/College of Engrg, Al-Khoudh, Oman, Sayyad Zahid Qamar, Sultan Qaboos University, Al-Khodh, Muscat, Oman, Omar S. Al-Abri, Sultan Qaboos University, Al-Khoudh, Oman*

8:42AM – Design, Fabrication, and Characterization of a Soft, Multi-Fingered Robotic Hand
Technical Paper Publication. IMECE2016-66175 – *Lena Johnson, University of Maryland-College Park, Silver Spring, MD, United States, Hugh Bruck, Univ of Maryland, College Park, MD, United States, Satyandra Gupta, University of Maryland-College Park, College Park, MD, United States*

9:03AM – Design and Characteristics 0f Multilayer Shape-Adaptive Panels Using Elastomer Embedded with Pneumatic Muscle Fibers
Technical Presentation. IMECE2016-65985 – *Ning Feng, Jian Sun, Harbin Insitute of Technology, Harbin, China, Liwu Liu, Harbin Institute of Technology, Harbin,Heilongjiang, China, Shouhua Sun, Yanju Liu, Harbin Insitute of Technology, Harbin, China, Jinsong Leng, Harbin Institute of Technology, Harbin, China*

9:24AM – Elastomeric Coatings for Cavitation Erosion
Technical Presentation. IMECE2016-67738 – *Alirea V. Amirkhizi, University of Massachusetts, Lowell, Lowell, MA, United States*

TIME

8:00AM–9:45AM

12-16-3 DYNAMIC BEHAVIORS OF COMPOSITE MATERIALS

ROOM 226B

Session Organizer: Leslie Lamberson, Drexel University, Philadelphia, PA, United States

Session Co-Organizer: Akio Yonezu, Chuo University, Japan, Japan

8:00AM – Optimization of impact energy absorption and damage in carbon fiber reinforced composites
Technical Presentation. IMECE2016-67548 – *Ali Nematollahisarvestani, The University of New Mexico, Albuquerque, NM, United States, Mehran Tehrani, University of New Mexico, Albuquerque, NM, United States*

8:21AM – Effect of Steam Blistering on the Compressive Behavior of Unidirectional IM7/BMI Composite at High Strain Rates
Technical Presentation. IMECE2016-65770 – *Huiyang Luo, University of Texas at Dallas, Richardson, TX, United States, Zhenxing Hu, the University of Texas at Dallas, Richardson, TX, United States, Samit Roy, Univ Of Alabama, Tuscaloosa, AL, United States, Hongbing Lu, University of Texas, Richardson, TX, United States*

8:42AM – Modeling Deformation of Polycrystalline Aggregates Across a Wide Range of Strain Rates Using a Multi-Rate Crystal Plasticity FE Model
Technical Presentation. IMECE2016-66084 – *Ahmad Shahba, Xiaohui Tu, Somnath Ghosh, Johns Hopkins University, Baltimore, MD, United States*

9:03AM – Ballistic Impact Response of Ultra-High-Molecular-Weight Polyethylene (UHMWPE) and Kevlar Panels
Technical Presentation. IMECE2016-68186 – *Timothy Zhang, TKC Global Inc, Bel Air, MD, United States, Sikhanda Satapathy, U.S. Army Research Lab, APG, MD, United States*

12-18-1 DUCTILE FRACTURE I

ROOM 227C

Session Organizer: Ankit Srivastava, Texas A&M University, College Station, TX, United States

Session Co-Organizer: Ali Ghahremaninezhad, University of Miami, Coral Gables, FL, United States, Jim Lua, Global Eng. & Mat., Inc., Princeton, NJ, United States, Ahmed Amine Benzerga, Texas A&M Univ, College Station, TX, United States, Shailendra Joshi, National Univ of Singapore, Singapore, Singapore

8:00AM – Void Nucleation and Growth at Grain Boundaries in Copper Bicrystals with Surface Perturbations
Technical Paper Publication. IMECE2016-67649 – *Elizabeth Fortin, Saul Opie, Arizona State University, Tempe, AZ, United States, Andrew Brown, The University of New South Wales, UNSW Canberra, Campbell, ACT, Australia, Jenna Lynch, Arizona State University, Tempe, AZ, United States, Eric Loomis, Los Alamos National Laboratory, Los Alamos, NM, United States, Pedro Peralta, Arizona State University, Tempe, AZ, United States*

8:21AM – Experimental calibration of ISV damage model constants for pure copper for high-speed impact simulation
Technical Paper Publication. IMECE2016-65690 – *Yucheng Liu, Mississippi State University, Mississippi State University, MS, United States, Yangqing Dou, Wilburn Whittington, Mississippi State University, Starkville, MS, United States, Jonathan Miller, Mississippi State University, Mississippi State, MS, United States*

8:42AM – Micromechanisms of Void Nucleation, Growth and Coalescence during Dynamic Failure
Technical Presentation. IMECE2016-68632 – *Garvit Agarwal, Avinash Dongare, University of Connecticut, Storrs, CT, United States*

9:03AM – A closed-form criterion for the onset of dislocation emission and subsequent nanovoid growth
Technical Presentation. IMECE2016-68614 – *Justin Wilkerson, University of Texas At San Antonio, San Antonio, TX, United States, K.T. Ramesh, Johns Hopkins Univ, Baltimore, MD, United States*

9:24AM – On the role of vacancy clustering and coarsening in ductile failure of high-purity Aluminum
Technical Presentation. IMECE2016-68685 – *Sara Adibi, Justin Wilkerson, University of Texas at San Antonio, San Antonio, TX, United States*

12-32-1 NANOMECHANICS AND NANOMATERIALS 1

ROOM 225B

Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States

Session Co-Organizer: Jeffrey Kysar, Columbia University, New York, NY, United States, Kenneth Liechti, University of Texas, Austin, TX, United States, J. Scott Price, GE Global Research, Niskayuna, NY, United States

8:00AM – Deformation Analysis of a Self-Folded CNT
Technical Presentation. IMECE2016-65881 – *Yozo Mikata, Bechtel, Niskayuna, NY, United States*

8:21AM – Unraveling Properties in Graphene Nano Ribbon
Technical Presentation. IMECE2016-65135 – *Weixiang Zhang, Tarek Ragab, SUNY at Buffalo, Buffalo, NY, United States, Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States*

8:42AM – Nanomechanical Folding and Unfolding of Graphene on Flat Substrate
Technical Presentation. IMECE2016-68161 – *Chenglin Yi, Xiaoming Chen, Changhong Ke, State University of New York at Binghamton, Binghamton, NY, United States*

9:03AM – Multiscale Modeling and Simulation of Phase Transformations Assisted by the Dislocation Pile-ups in Multilayered Metallic Composites
Technical Presentation. IMECE2016-67128 – *Liming Xiong, Ji Rigelesaiyin, Iowa State University, Ames, IA, United States, Shuozhi Xu, David McDowell, Georgia Institute of Technology, Atlanta, GA, United States, Youping Chen, University of Florida, Gainesville, FL, United States, Valery I. Levitas, Iowa State University, Ames, IA, United States*

9:24AM – Graphene Fracture and Implications for Roll-to-Roll Transfer
Technical Presentation. IMECE2016-66646 – *Seung-Ryul Na, University of Texas, Austin, TX, United States, Xiaohan Wang, Richard Piner, Grant Willson, University of Texas, Austin, Austin, TX, United States, Kenneth Liechti, University of Texas, Austin, TX, United States*

12-51-5 MODELING

ROOM 226A

Session Organizer: Christian Linder, Stanford University, Stanford, CA, United States

8:00AM – The Two-Potential Constitutive Framework for Finite Viscoelasticity: Theoretical Aspects and Application to Elastomers
Technical Presentation. IMECE2016-68410 – *Oscar Lopez-Pamies, Aditya Kumar, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

8:21AM – The Two-Potential Constitutive Framework for Finite Viscoelasticity: Theoretical Aspects and Application to Elastomers
Technical Presentation. IMECE2016-68451 – *Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

8:42AM – Mechanical Characterization and Modeling of Viscoelastic Polyurethane Foams
Technical Presentation. IMECE2016-68490 – *Alexander Landauer, Xiuqi Li, Christian Franck, David Henann, Brown University, Providence, RI, United States*

9:03AM – Experiments and modeling of polymeric gels
Technical Presentation. IMECE2016-68554 – *Shawn Chester, New Jersey Institute of Technology, North Caldwell, NJ, United States, Nikola Bosnjak, New Jersey Institute of Technology, Newark, NJ, United States*

9:24AM – A phase field model for predicting structural length scales in polymer blends
Technical Presentation. IMECE2016-68299 – *Andreas Krischok, Christian Linder, Stanford University, Stanford, CA, United States*

TIME

10:00AM–11:45AM

12-2-5 RADIATION/HIGH TEMPERATURE DAMAGE: PART II

ROOM 227B

Session Organizer: Nikhilesh Chawla, Arizona State University, Tempe, AZ, United States

10:00AM – Analyses of Nanoscale to Microscale Strength and Crack-tip Stresses at High Temperatures, Under Irradiation, and Under Corrosion
Invited Presentation. IMECE2016-65398 – *Yang Zhang, Hao Wang, Debpriya Mohanty, Purdue University, West Lafayette, IN, United States, Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States*

10:42AM – Radiation damage in FCC Ni based random solid solution alloys from atomistic simulations
Invited Presentation. IMECE2016-68466 – *Dilpuneet Aidhy, University of Wyoming, Laramie, WY, United States*

11:24AM – Microscopic Analysis of the Initiation of High-Temperature Damage of Ni-based Heat-resistant Alloy
Technical Paper Publication. IMECE2016-67599 – *Takuya Murakoshi, Ken Suzuki, Isamu Nonaka, Tohoku University, Sendai, Miyagi-ken, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan*

12-6-2 SYMPOSIUM PART II

ROOM 227A

Session Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

Session Co-Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States

10:00AM – Microstructure Evolution and Consolidation Kinetics Prediction in powder materials during Field Assisted Sintering Technique
Technical Presentation. IMECE2016-65399 – *Sudipta Biswas, Purdue University, West Lafayette, IN, United States, Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States*

10:21AM – Analysis of singular stress fields at 3D piezoelectric bonded joints using a conservative integral
Technical Paper Publication. IMECE2016-65482 – *Chonlada Luangarpa, Nagaoka University of Technology, Niigata, Japan, Hideo Koguchi, Nagaoka Univ Of Tech, Nagaoka, Japan*

10:42AM – Mechanical Properties of Bionimetic Leaf composites
Technical Paper Publication. IMECE2016-65503 – *Hamid Nayeb Hashemi, Northeastern Univ, Boston, MA, United States, Gondai Liu, Northeastern University, Dept. of Mechanical Eng., Boston, MA, United States, Ashkan Vaziri, Northeastern University, Dept. of Mechanical Eng., Cambridge, MA, United States, Masoud Olia, Wentworth Institute of Technology, Boston, MA, United States, Ranajay Ghosh, Northeastern University, Dept. of Mechanical Eng., Boston, MA, United States*

11:03AM – Effects of Crimped Fiber Paths on Mixed Mode Delamination Behaviors in Woven Fabric Composites
Technical Paper Publication. IMECE2016-65646 – *Paul V. Cavallaro, Andrew Hulton, Naval Undersea Warfare Center, Newport, RI, United States, Mahmoud M. Salama, JPS Composite Materials Corp., Anderson, SC, United States, Melvin W. Jee, U.S. Army Natick Soldier RD&E Center, Natick, MA, United States*

11:24AM – CHARACTERIZATION OF THREE-CONSTITUENT INTERFACE IN CNT-EMBEDDED NANOCOMPOSITES
Technical Paper Publication. IMECE2016-65691 – *Nithya Subramanian, Ashwin Rai, Arizona State University, Tempe, AZ, United States, Aditi Chattopadhyay, Arizona State Univ, Tempe, AZ, United States*

12-6-6 SYMPOSIUM PART VI

ROOM 226C

Session Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

Session Co-Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States

10:00AM – COMPARISON OF JOHNSON-COOK MODEL AND AN ISV PLASTICITY DAMAGE MODEL IN PENETRATION SIMULATION
Technical Paper Publication. IMECE2016-68195 – *Yangqing Dou, Mississippi State University, Starkville, MS, United States, Yucheng Liu, Mississippi State University, Mississippi State University, MS, United States, Youssef Hammi, Mississippi State University, Mississippi State, MS, United States*

10:21AM – ICME Challenges: New Approaches for Bridging Atomistic Length Scales through Interatomic Potential Evaluation and Design
Technical Presentation. IMECE2016-68262 – *Mark Tschopp, Army Research Laboratory, Aberdeen Proving Ground, MD, United States, Efrain Hernandez, Shawn Coleman, Army Research Laboratory, APG, MD, United States, Souma Chowdhury, University at Buffalo, Buffalo, NY, United States*

10:42AM – Homogenization and simulation of solids with random microstructure
Technical Presentation. IMECE2016-68546 – *Reza Abedi, Philip Clarke, University of Tennessee Space Institute, Tullahoma, TN, United States, Omid Omidi, University of Kansas, Lawrence, KS, United States*

11:03AM – Efficient Return Mapping Implicit Integration Of A New Three-invariant, Non-associated, Cap-Plasticity Damage Model With Highly Non-linear Hardening For Cementitious Materials
Technical Presentation. IMECE2016-68592 – *Bhasker Paliwal, Mississippi State University, Starkville, MS, United States, Youssef Hammi, Mississippi State University, Mississippi State, MS, United States, Robert Moser, U.S. Army Engineer Research and Development Center, Vicksburg, MS, United States, Mark F. Horstemeyer, Mississippi State University, Mississippi State University, MS, United States*

12-16-4 DYNAMIC BEHAVIORS OF MATERIALS AND STRUCTURES: MODELING

ROOM 226B

Session Organizer: Hongbing Lu, University of Texas, Richardson, TX, United States

Session Co-Organizer: Jun Xu, Beihang University, Beijing, China

10:00AM – Evaluation of interfacial fracture strength and toughness by using laser-induced ultrasonic waves
Technical Presentation. IMECE2016-66378 – *Yousuke Watanabe, Shoichi Fujisawa, Hiroki Watanabe, Chuo University, Tokyo, Japan, Akio Yonezu, Chuo University, Japan, Japan*

10:21AM – Experimental and Numerical Investigations of Fatigue Crack Growth of Brittle Solids under Cyclic Contact Loading
Technical Presentation. IMECE2016-66385 – *Hidehiko Toyama, Chuo University, Tokyo, Japan, Akio Yonezu, Chuo University, Japan, Japan*

10:42AM – Evaluation of anisotropic deformation behavior of porous materials by using X-ray CT method
Technical Presentation. IMECE2016-66388 – *Shugo Fushimi, Shouichi Iio, Chuo University, Toyko, Japan, Akio Yonezu, Chuo University, Japan, Japan*

11:03AM – Modeling of viscoplastic deformation behavior of low-density polymeric foams
Technical Presentation. IMECE2016-66401 – *Hiroshi Kishida, Chuo University, Tokyo, Japan, Akio Yonezu, Chuo University, Japan, Japan*

11:24AM – Anisotropic and time-dependent deformation behavior of polymeric microfiltration membranes
Technical Presentation. IMECE2016-66549 – *Akio Yonezu, Chuo University, Japan, Japan, Takumi Nagakura, Chuo University, Tokyo, Japan, Shuntaro Noguchi, Chuo University, Bunkyo, Tokyo, Japan, Hiroshi Kishida, Chuo University, Tokyo, Japan*

TIME

10:00AM–11:45AM

12-18-2 DUCTILE FRACTURE II

ROOM 227C

Session Organizer: Justin Wilkerson, University of Texas At San Antonio, San Antonio, TX, United States

Session Co-Organizer: Ali Ghahremaninezhad, University of Miami, Coral Gables, FL, United States, Jim Lua, Global Eng. & Mat., Inc., Princeton, NJ, United States, Ahmed Amine Benzerga, Texas A&M Univ, College Station, TX, United States, Shailendra Joshi, National Univ of Singapore, Singapore, Singapore

10:00AM – INVITED TALK I: Application of X-ray tomography to the study of void growth and coalescence during ductile fracture
Invited Presentation. IMECE2016-68488 – *David Wilkinson, Michael Nemcko, McMaster University, Hamilton, ON, Canada*

10:21AM – INVITED PAPER II:Application of X-ray tomography to the study of void growth and coalescence during ductile fracture
Invited Presentation. IMECE2016-68489 – *David Wilkinson, Michael Nemcko, McMaster University, Hamilton, ON, Canada*

10:42AM – Microstructural Analysis of Spall Damage Nucleation and Growth in Multicrystalline Titanium
Technical Paper Publication. IMECE2016-67667 – *Elizabeth Fortin, Arizona State University, Tempe, AZ, United States, Andrew Brown, The University of New South Wales, UNSW Canberra, Campbell, ACT, Australia, Leda Wayne, Arizona State University, Chandler, AZ, United States, Pedro Peralta, Arizona State University, Tempe, AZ, United States*

11:03AM – Variation of the Strength of Grains and Grain Boundaries Caused by the Fluctuation of Their Crystallinity
Technical Paper Publication. IMECE2016-67557 – *Takahiro Nakanishi, Ken Suzuki, Tohoku University, Sendai, Miyagi, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan*

11:24AM – Engineering the Ductile Crack Path by Controlling the Microstructure
Technical Presentation. IMECE2016-67530 – *Ankit Srivastava, Texas A&M University, College Station, TX, United States, Shmuel Osovski, Technion, Israel Institute of Technology, Haifa, Israel, Alan Needleman, Texas A&M University, College Station, TX, United States*

12-30-1 MECHANICS OF ADHESION AND FRICTION I

ROOM 225A

Session Organizer: Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States

Session Co-Organizer: Yong Zhu, North Carolina State University, Raleigh, NC, United States, Frank DelRio, National Institute of Standards and Technology, Boulder, CO, United States

10:00AM – Nanoscale Factors Controlling Friction for 2D Materials: Part 1
Technical Presentation. IMECE2016-67499 – *Robert Carpick, Univ Of Pennsylvania, Philadelphia, PA, United States*

10:21AM – Nanoscale Factors Controlling Friction for 2D Materials: Part 2
Technical Presentation. IMECE2016-67500 – *Robert Carpick, Univ Of Pennsylvania, Philadelphia, PA, United States*

10:42AM – Controlling the Surface Morphology and Multifunctional Properties of Large Area Monolayer MoS2
Technical Presentation. IMECE2016-67256 – *Alper Gurarslan, Guoqing Li, Linyou Cao, Yong Zhu, North Carolina State University, Raleigh, NC, United States*

11:03AM – Self-healing of Molybdenum Disulfide and Silicon Oxide
Technical Presentation. IMECE2016-65901 – *Seung-Ryul Na, University of Texas, Austin, TX, United States, Youngchan Kim, Changgu Lee, Ji Won Suk, Sungkyunkwan University, Suwon 440-746, Korea (Republic), Kenneth Liechti, University of Texas, Austin, TX, United States*

12-32-2 NANOMECHANICS AND NANOMATERIALS 2

ROOM 225B

Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States

Session Co-Organizer: Jeffrey Kysar, Columbia University, New York, NY, United States, Changhong Ke, State University of New York at Binghamton, Binghamton, NY, United States, Liming Xiong, Iowa State University, Ames, IA, United States

10:00AM – Nano-emitter Lifetime Limiting Mechanism
Technical Presentation. IMECE2016-67374 – *J. Scott Price, GE Global Research, Niskayuna, NY, United States, Yozo Mikata, Bechtel, Niskayuna, NY, United States*

10:21AM – Mechanical Strengths of Boron Nitride and Carbon Nanotubes Polymer Interfaces
Technical Presentation. IMECE2016-68162 – *Xiaoming Chen, Changhong Ke, State University of New York at Binghamton, Binghamton, NY, United States*

10:42AM – Electromagnetic Interference Shielding Effectiveness of Polymer Composites Incorporating Carbon fillers and nanofillers
Technical Presentation. IMECE2016-67928 – *Pouyan Karimi, University of Illinois at Urbana-Champaign, urbana, IL, United States, Martin Ostoja-Starzewski, Univ Of Illinois Urbana, Urbana, IL, United States, Iwona Jasiuk, UIUC, Champaign, IL, United States*

11:03AM – The Size Effect in Graphene Nanoribbon
Technical Presentation. IMECE2016-65052 – *Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States, Yanbiao Chu, Intel, Buffalo, NY, United States, Tarek Ragab, SUNY at Buffalo, Buffalo, NY, United States*

11:24AM – A framework for frequently occurring non-generic degeneracies
Technical Presentation. IMECE2016-68440 – *Ryan S. Elliott, University of Minnesota, Minneapolis, MN, United States, Amartya Banerjee, Lawrence Berkeley National Laboratory, Berkeley, CA, United States*

12-40-1 YOUNG INVESTIGATOR AWARD SYMPOSIUM I

ROOM 228A

Session Organizer: Balakumar Balachandran, Univ Of Maryland, College Park, MD, United States

Session Co-Organizer: Peter Chung, University of Maryland, College Park, MD, United States

10:00AM – Indentation: a simple and robust method to characterize poroelasticity of gels
Technical Presentation. IMECE2016-68379 – *Yuhang Hu, University of Illinois At Urbana-Champaign, Urbana, IL, United States*

10:21AM – Linking Length Scales: Investigating the Effect of Microscale Strain Localization on Macroscopic Response
Technical Presentation. IMECE2016-68381 – *Samantha Daly, University of California at Santa Barbara, Santa Barbara, CA, United States*

10:42AM – A perspective on the revival of structural (in)stability with novel opportunities for function: from buckliphobia to buckliphilia
Technical Presentation. IMECE2016-68523 – *Pedro M. Reis, Massachusetts Institute of Technology, Cambridge, MA, United States*

TIME	
10:00AM–11:45AM	**12-51-6 MULTIPHYSICS OF SOFT MATERIALS II** **ROOM 226A** *Session Organizer: Shawn Chester, New Jersey Institute of Technology, North Caldwell, NJ, United States* **10:00AM – Liquid inclusions in soft materials—- capillary effect, mechanical stiffening and enhanced electromechanical response** **Technical Presentation.** IMECE2016-68511 – *Sana Krichen, University of Houston, Houston, TX, United States, Liping Liu, Rutgers University, Piscataway, NJ, United States, Pradeep Sharma, University of Houston, houston, TX, United States* **10:21AM – Using Two Scaling Exponents to Describe Swelling-Induced Strain Softening of Elastomers** **Technical Presentation.** IMECE2016-68464 – *Dai Okumura, Osaka University, Osaka, Japan, Masahiro Mizutani, Nagoya University, Nagoya, Japan, Hiro Tanaka, Osaka University, Osaka, Japan, Makoto Uchida, Osaka City Univesity, Osaka, Japan* **10:42AM – Projection Micro-Stereolithography of Temperature Responsive Hydrogels** **Technical Presentation.** IMECE2016-68559 – *Daehoon Han, Zhaocheng Lu, Howon Lee, Rutgers University, Piscataway, NJ, United States* **11:03AM – Finger-Edge Instability Transition in Constrained Soft Elastic Layers** **Technical Presentation.** IMECE2016-66322 – *Xuanhe Zhao, Shaoting Lin, Teng Zhang, Tal Cohen, MIT, Cambridge, MA, United States, Hyunwoo Yuk, Massachusetts Institute of Technology, Cambridge, MA, United States* **11:24AM – Optomechanics of Soft Materials** **Technical Presentation.** IMECE2016-65734 – *Ruobing Bai, Zhigang Suo, Harvard University, Cambridge, MA, United States*
1:15PM–3:00PM	**12-2-6 CORROSION: PART I** **ROOM 227B** *Session Organizer: Kiran Solanki, Arizona State University, Tempe, AZ, United States* **1:15PM – Microstructural and Environmental Effects on Stress Corrosion and Corrosion Fatigue of 7075 Aluminum Alloy** **Invited Presentation.** IMECE2016-68746 – *Nikhilesh Chawla, Arizona State University, Tempe, AZ, United States* **1:50PM – A Case Study in the Microstructure-Sensitive Modeling of Pitting Corrosion: Effect of the Crystallographic Orientation** **Invited Presentation.** IMECE2016-66206 – *Siddiq Qidwai, National Science Foundation, Arlington, VA, United States, Virginia Degiorgi, U.S. Naval Research Laboratory, Washington, DC, United States* **2:25PM – Role of Mechanical Loads on the Corrosion Behavior of Galvanic Structural Joint** **Invited Presentation.** IMECE2016-68747 – *Ilaksh Adlakha, Benyamin Gholami Bazehhour, Arizona State University, Tempe, AZ, United States, Nitin Muthegowda, COMSOL, Palo Alto, CA, United States, Kiran Solanki, Arizona State University, Tempe, AZ, United States* **12-6-3 SYMPOSIUM PART III** **ROOM 227A** *Session Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States* *Session Co-Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States* **1:15PM – Comparison of Load Carrying Capacity of Three and Four Lobed Polygonal Shaft and Hub Connection for Constant Grinding Diameter** **Technical Paper Publication.** IMECE2016-65745 – *Ravi Bhatta, Wendy Reffeor, Grand Valley State University, Grand Rapids, MI, United States* **1:36PM – A Non-Orthogonal Constitutive Material Model for Advanced Woven Fabrics Based on a Mesoscale Unit Cell** **Technical Paper Publication.** IMECE2016-65747 – *Ozan Erol, University of Delaware, Newark, DE, United States, Brian M. Powers, Army Research Laboratory, Aberdeen Proving Ground, MD, United States, Michael Keefe, Univ Of Delaware - Mech Eng., Newark, DE, United States* **1:57PM – Factors Influencing Blast Attenuation on Walls with Foamed Concrete Boards** **Technical Paper Publication.** IMECE2016-65863 – *Yijian Shi, ZASA - Logan, Zodiac Aerospace, Logan Twp, NJ, United States* **2:18PM – CFD Simulation of Highway Contaminant Dispersion** **Technical Paper Publication.** IMECE2016-65893 – *Liyuan Gong, Xiuling Wang, Purdue Univ. Calumet, Hammond, IN, United States* **2:39PM – Dynamics Of Three-Dimensional Microscale Granular Crystals** **Technical Presentation.** IMECE2016-67672 – *Morgan Hiraiwa, Nicholas Boechler, University of Washington, Seattle, WA, United States*

TIME

1:15PM–3:00PM

12-6-7 SYMPOSIUM PART VII

ROOM 226C

Session Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States

Session Co-Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

1:15PM – Experimental and numerical study on the expansion process of oil pipes
Technical Presentation. IMECE2016-67787 – *Juner Zhu, Tomasz Wierzbicki, Massachusetts Institute of Technology, Cambridge, MA, United States, Keunhwan Pack, MIT, Cambridge, MA, United States*

1:36PM – Modeling of the Gas - Controlled Crack Growth: Non-Ideal vs. Ideal Sink
Technical Paper Publication. IMECE2016-67564 – *Alla V. Balueva, University of North Georgia, Gainesville, GA, United States, Ilia N. Dashevski, Institute for Problems in Mechanics, Moscow, Russia*

1:57PM – Dynamic Simulation of a large flow solenoid
Technical Paper Publication. IMECE2016-66632 – *Zhao Liu, Xiao Han, Yanfang Liu, Beihang University, Beijing, China*

2:18PM – Non ? Linear Material Behavior Analysis under High Compression Pressure in Dynamic Conditions
Technical Paper Publication. IMECE2016-66934 – *Muhammad Zubair Zahid, Badar Rashid, National University of Sciences and Technology, Islamabad, Federal Area, Pakistan, Shahid Ikramullah, School of Mechanical &, Islamabad, Pakistan, Raja Saulat Ullah Khan, Muhammad Ali Jinnah University, Islamabad, Pakistan, Syed Zohaib Ejaz, Wah Engineering College, Wah Cantt, Punjab, Pakistan*

2:39PM – Simulation of rotor system vibrations using experimentally verified superelements
Technical Paper Publication. IMECE2016-66950 – *Sergei Semenov, Mikhail Nikhamkin, Nikolai Sazhenkov, Perm National Research Polytechnic University, Perm, Permskiy krai, Russia, Irina Semenova, VSB-TUO, Ostrava, Czech Republic, Grigorii Mekhonoshin, Perm National Research Polytechnic University, Perm, Russia*

12-16-5 MODELING AND ANALYSIS OF MATERIAL DYNAMIC BEHAVIORS

ROOM 226B

Session Organizer: Roy Xu, University of New Mexico, Albuquerque, NM, United States

Session Co-Organizer: Jun Xu, Beihang University, Beijing, China

1:15PM – Nanoindentation Tests and Contact Mechanics Modeling to Predict Low-speed Impact Behavior of Composite Materials
Technical Presentation. IMECE2016-66112 – *L. Roy Xu, New Mexico State Univ, El Paso, TX, United States*

1:36PM – Static force analysis of wheel bolt under multiple working conditions
Technical Paper Publication. IMECE2016-66563 – *Jiajing Yi, Yingchun Shan, Xiandong Liu, Beihang University, Beijing, China, Jiegong Wang, CEMAX Co.,Ltd, Yantai, China*

1:57PM – Investigation of Enhancing Temper Resistance and Hot Hardness for Tool Steel
Technical Paper Publication. IMECE2016-66503 – *Syed Zohaib Ejaz, Wah Engineering College, Wah Cantt, Punjab, Pakistan, Badar Rashid, National University of Sciences and Technology, Islamabad, Federal Area, Pakistan, Tauqeer Iqbal, National University of Sciences and Technology, Wah Cantt, Punjab, Pakistan, Muhammad Shoaib Naseem, Institute of Advanced Materials, Multan, Pakistan, Muhammad Zubair Zahid, National University of Sciences and Technology, Islamabad, Federal Area, Pakistan*

2:18PM – Experimental and numerical analysis of the system ringing in intermediate strain rate tests
Technical Paper Publication. IMECE2016-66321 – *Zihao Qin, Wei Li, Tsinghua university, Beijing, China, Juner Zhu, Massachusetts Institute of Technology, Cambridge, MA, United States, Yong Xia, Tsinghua University, Beijing, China*

12-18-3 DUCTILE FRACTURE III

ROOM 227C

Session Organizer: Justin Wilkerson, University of Texas At San Antonio, San Antonio, TX, United States

Session Co-Organizer: Ali Ghahremaninezhad, University of Miami, Coral Gables, FL, United States, Jim Lua, Global Eng. & Mat., Inc., Princeton, NJ, United States, Ahmed Amine Benzerga, Texas A&M Univ, College Station, TX, United States, Shailendra Joshi, National Univ of Singapore, Singapore, Singapore

1:15PM – INVITED TALK I: On The Nucleation Of Cracks In Al 6061-T6 Evaluated Through In Situ Microscopy
Invited Presentation. IMECE2016-68575 – *Krishnaswamy Ravi-Chandar, Univ Of Texas/Austin, Austin, TX, United States*

1:57PM – Three-Dimensional Simulations of Ductile Fracture in Anisotropic Materials
Technical Presentation. IMECE2016-68578 – *Nithin Thomas, Texas A&M University, College Station, TX, United States, Ahmed Amine Benzerga, Texas A&M Univ, College Station, TX, United States*

2:18PM – Homogenized Viscoplastic Response of Porous Single Crystals
Technical Presentation. IMECE2016-68429 – *Dawei Song, Pedro Ponte Castañeda, University of Pennsylvania, Philadelphia, PA, United States*

2:39PM – Mechanism-based Crystal Plasticity and Failure of Nanotwinned Metals
Technical Presentation. IMECE2016-68357 – *Kartikey Joshi, National University of Singapore, Singapore, Singapore, Shailendra Joshi, National Univ of Singapore, Singapore, Singapore*

12-29-2 STATIC AND DYNAMIC PROPERTIES OF CELLULAR SOLIDS

ROOM 224B

Session Organizer: Jaehyung Ju, Shanghai Jiao Tong University, Shanghai, China

Session Co-Organizer: Muhammad Ali, Ohio University, Athens, OH, United States, Huanyu Cheng, Pennsylvania State University, University Park, PA, United States

1:15PM – On The Effective Properties of 3D Metamaterials
Technical Paper Publication. IMECE2016-67407 – *Mohamed Abdelhamid, Aleksander Czekanski, York University, Toronto, ON, Canada*

1:36PM – Soft network composite materials with deterministic and bio-inspired designs
Technical Presentation. IMECE2016-67910 – *Huanyu Cheng, Pennsylvania State University, University Park, PA, United States*

1:57PM – The Structure and Mechanical Properties of Aluminum Cellular Metal with Periodic Cubic Cells
Technical Paper Publication. IMECE2016-65362 – *Xiaobing Dang, Ruxu Du, The Chinese University of Hong Kong, Hong Kong, Hong Kong, Kai He, Qiyang Zuo, Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, Shenzhen, China*

2:18PM – Effects of Functionally Graded Cellular Core on Energy Response of Thin Walled Composite Axial Members
Technical Paper Publication. IMECE2016-66150 – *Muhammad Ali, Khairul Alam, Eboreime Ohioma, Ohio University, Athens, OH, United States*

2:39PM – Analysis of fracture mechanism on paper-tubes and Relationship between paperboard property and property of paper tubes
Technical Paper Publication. IMECE2016-66559 – *Mitsunori Suda, Daisankogyo Co., Ltd, Kashiwara, Japan, Takanori Kitamura, Kyoto Institute of Technology, Kyoto, Japan, Zhiyuan Zhang, Daiwa Itagami Co Ltd, Osaka, Japan, Hiroyuki Hamada, Kyoto Institute of Technology, kyoto, Japan*

TIME

1:15PM–3:00PM

12-30-2 MECHANICS OF ADHESION AND FRICTION II

ROOM 225A

Session Organizer: Yong Zhu, North Carolina State University, Raleigh, NC, United States

Session Co-Organizer: Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States, Frank DelRio, National Institute of Standards and Technology, Boulder, CO, United States

1:15PM – Influences of Substrate Adhesion and Particle Size on the Shape Memory Effect of Polystyrene Particles
Technical Presentation. IMECE2016-65962 – *Lewis Cox, University of Colorado, Boulder, CO, United States, Jason Killgore, NIST, Boulder, CO, United States, Zhengwei Li, Rong Long, Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States, Yifu Ding, University of Colorado, Boulder, CO, United States*

1:36PM – Influences of Substrate Adhesion and Particle Size on the Shape Memory Effect of Polystyrene Particles ? Part 2
Technical Presentation. IMECE2016-66820 – *Lewis Cox, University of Colorado, Boulder, CO, United States, Jason Killgore, NIST, Boulder, CO, United States, Zhengwei Li, Rong Long, Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States, Yifu Ding, University of Colorado, Boulder, CO, United States*

1:57PM – Mechanics of Sand Adhesion at High Temperature
Technical Presentation. IMECE2016-67589 – *Sridhar Narayanaswamy, Zhigang Liu, Zhiqian Zhang, Institute of High Performance Computing, Singapore, Singapore, Sean O'Shea, Institute of Materials Research and Engineering, Singapore, Singapore, Yau Yen Ooi, ARTC, Singapore, Singapore*

2:18PM – A Multi-Scale Approach on Capturing the Effect of Surface Roughness on the Cohesive Strength of Self-Assembled Monolayers
Technical Presentation. IMECE2016-67984 – *Chen Zhang, Philippe Geubelle, University Of Illinois, Urbana, IL, United States, Amnaya Awasthi, University of Florida, Urbana, IL, United States, Nancy Sottos, Department of Materials Science and Engineering, University of Illinois, Urbana, IL, United States, Jaek Sung, University of Illinois, Urbana, IL, United States*

12-32-3 NANOMECHANICS AND NANOMATERIALS 3

ROOM 225B

Session Organizer: Yozo Mikata, Bechtel, Niskayuna, NY, United States

Session Co-Organizer: Jeffrey Kysar, Columbia University, New York, NY, United States, Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States, Huijuan Zhao, Clemson University, Clemson, SC, United States

1:15PM – Influence of Defects on Graphene Nano Ribbon Properties
Technical Presentation. IMECE2016-65041 – *Ji Zhang, University at Buffalo, State University of New York, Buffalo, NY, United States, Tarek Ragab, SUNY at Buffalo, Buffalo, NY, United States, Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States*

1:36PM – Influence of Stone Wales Defect on Graphene Nano Ribbon Mechanical Properties
Technical Presentation. IMECE2016-65134 – *Yin Fu, Tarek Ragab, SUNY at Buffalo, Buffalo, NY, United States, Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States*

1:57PM – Temperature-dependent Frictional Properties of Boron Nitride Nanotubes and Nanosheets
Technical Presentation. IMECE2016-68165 – *Wenyang Qu, Xiaoming Chen, Changhong Ke, State University of New York at Binghamton, Binghamton, NY, United States*

2:18PM – Molecular Dynamics Simulation of Toughness Enhancement of Thermoplastics with Hyper-branch Polymer
Technical Presentation. IMECE2016-67382 – *Qian Mao, Huijuan Zhao, Clemson University, Clemson, SC, United States*

2:39PM – Modeling the effect of filler polydispersity and alignment on percolation in polymer nano-composites
Technical Presentation. IMECE2016-67521 – *Fereshteh A Sabet, Sohan Kale, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Martin Ostoja-Starzewski, Univ Of Illinois Urbana, Urbana, IL, United States, Iwona Jasiuk, UIUC, Champaign, IL, United States*

12-40-2 YOUNG INVESTIGATOR AWARD SYMPOSIUM II

ROOM 228A

Session Organizer: Balakumar Balachandran, Univ Of Maryland, College Park, MD, United States

Session Co-Organizer: Peter Chung, University of Maryland, College Park, MD, United States

1:15PM – A finite element method for light active shape memory polymers
Technical Presentation. IMECE2016-68551 – *Shawn Chester, New Jersey Institute of Technology, North Caldwell, NJ, United States*

1:36PM – Mechanically robust and tunable designs for stretchable electronics and beyond
Technical Presentation. IMECE2016-68585 – *Huanyu Cheng, Pennsylvania State University, University Park, PA, United States*

1:57PM – Lessons in Mechanics from Marine Sponges: Skeletal Elements in Tethya aurantia are Ideally Shaped to Resist Buckling
Technical Presentation. IMECE2016-68736 – *Michael Monn, Haneesh Kesari, Brown University, Providence, RI, United States*

12-51-7 MICROSTRUCTURE AND MECHANICS

ROOM 226A

Session Organizer: George Youssef, San Diego State University, San Diego, CA, United States

Session Co-Organizer: Kevin Long, Sandia National Laboratories, Albuquerque, NM, United States

1:15PM – Elastic Wave Propagation and Electromechanical Instabilities in Dielectric Elastomers
Technical Presentation. IMECE2016-68626 – *Stephan Rudykh, Massachusetts Institute of Technology, Cambridge, MA, United States, Pavel I. Galich, Technion, Haifa, N/A, Israel, Artemii Goshkoderia, Technion - Israel Institute of Technology, Haifa, Israel*

1:36PM – Micromechanics of Damage in Glass Microballoon Filled Syntactic Foams
Technical Presentation. IMECE2016-68561 – *Judith Brown, Bradley Huddleston, Kevin Long, Sandia National Laboratories, Albuquerque, NM, United States*

1:57PM – Large Deformation Behaviors of Particle-Filled Elastomers
Technical Presentation. IMECE2016-65641 – *Toshio Nakamura, Marc Leonard, Stony Brook University, Stony Brook, NY, United States, Oscar Lopez-Pamies, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

2:18PM – A Numerical Analysis of Magnetostriction in Classical, Auxetic and Chiral Magnetoelastic Composite Materials
Technical Presentation. IMECE2016-68503 – *Kostas Danas, CNRS, Ecole Polytechnique, Palaiseau, France*

2:39PM – Evaluation of Auxetic Polymeric Structures for Use in Protective Pads
Technical Paper Publication. IMECE2016-67588 – *Chulho Yang, Hitesh Vora, Young Chang, Oklahoma State University, Stillwater, OK, United States*

TIME

3:30PM–5:15PM

12-2-7 CORROSION: PART II

ROOM 227B

Session Organizer: Siddiq Qidwai, National Science Foundation, Arlington, VA, United States

3:30PM – A Review of High-Temperature Grain Boundary Adsorption, Wetting, and Complexion Transitions and Their Roles in Liquid Metal Embrittlement and Corrosion
Invited Presentation. IMECE2016-68499 – *Jian Luo, UC San Diego, La Jolla, CA, United States*

4:12PM – Corrosion Resistance of Hydrophobic Polysiloxane Barrier Coatings
Invited Presentation. IMECE2016-68087 – *Xiaoda Sun, Scott Turnage, Yue Yang, Brian Chang, Sree K. Balijepalli, Nicholas Dhuyvetter, Nitin Muthegowda, Arizona State University, Tempe, AZ, United States, Erick B. Iezzi, Navy Research Laboratory, Washington DC, DC, United States, Liping Wang, Kiran Solanki, Konrad Rykaczewski, Arizona State University, Tempe, AZ, United States*

4:54PM – Electrochemical Characterization of Microstructural Features During Pitting Corrosion
Technical Presentation. IMECE2016-67512 – *Andrew Geltmacher, Steven Policastro, Raymond Auyeung, C. R. (Jerry) Feng, Naval Research Laboratory, Washington, DC, United States*

12-6-4 SYMPOSIUM PART IV

ROOM 227A

Session Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States

Session Co-Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

3:30PM – Contact stiffness calculation and effects on rotordynamic of rod fastened rotor
Technical Paper Publication. IMECE2016-66047 – *Ming Zhuo, Xi`An Jiaotong University, Shanxi, China, Lihua Yang, Lie Yu, Xi'an Jiaotong University, Xi'an, China*

3:51PM – Failure Analysis of a Large Knife Gate Valve
Technical Paper Publication. IMECE2016-66091 – *Imad Barsoum, The Petroleum Institute, Abu Dhabi, United Arab Emir., Alberto Muñoz, Mott MacDonald, Abu Dhabi, United Arab Emir.*

4:12PM – A finite element framework for light activated shape memory polymers
Technical Presentation. IMECE2016-66181 – *Craig Hamel, New Jersey Institute of Technology, Newark, NJ, United States, Fangda Cui, New Jersey Institute of Technology, Kearny, NJ, United States, I. Joga Rao, New Jersey Institute of Technology, Newark, NJ, United States, Shawn Chester, New Jersey Institute of Technology, North Caldwell, NJ, United States*

4:33PM – The numerical technique for turbine blades and underplatform dampers interaction modeling based on substructure method
Technical Paper Publication. IMECE2016-67068 – *Irina Semenova, VSB-TUO, Ostrava, Czech Republic, Nikolai Sazhenkov, Mikhail Nikhamkin, Sergei Semenov, Perm National Research Polytechnic University, Perm, Permsky krai, Russia*

12-6-8 SYMPOSIUM PART VIII

ROOM 226C

Session Organizer: Vikas Tomar, Purdue University W Lafayette, W Lafayette, IN, United States

Session Co-Organizer: Mustapha Fofana, Worcester Polytechnic Institute, Worcester, MA, United States

3:30PM – Piezoelectric Properties in Collagen Fibrils and Effects on HAP Deposition
Technical Presentation. IMECE2016-65666 – *Majid Minary, The University of Texas At Dallas, Richardson, TX, United States, Zhong Zhou, University of Texas at Dallas, Richardson, TX, United States, Dong Qian, University of Texas At Dallas, Dallas, TX, United States*

3:51PM – Comparison of Airborne-Particle Removal Rates for Air-Ventilated Spaces with Different Obstacle Arrangements Using Numerical Simulation
Technical Paper Publication. IMECE2016-67004 – *Sina Javadpour, Fereidoon Delfanian, Khaled Saadeddin, South Dakota State University, Brookings, SD, United States*

4:12PM – Application of a bimaterial sandwich element in modeling of interface debonding in layered composites
Technical Paper Publication. IMECE2016-68047 – *Mirmohammadreza Mousavi, Masoud D Champiri, University of Houston, Houston, TX, United States, shahriyar beizaee, EMAS GROUP, Los Angeles, CA, United States, Kaspar J Willam, University of houston, houston, TX, United States*

4:33PM – Modeling Buckle-Delamination of Compressed Thin Films on Substrates by Particle Dynamics Approach
Technical Presentation. IMECE2016-67014 – *Kui Pan, Sheldon Green, Srikantha Phani, University of British Columbia, Vancouver, BC, Canada*

12-16-6 MECHANICAL MECHANISM OF STRUCTURE DYNAMIC RESPONSE

ROOM 226B

Session Organizer: Yucheng Liu, Mississippi State University, Mississippi State University, MS, United States

Session Co-Organizer: Leslie Lamberson, Drexel University, Philadelphia, PA, United States

3:30PM – Damage-Trap Material Interface Design to Increase Impact Resistance and Reduce Dynamic Back-face Deformation
Technical Presentation. IMECE2016-66114 – *L. Roy Xu, New Mexico State Univ, El Paso, TX, United States*

3:51PM – Flaw History and Evolution on Dynamic Basalt Fragmentation
Technical Presentation. IMECE2016-67077 – *Leslie Lamberson, Drexel University, Philadelphia, PA, United States, Angela Stickle, Applied Physics Laboratory - JHU, Baltimore, MD, United States, Peter Jewell, Drexel University, Philadelphia, PA, United States*

4:12PM – Dynamic Fatigue Testing of Breech Assemblies with Low Plasticity Burnishing
Technical Presentation. IMECE2016-68622 – *David Alfano Jr, Benet Laboratories, Watervliet, NY, United States, Lucas Smith, Benet Laboratories - ARDEC, Watervliet, NY, United States*

4:33PM – Effects of grain size on damage mechanics of copper penetrated by a nickel projectile
Technical Presentation. IMECE2016-65659 – *Yangqing Dou, Mississippi State University, Starkville, MS, United States, Yucheng Liu, Mississippi State University, Mississippi State University, MS, United States*

TIME

3:30PM–5:15PM

12-18-4 DUCTILE FRACTURE IV

ROOM 227C

Session Organizer: Justin Wilkerson, University of Texas At San Antonio, San Antonio, TX, United States

Session Co-Organizer: Ali Ghahremaninezhad, University of Miami, Coral Gables, FL, United States, Jim Lua, Global Eng. & Mat., Inc., Princeton, NJ, United States, Ahmed Amine Benzerga, Texas A&M Univ, College Station, TX, United States, Shailendra Joshi, National Univ of Singapore, Singapore, Singapore

3:30PM – Characterization of Fatigue Crack Propagation Under Complex Biaxial Loading
Technical Paper Publication. IMECE2016-66337 – *Rajesh Kumar Neerukatti, Siddhant Datta, Arizona State University, Tempe, AZ, United States, Aditi Chattopadhyay, Arizona State Univ, Tempe, AZ, United States, Nagaraja Iyyer, Technical Data Analysis Inc, Falls Church, VA, United States, Nam Phan, US NAVY, Patuxent River, MD, United States*

3:51PM – Fracture Toughness of LixSi Alloys in Lithium Ion Battery
Technical Presentation. IMECE2016-67031 – *HUI YANG, Jianmin Qu, Tufts University, Medford, MA, United States*

4:12PM – RING SPECIMEN GEOMETRY FOR DETERMINING THE DUCTILITY OF TUBULARS
Technical Paper Publication. IMECE2016-66092 – *Mohamed Al-Khaled, Imad Barsoum, The Petroleum Institute, Abu Dhabi, United Arab Emir.*

4:33PM – Unraveling Texture, Triaxiality and Anisotropy Effects in Polycrystalline Magnesium Alloys
Technical Presentation. IMECE2016-68354 – *Shailendra Joshi, National Univ of Singapore, Singapore, Singapore, Balaji Selvarajou, National University of Singapore, Singapore, Singapore, Singapore, A.A. Benzerga, Texas A&M University, College Station, TX, United States*

4:54PM – Fatigue Life Prediction Model Using Entropy as a Damage Metric
Technical Presentation. IMECE2016-65050 – *Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States, Therence Fogang, University at Buffalo, Buffalo, NY, United States*

12-29-3 MECHANICAL BEHAVIOR OF ADDITIVELY MANUFACTURED MATERIALS

ROOM 226A

Session Organizer: Jaehyung Ju, Shanghai Jiao Tong University, Shanghai, China

Session Co-Organizer: Ashfaq Adnan, University of Texas Arlington, Arlington, TX, United States

3:30PM – Lightweight Microlattice with Tunable Mechanical Properties using 3D Printed Shape Memory Polymer
Technical Presentation. IMECE2016-68560 – *Chen Yang, Manish Boorugu, Howon Lee, Rutgers University, Piscataway, NJ, United States*

3:51PM – Tailoring cellular auxetics for wearable applications with multimaterial 3D printing
Technical Paper Publication. IMECE2016-67556 – *Krishna K. Saxena, University of Auckland. New Zealand, Auckland, New Zealand, Emilio P. Calius, Callaghan Innovation, Auckland, New Zealand, Raj Das, University of Auckland; Dept of Mechanical Engrg, Auckland, New Zealand*

4:12PM – Mechanical Behavior and Microstructure of Electron Beam Melted Ti-6Al-4V using Digital Image Correlation
Technical Paper Publication. IMECE2016-66178 – *Mohammad Shafinul Haque, Edel Arrieta, University of Texas El Paso, El Paso, TX, United States, Jorge Mireles, The University of Texas, El Paso, TX, United States, Cesar Carrasco, University of Texas El Paso, El Paso, TX, United States, Calvin M Stewart, The University of Texas At El Paso, El Paso, TX, United States, Ryan Wicker, University of Texas El Paso, El Paso, TX, United States*

4:33PM – Effect of Raster Orientation on Fracture Toughness Properties of 3D Printed ABS Materials and Structures
Technical Paper Publication. IMECE2016-67801 – *Amit Khatri, University of Texas at Arlington, Arlington, TX, United States, Ashfaq Adnan, University of Texas Arlington, Arlington, TX, United States*

4:54PM – High Strain rate compressive response of 3-D printed materials.
Technical Paper Publication. IMECE2016-67839 – *Salman Chaudhry, Aleksander Czekanski, York University, Toronto, ON, Canada, Maher Al-Dojayli, Hatch Ltd., Mississauga, ON, Canada*

12-30-3 MECHANICS OF ADHESION AND FRICTION III

ROOM 225A

Session Organizer: Jianliang Xiao, University of Colorado Boulder, Boulder, CO, United States

Session Co-Organizer: Frank DelRio, National Institute of Standards and Technology, Boulder, CO, United States, Yong Zhu, North Carolina State University, Raleigh, NC, United States

3:30PM – New insights into mechanics of joint lubrication
Technical Presentation. IMECE2016-67019 – *David Burris, University of Delaware, Newark, DE, United States*

3:51PM – New insights into mechanics of joint lubrication part 2
Technical Presentation. IMECE2016-67033 – *David Burris, University of Delaware, Newark, DE, United States*

4:12PM – Tough Adhesion of Hydrogels
Technical Presentation. IMECE2016-67643 – *Teng Zhang, Syracuse University, Providence, RI, United States, Hyunwoo Yuk, Massachusetts Institute of Technology, Cambridge, MA, United States, Xuanhe Zhao, MIT, Cambridge, MA, United States*

4:33PM – Optimal load sharing in bioinspired fibrillar adhesives
Technical Presentation. IMECE2016-67075 – *Mattia Bacca, University of California Santa Barbara, Santa Barbara, CA, United States, Jamie Booth, UCSB, Santa Barbara, CA, United States, Kimberly Turner, UC Santa Barbara, Santa Barbara, CA, United States, Robert McMeeking, Univ Of California, Santa Barbara, CA, United States*

12-32-4 NANOMECHANICS AND NANOMATERIALS 4

ROOM 225B

Session Co-Organizer: Mohammad Kamal Hossain, Tuskegee University, Tuskegee, AL, United States, Hassan Mahfuz, Florida Atlantic University, Boca Raton, FL, United States, Yozo Mikata, Bechtel, Niskayuna, NY, United States, Jeffrey Kysar, Columbia University, New York, NY, United States, Mahmoud Ardebili, Borough of Manhattan Community College, New York, NY, United States

3:30PM – Damage Quantification and Location Detection in Carbon Nanotube Enhanced Composite Panels
Technical Paper Publication. IMECE2016-66483 – *Mahmoud Ardebili, Borough of Manhattan Community College, New York, NY, United States, Shivron Sugrim, BMCC/CUNY, Jamaica, NY, United States, Kerim Ikikardaslar, CCNY/CUNY, New York, NY, United States, Feridun Delale, City College, New York, NY, United States*

3:51PM – Fatigue Behavior of Hybrid Glass Fiber Composites With Embedded Carbon Nanotube Membranes
Technical Paper Publication. IMECE2016-66433 – *Siddhant Datta, Masoud Yekani Fard, Arizona State University, Tempe, AZ, United States, Aditi Chattopadhyay, Arizona State Univ, Tempe, AZ, United States*

4:12PM – Processing of Biodegradable Polymer Composite using Soy Protein-based Resin and Nanoclay
Technical Paper Publication. IMECE2016-67809 – *Mohammad Kamal Hossain, Samira N Shaily, Hadiya Harrigan, Terrie Mickens, Tuskegee University, Tuskegee, AL, United States*

4:33PM – Fabrication and Characterization of Bio-based Poly Lactic Acid/Polyhydroxybutyrate-valerate (PLA/PHBV) Blend with Nanoclay
Technical Paper Publication. IMECE2016-67813 – *Samira N Shaily, Mohammad Kamal Hossain, Hadiya Harrigan, Terrie Mickens, Tuskegee University, Tuskegee, AL, United States*

4:54PM – Molecular Dynamics Informed Nano-mechanical Modeling Of Interfaces of PolyVinyl Alcohol (PVA)/Clay Nanocomposite
Technical Presentation. IMECE2016-68596 – *Bhasker Paliwal, William B. Lawrimore, Mississippi State University, Starkville, MS, United States, Chandler Q. Mei, Engineer Research and Development Center (ERDC), Vicksburg, MS, United States, Mark Horstemeyer, Mississippi State University, Starkville, MS, United States*

TIME	
10:30AM–12:15PM	**13-2-1 MEMS PLENARY** **ROOM 222B** *Session Organizer: Jong Hyun Choi, Purdue University, West Lafayette, IN, United States* **10:30AM – Designer DNA Architectures for Programmable Self-assembly** **Track Plenary Presentation.** IMECE2016-68865 – *Yan Liu, Arizona State University, Tempe, AZ, United States* **13-10-1 QUALITY AND RELIABILITY IN ELECTRONICS/ PHOTONICS PACKAGING** **ROOM 231A** *Session Organizer: Tse Wong, Raytheon Company, Los Alamitos, CA, United States* *Session Co-Organizer: SriChaitra Chavali, Intel Corp., Chandler, AZ, United States, Nienhua Chao, US Army Research, Picatinny Arsenal, NJ, United States* **10:30AM – Chip-Package-linteraction Stress Induced Carrier Mobility Shift in Advanced Si Nodes** **Technical Paper Publication.** IMECE2016-65171 – *Valeriy Sukharev, Mentor Graphics Corporation, Fremont, CA, United States, Armen Kteyan, Henrik Hovsepyan, Mentor Graphics Corporation, Yerevan, Armenia, Jun-Ho Choy, Mentor Graphics Corporation, Fremont, CA, United States, Uwe Muehle, Fraunhofer-Institut für Keramische Technologien und Systeme, Institutsteil Materialdiagnostik IKTS, Dresden, Germany, Ehrenfried Zschech, Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Dresden, Germany, Riko Radojcic, Independent Consulting, San Diego, CA, United States* **10:51AM – Characterization of Bulk and Thin Film Fracture in Electronic Packaging** **Technical Paper Publication.** IMECE2016-67145 – *Vijay Krishnan Subramanian, Intel Corporation, Gilbert, AZ, United States, Tsgereda Alazar, Kyle Yazzie, Intel Corporation, chandler, AZ, United States, Bharat Penmecha, Intel Corp, Chandler, AZ, United States, Pilin Liu, Yiqun Bai, Pramod Malatkar, Intel Corporation, Chandler, AZ, United States* **11:12AM – EFFECTS OF LINEAR HYSTERIC MATERIAL DAMPING AND SHOCK PULSE SHAPES FOR UNIFORM BOARD RESPONSE** **Technical Paper Publication.** IMECE2016-68119 – *Sharan Kallolimath, Jiang Zhou, Lamar University, Beaumont, TX, United States* **11:33AM – Adaptive Interposer for Surface Mount Ceramic Electronic Devices** **Technical Presentation.** IMECE2016-65071 – *Tse Wong, Raytheon Company, Los Alamitos, CA, United States* **11:54AM – High Temperature Interfacial Adhesion Strength Measurement in Electronic Packaging using the Double Cantilever Beam Method** **Technical Paper Publication.** IMECE2016-67007 – *Santosh Sankarasubramanian, Intel Corporation, Chandler, AZ, United States, Jaime Cruz, The University of Texas at El Paso, El Paso, TX, United States, Kyle Yazzie, Intel Corporation, Chandler, AZ, United States, Vaasavi Sundar, Arizona State University, Tempe, AZ, United States, Vijay Subramanian, Edvin Cetegen, David McCoy, Pramod Malatkar, Intel Corporation, Chandler, AZ, United States*
1:30PM–3:15PM	**13-5-1 APPLICATIONS OF MICRO AND NANO SYSTEMS IN MEDICINE AND BIOLOGY** **ROOM 226B** *Session Organizer: Nazmul Islam, University of Texas Rio Grande Valley, Brownsville, TX, United States* **1:30PM – Stretchable Lab-on-chip Device with Impedance Spectroscopy Capability for Mammalian Cell Studies** **Technical Paper Publication.** IMECE2016-66156 – *Ioana Voiculescu, City College of New York, New York, NY, United States, Anis Nurashikin Nordin, International Islamic University, Kuala Lumpur, Gombak, Malaysia, Xudong Zhang, City College of New York, New York, NY, United States, Fang Li, New York Institute of Technology, Old Westbury, NY, United States* **1:51PM – Effect of Tumor Variables and Sensor Design Parameters on the Measured Stiffness Distribution of Tumor-Embedded Tissues: A Numerical Study** **Technical Paper Publication.** IMECE2016-66281 – *Yichao Yang, Zhili Hao, Old Dominion University, Norfolk, VA, United States* **2:12PM – Arterial pulse signal monitoring during the valsalva maneuver via a flexible microfluidic-based sensor** **Technical Paper Publication.** IMECE2016-66735 – *Dan Wang, Andrew Stamenkovich, Christian Zemlin, Zhili Hao, Old Dominion University, Norfolk, VA, United States* **2:33PM – Optimization of an Electrokinetic Orthogonal Electrode Pattern for Multifunctional System** **Technical Paper Publication.** IMECE2016-67446 – *Rakesh Guduru, UTRGV, Edinburg, TX, United States, M. Jasim Uddin, Nazmul Islam, University of Texas Rio Grande Valley, Brownsville, TX, United States* **2:54PM – Electrolyte-free Nano-electronic Sensor for the Rapid Quantification of DNA** **Technical Paper Publication.** IMECE2016-67622 – *Darius Saadat-Moghaddam, Jong-Hoon Kim, Washington State University Vancouver, vancouver, WA, United States*

TIME	
1:30PM–3:15PM	

13-7-1 MECHANICS OF MICRO AND NANO STRUCTURES - I

ROOM 225B

Session Organizer: Nokibul Islam, Statschippac, fremont, CA, United States

Session Co-Organizer: Awlad Hossain, Eastern Washington University, Cheney, WA, United States

1:30PM – Sensitivity Analysis of Planar Piezoresistive Sensors for MEMS Applications
Technical Paper Publication. IMECE2016-65117 – *Awlad Hossain, Eastern Washington University, Cheney, WA, United States, Ahsan Mian, Wright State University Dept. Of Mechanical & Materials Engineering, Dayton, OH, United States*

1:51PM – Response of a Filiform Hair-Socket Assembly of Crickets under Pulsating Loads
Technical Presentation. IMECE2016-65136 – *Awlad Hossain, Eastern Washington University, Cheney, WA, United States, Ahsan Mian, Wright State University Dept. Of Mechanical & Materials Engineering, Dayton, OH, United States*

2:12PM – Environmental Effects on Mechancial Properties of Small Structures
Technical Paper Publication. IMECE2016-65201 – *Seyed Allameh, Northern Kentucky Univ, Highland Heights, KY, United States, Jennifer Wardlow, Northern Kentucky University, Bethel, OH, United States*

2:33PM – FINITE ELEMENT INVESTIGATION OF A PISTON ASSEMBLY OF A DIESEL ENGINE
Technical Paper Publication. IMECE2016-65991 – *Mosfequr Rahman, Georgia Southern University, Statesboro, GA, United States, Aniruddha Mitra, George Southern Univ, Statesboro, GA, United States, Sirajus Salekeen, Jeremy Buentello, Tyler Harden, Timothy Masocol, Georgia Southern University, Statesboro, GA, United States*

2:54PM – Deformation mechanism of nanostructured metallic glass nanopillars via molecular dynamics simulation
Technical Presentation. IMECE2016-65996 – *Sara Adibi, University of Texas at San Antonio, San Antonio, TX, United States, Paulo Branicio, Institute of high performance computing, Singapore, Singapore, Shailendra Joshi, National Univ of Singapore, Singapore, Singapore*

13-8-1 MEMS-ENABLED PHONONIC MICROSYSTEMS

ROOM 226A

Session Organizer: Zayd Leseman, University of New Mexico, Albuquerque, NM, United States

1:30PM – Integrated Phononic Crystal Structures in CMOS-compatible Substrates
Invited Presentation. IMECE2016-68765 – *Ali Adibi, Georgia Institute of Technology, Atlanta, GA, United States*

2:12PM – Micro-Scale Phononic Crystals for Optomechanical RF Signal Processing Devices
Technical Presentation. IMECE2016-68442 – *Charles Reinke, Sandia National Laboratories, Albuquerque, NM, United States, Heedeuk Shin, Yale University, New Haven, CT, United States, Aleem Siddiqui, Jonathan Cox, Robert Jarecki, Andrew Starbuck, Sandia National Laboratories, Albuquerque, NM, United States, Peter Rakich, Yale University, New Haven, CT, United States*

2:33PM – Waveguiding Using Phononic Crystals
Technical Presentation. IMECE2016-67365 – *Mohamedhosein Baboly, University of New Mexico, Albuquerque, NM, United States, Charles Reinke, Sandia National Laboratories, Albuquerque, NM, United States, Ihab El-Kady, Sandia National Labs, Albuquerque, NM, United States, Zayd Leseman, University of New Mexico, Albuquerque, NM, United States*

2:54PM – Coherent Scattering of Phonons in 2D Phononic Crystals at Room Temperature
Technical Presentation. IMECE2016-68102 – *Seyedhamidreza Alaie, Weill Cornell Medicine, New York, NY, United States, Drew Goettler, Mehmet Su, Zayd Leseman, University of New Mexico, Albuquerque, NM, United States, Charles Reinke, Sandia National Laboratories, Albuquerque, NM, United States, Ihab El-Kady, Sandia National Labs, Albuquerque, NM, United States*

13-12-1 ELECTRONICS AND PHOTONICS PACKAGING: MANUFACTURING PROCESS, MATERIALS, AND FLEXIBLE TECHNOLOGIES

ROOM 225A

Session Organizer: Gayatri Cuddalorepatta, Harvard University, Cambridge, MA, United States

Session Co-Organizer: Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States, Naveenan Thiagarajan, GE Global Research, Niskayuna, NY, United States, Wayde Schmidt, United Technologies Research Center, East Hartford, CT, United States

1:30PM – Self-aligned carbon nanotubes yarns for multifunctional optoelectronic applications
Technical Paper Publication. IMECE2016-67441 – *M. Jasim Uddin, Glenn Grissom, Miguel Leal, Veronica Galvez, Tarek Trad, Ahmed Touhami, Nazmul Islam, University of Texas Rio Grande Valley, Brownsville, TX, United States, Jason Parsons, University of Texas Rio Grande Valley, Edinburg, TX, United States, H. Justin Moore, University of Texas Rio Grande Valley, Brownsville, TX, United States*

1:51PM – Mechanical testing for Stretchable Electronics
Technical Paper Publication. IMECE2016-68215 – *Steven Klein, Aleksandar Aleksov, Vijay Subramanian, Intel Corporation, Chandler, AZ, United States, Rajendra Dias, Intel Corporation, CH5-263, AZ, United States, Pramod Malatkar, Ravi Mahajan, Intel Corporation, Chandler, AZ, United States*

2:12PM – Temperature dependence of Joule heating in Zigzag Graphene Nanoribbon
Technical Presentation. IMECE2016-65051 – *Cemal Basaran, State University of New York at Buffalo, Buffalo, NY, United States, Yanbiao Chu, Intel, Buffalo, NY, United States, Tarek Ragab, SUNY at Buffalo, Buffalo, NY, United States*

2:33PM – 3D PRINTED POROUS DIELECTRIC SUBSTRATES FOR RF APPLICATIONS
Technical Paper Publication. IMECE2016-65880 – *Vana Snigdha Tummala, Wright State University, Dayton, OH, United States, Ahsan Mian, Wright State University Dept. Of Mechanical & Materials Engineering, Dayton, OH, United States, Nowrin H. Chamok, Mohammod Ali, Jallisa Clifford, Prasun Majumdar, University of South Carolina, Columbia, SC, United States*

2:54PM – Mechanically Augmented Piezoelectric Fans and Polymeric Air-Cooled Heat Sinks for Thermal Management of Portable and Wearable Electronics
Technical Presentation. IMECE2016-67515 – *Yide Wang, Chao Fan, Abolfazl Sadeghpour, Navid Dehdari Ebrahimi, Y. Sungtaek Ju, UCLA, Los Angeles, CA, United States*

TIME	
3:45PM–5:30PM	

13-1-1 GENERAL TOPICS OF MEMS/NEMS

ROOM 226A

Session Organizer: Rasim Guldiken, University of South Florida, Tampa, FL, United States

3:45PM – STATIC AND DYNAMIC AMPLIFICATION USING STRONG MECHANICAL COUPLING
Technical Paper Publication. IMECE2016-66104 – *Saad Ilyas, King Abdullah Univ of Science & Tech, Thuwal, Saudi Arabia, MOHAMMAD Younis, King Abdullah University of Science and Technology, THUWAL, Saudi Arabia, Nizar R. Jaber, King Abdullah University of Science & Technology, Thuwal, Saudi Arabia*

4:06PM – The Phonon Dissipation Mode in Nanofriction
Technical Paper Publication. IMECE2016-66402 – *Zaoqi Duan, Yun Dong, Shuang Cai, Southeast University, Nanjing, China, Yan Zhang, Southeast University, Nanjing Jiangsu, China, Yunfei Chen, Southeast University, Nanjing, China*

4:27PM – Effects of Elastic Deformation and Corrugation Potential on Friction of Suspended Graphene
Technical Paper Publication. IMECE2016-66418 – *Yun Dong, Zaoqi Duan, Birahima Gueye, Shuang Cai, Southeast University, Nanjing, China, Yan Zhang, Southeast University, Nanjing Jiangsu, China, Yunfei Chen, Southeast University, Nanjing, China*

4:48PM – TUNABLE BANDPASS FILTER BASED ON ELECTROTHERMALLY AND ELECTROSTATICALLY ACTUATED MEMS ARCH RESONATOR
Technical Paper Publication. IMECE2016-66700 – *Amal Z Hajjaj, Md Abdullah Al Hafiz, KAUST, Thuwal, Saudi Arabia, MOHAMMAD Younis, King Abdullah University of Science and Technology, THUWAL, Saudi Arabia*

5:09PM – Direct Writing on Phosphate Glass using Atomic Force Microscopy for Rapid Fabrication of Nanostructures
Technical Paper Publication. IMECE2016-67471 – *Shama F. Barna, Kyle Jacobs, Glennys Mensing, University of Illinois At Urbana Champaign, Urbana, IL, United States, Placid Ferreira, University of Illinois, Urbana, IL, United States*

13-7-2 MECHANICS OF MESO-SCALE STRUCTURES

ROOM 225B

Session Organizer: Awlad Hossain, Eastern Washington University, Cheney, WA, United States

Session Co-Organizer: Mosfequr Rahman, Georgia Southern University, Statesboro, GA, United States

3:45PM – Analysis and Discussion of Drilling and oil Well Completion Operations
Technical Presentation. IMECE2016-68461 – *OSAYANDE OSAHON, CHEVRON NIGERIA LIMITED, WARRI, DELTA STATE, Nigeria*

4:06PM – DESIGN OPTIMIZATION OF DRIVESHAFT AND UNIVERSAL JOINT USING FINITE ELEMENT TECHNIQUE
Technical Paper Publication. IMECE2016-66241 – *Mosfequr Rahman, Georgia Southern University, Statesboro, GA, United States, Gustavo Molina, Georgia Southern Univ, Statesboro, GA, United States, Sirajus Salekeen, Ana Dungan, Isaac Hyers, Daniel Griffin, Alexander Berman, Georgia Southern University, Statesboro, GA, United States*

4:27PM – FINITE ELEMENT STRUCTURAL ANALYSIS OF COMMONLY USED HORIZONTAL AXIS WIND TURBINE AIRFOILS OF VARIOUS GEOMETRIES
Technical Paper Publication. IMECE2016-66958 – *Mosfequr Rahman, David Pate, James Sawinski, Tucker Seeloff, Georgia Southern University, Statesboro, GA, United States, Gustavo Molina, Georgia Southern Univ, Statesboro, GA, United States, Adel ElShahat, Valentin Soloiu, Georgia Southern University, Statesboro, GA, United States*

4:48PM – Evaluation of Stress Wave Attenuation in a Polymer Matrix Composite Using Finite Element Analysis Technique
Technical Paper Publication. IMECE2016-67055 – *Shrikant Nargund, Lisega Inc., Kodak, TN, United States*

13-18-1 PANEL ON ELECTROCALORIC COOLING

ROOM 226B

Session Organizer: Subramanyaravi Annapragada, United Technologies Research, East Hartford, CT, United States

Session Co-Organizer: Justin A. Weibel, Purdue University, W Lafayette, IN, United States

3:45PM – Invited Talk: Electrocaloric Heat Pumping: Creating Material Requirements from Sub-Component Level Studies
Technical Presentation. IMECE2016-68684 – *Joseph Mantese, United Technologies Research Center, East Hartford, CT, United States, Subramanyaravi Annapragada, United Technologies Research, East Hartford, CT, United States, Parmesh Verma, Wei Xie, William Rioux, United Technologies Research Center, East Hartford, CT, United States*

4:06PM – Invited Talk: Heat-Switch-Based Electrocaloric Cooling Systems
Technical Presentation. IMECE2016-68686 – *David Schwartz, PARC, Palo Alto, CA, United States, Subramanyaravi Annapragada, United Technologies Research, East Hartford, CT, United States*

4:27PM – Invited Talk: Electrocaloric cooling research for electronics at Penn State University
Technical Presentation. IMECE2016-68689 – *Qiming Zhang, The Pennsylvania State University, University Park, PA, United States*

TIME

8:00AM–9:45AM

13-6-1 ANALYSIS AND MODELING

ROOM 223

Session Organizer: Wei Xue, Rowan University, Glassboro, NJ, United States

8:00AM – Coupled Phonon/Electron Monte Carlo Simulations of Three-Dimensional GaN Transistors
Technical Presentation. IMECE2016-65522 – *Hongbo Zhao, Yue Xiao, Qing Hao, University of Arizona, Tucson, AZ, United States*

8:21AM – Effect of Pressure on Thermal Contact Resistance van der Waals Interfaces
Technical Presentation. IMECE2016-65879 – *Ravi Prasher, Lawrence Berkeley National Lab, Berkeley, CA, United States*

8:42AM – Contact Resistance of Nanoscale Rough Surfaces
Technical Presentation. IMECE2016-65959 – *Ravi Prasher, Lawrence Berkeley National Lab, Berkeley, CA, United States*

9:03AM – Design, Analysis and System level Modelling of a Single Axis MEMS Capacitive Accelerometer
Technical Paper Publication. IMECE2016-66004 – *Zakriya Mohammed, Owais T Waheed, Ibrahim M Elfadel, Masdar Institute of Science and Technology, Masdar City, Abu Dhabi, United Arab Emir., Aveek N. Chatterjee, GLOBALFOUNDRIES, Singapore, Singapore, Mahmoud Rasras, Masdar Institute of Science and Technology, Masdar City, Abu Dhabi, United Arab Emir.*

13-7-3 MECHANICS OF MICRO AND NANO STRUCTURES - II

ROOM 222B

Session Organizer: Zayd Leseman, University of New Mexico, Albuquerque, NM, United States

Session Co-Organizer: Awlad Hossain, Eastern Washington University, Cheney, WA, United States

8:00AM – Microscale Modeling to Study Shot Peening Effects on Aluminum Alloy
Technical Paper Publication. IMECE2016-65074 – *Heechang Bae, Eastern Washington University, Cheney, WA, United States, Mamidala Ramulu, University Of Washington, Seattle, WA, United States, Awlad Hossain, Eastern Washington University, Cheney, WA, United States*

8:21AM – Modeling Nanoscale Rheological Properties of Thin Film Asphalt Binder
Technical Paper Publication. IMECE2016-65531 – *Hasan Faisal, Zafrul Khan, Rafiqul Tarefder, University of New Mexico, Albuquerque, NM, United States*

8:42AM – NONLINEAR STRUCTURAL BEHAVIOR OF DOUBLE-LAYERS BASED MEMS ACTUATOR
Technical Paper Publication. IMECE2016-66353 – *Abdulrahman Mohammed Al-Oufi, Hassen Ouakad, MOHAMMAD TAUSIFF FIRAQUE, KING FAHD UNIVERSITY OF PETROLEUM AND MINERALS, DHAHRAN, SHARQIYAH, Saudi Arabia*

9:03AM – Development of Low Temperature Gradient MEMS Thermal Actuators for Materials Testing
Technical Presentation. IMECE2016-67358 – *Zayd Leseman, Khawar Abbas, University of New Mexico, Albuquerque, NM, United States, Seyedhamidreza Alaie, Cornell University, New York, NY, United States*

9:24AM – Elastic behavior of freestanding ultra thin films
Technical Presentation. IMECE2016-68646 – *Gayatri Cuddalorepatta, Harvard University, Cambridge, MA, United States, Han Li, Daniel Pantuso, Intel Corporation, Portland, OR, United States, Joost Vlassak, Harvard University, Cambridge, MA, United States*

13-9-1 BIOLOGICALLY ENABLED MICROFLUIDICS

ROOM 222C

Session Organizer: Hongwei Sun, Univ Of Mass-lowell, Lowell, MA, United States

8:00AM – Microfluidic Generated Static Gradients of Biomolecules for Studying Cell Dynamics
Technical Presentation. IMECE2016-67435 – *Thanh Vo, Phu Pham, John Choy, Xiaolong Luo, Catholic University of America, Washington, DC, United States*

8:21AM – Manipulation and Separation of Osteoblast Cells in a Microchannel
Technical Presentation. IMECE2016-67047 – *Nicholas Walker, University of Central Oklahoma, Edmond, OK, United States, Mohammad Hossan, Univ Of Central Oklahoma, Edmond, OK, United States*

8:42AM – Target Cell Detection via Microfluidic Magnetic Beads Assay
Technical Paper Publication. IMECE2016-65088 – *Fan Liu, Pawan Kc, Ge Zhang, Jiang Zhe, University of Akron, Akron, OH, United States*

9:03AM – A Multiplexed Biomarker Assay Using a Two-stage Micro Resistive Pulse Sensor
Technical Presentation. IMECE2016-65089 – *Yu Han, Haiyan Wu, Fan Liu, Gang Cheng, Jiang Zhe, University of Akron, Akron, OH, United States*

9:24AM – Influence of Solution pH on DNA translocation velocity through Alumina nanopores
Technical Paper Publication. IMECE2016-66403 – *Haojie Yang, Zaoqi Duan, Wei Si, Kun Li, Yunfei Chen, Southeast university, Nanjing, China*

13-18-2 HIGH-BANDWIDTH PACKAGING CHALLENGES IN A CONNECTED WORLD

224A

Session Organizer: Subramanyaravi Annapragada, United Technologies Research, East Hartford, CT, United States

Session Co-Organizer: Justin A. Weibel, Purdue University, W Lafayette, IN, United States

8:00AM – High-Bandwidth Packaging Challenges in a Connected World
Track Plenary Presentation. IMECE2016-68801 – *Lesley Polka, Intel Corporation, Chandler, AZ, United States*

TIME	
10:00AM–11:45AM	**13-3-1 ANALYSIS, PROCESSES, AND TECHNOLOGY I** **ROOM 224A** *Session Organizer: Byoung Hee You, Texas State University-San Marcos, San Marcos, TX, United States* *Session Co-Organizer: Namwon Kim, Texas State University, San Marcos, TX, United States, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States, Adam Huang, University Of Arkansas, Fayetteville, AR, United States* **10:00AM – Parametric Study of the Effect of Particles and Contaminants on the Static Response of a MEMS System** **Technical Paper Publication.** IMECE2016-66002 – *Srinivasa Rao Vutla, Hemair Systems, Hyderabad, Telangana, India, Srinivasa Prakash Regalla, Department of Mech Engg., BITS, Pilani, Hyderabad, Telangana, India, Kannan Ramaswamy, Prasant Kumar Pattnaik, BITS Pilani, Hyderabad Campus, Hyderabad, Telangana, India, Srinivas M. B., BITS Pilani, Hyderabad, Telangana, India* **10:21AM – INKJET PRINTING OF CARBON NANOTUBE-POLYIMIDE NANOCOMPOSITE STRAIN SENSOR** **Technical Paper Publication.** IMECE2016-67233 – *Qiuyan Li, Qing-Ming Wang, University of Pittsburgh, Pittsburgh, PA, United States* **10:42AM – Fabrication of Dual-Scale Nanoimprint Molds Using Polymer Stencil Membranes** **Technical Presentation.** IMECE2016-67628 – *Junseo Choi, Sunggook Park, Louisiana State University, Baton Rouge, LA, United States* **11:03AM – The mechanism of droplet array formation on laser-patterned superhydrophobic grids** **Technical Presentation.** IMECE2016-67631 – *Bahador Farshchian, Javad Gatabi, Young Ju Lee, Texas State University, San Marcos, TX, United States, Gwan-Hyoung Lee, Yonsei University, Seoul, Korea (Republic), Ravindranath Droopad, Namwon Kim, Texas State University, San Marcos, TX, United States* **11:24AM – Fabrication of Tunable Silk Materials through Microfluidic Mixers** **Technical Paper Publication.** IMECE2016-65623 – *Joseph R Nalbach, Dave Jao, Douglas G Petro, Kyle M Raudenbush, Shibbir Ahmad, Ye Xue, Xiao Hu, Wei Xue, Rowan University, Glassboro, NJ, United States*	**13-6-2 SENSORS AND ACTUATORS** **ROOM 224B** *Session Organizer:* **Jeong Tae Ok**, *Midwestern State University, Wichita Falls, TX, United States* **10:00AM – Development of a Solid-State Inflation Balloon Deorbiter** **Technical Paper Publication.** IMECE2016-67467 – *Morgan A. Roddy, Adam Huang, University of Arkansas, Fayetteville, AR, United States* **10:21AM – Highly-sensitive Graphene Nano-Ribbon-Base Strain Sensor** **Technical Paper Publication.** IMECE2016-67602 – *SHINICHIROU SASAKI, Ken Suzuki, Meng Yang, Tohoku University, sendai, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan* **10:42AM – Measurement of Cassie-to-Wenzel Transition Pressure of Superhydrophobic Coatingss by Microfluidic Method** **Technical Paper Publication.** IMECE2016-67887 – *Min Zhang, Xiangwei Lian, Xiaohao Wang, Tsinghua University, Shenzhen, China* **11:03AM – Reconfigurable DNA Nanorobots** **Technical Presentation.** IMECE2016-67080 – *Mahdi Ilami, Nicholas Stephanopoulos, Hamidreza Marvi, Arizona State University, Tempe, AZ, United States*
	13-9-2 ELECTROKINETIC MODELING AND APPLICATIONS **ROOM 222C** *Session Organizer: Hongwei Sun, Univ Of Mass-Lowell, Lowell, MA, United States* **10:00AM – Geometrical Control of Ionic Current Rectification in Configurable Nanofluidic Diodes** **Technical Presentation.** IMECE2016-67824 – *Mohammad Amin Alibakhshi, Boston University, Boston, MA, United States, Binqi Liu, Tsinghua University, Beijing, China, Chuanhua Duan, Boston University, Boston, MA, United States* **10:21AM – Numerical simulation of insulin depot formation in subcutaneous tissue comparing different cannula geometries** **Technical Paper Publication.** IMECE2016-67473 – *Michael Zedelmair, California State University Northridge, Chatsworth, CA, United States, Abhijit Mukherjee, California State University Northridge, Northridge, CA, United States* **10:42AM – THERMAL MODELING AND DESIGN ANALYSIS OF A HYBRID MICRODEVICE FOR CONTINUOUS-FLOW PCR USING ONE HEATER** **Technical Paper Publication.** IMECE2016-65594 – *Usama Bin Perwez, Imran Aziz, Imran Akhtar, National University of Sciences and Technology, Islamabad, Federal Capital, Pakistan, Tahir Zaidi, National University of Sciences and Technology, Rawalpindi, Pakistan* **11:03AM – Transient electroosmotic flow of Newtonian fluids in a microchannel with heterogeneous zeta potentials at the walls** **Technical Paper Publication.** IMECE2016-65939 – *Juan P. Escandon, SEPI-ESIME Azcapotzalco del IPN, Mexico, Mexico City, Mexico, Eduardo G. Merino, Clara G. Hernandez, SEPI-ESIME Azcapotzalco del IPN, Mexico City, Mexico City, Mexico*	

TIME	
10:00AM–11:45AM	**13-17-1 THERMOELECTRIC DEVICES AND THERMAL MODELING TECHNIQUES** **ROOM 223** *Session Organizer: Dhruv Singh, Global Foundries, Malta, NY, NY, United States* *Session Co-Organizer: Matthew R. Pearson, United Technologies Research Center, East Hartford, CT, United States, Philip Barletta, Research Triangle Institute, RTP, NC, United States, Sung Ki Kim, Samsung, San Jose, CA, United States, Susmita Dash, MIT, Cambridge, MA, United States* **10:00AM – Small Form Factor Peltier-based Liquid Cooling for High Power Density Electronics** **Technical Paper Publication.** IMECE2016-65680 – *Arunima Panigrahy, Ying-Feng Pang, Amy Xia, Victor P Polyanko, Intel Corporation, Santa Clara, CA, United States* **10:21AM – High Power Density Flexible Thermoelectric Generators for Powering Wearable Electronic Devices** **Technical Presentation.** IMECE2016-65497 – *Wenhua Zhang, Dongyan Xu, The Chinese University of Hong Kong, Shatin, Hong Kong* **10:42AM – Transient Analysis of Non-Uniform Heat Input Propagation Through a Heat Sink Base** **Technical Paper Publication.** IMECE2016-67639 – *Srivathsan Sudhakar, Justin A. Weibel, Purdue University, W Lafayette, IN, United States* **11:03AM – Thermal Modeling of Memory Access Operations in Microprocessors** **Technical Paper Publication.** IMECE2016-67697 – *Ratnesh Raj, The University of Texas at Arlington, Arlington, TX, United States, Daipayan Sarkar, University of Texas at Arlington, Arlington, TX, United States, Ankur Jain, University of Texas Arlington, Arlington, TX, United States* **11:24AM – VOLUME AVERAGED PHONON BOLTZMANN TRANSPORT EQUATION FOR NON-GRAY HEAT TRANSPORT IN NANOPOROUS COMPOSITES** **Technical Presentation.** IMECE2016-67845 – *Columbia Mishra, James Loy, The University of Texas at Austin, Austin, TX, United States, Sanjay Mathur, University of Texas At Austin, Austin, TX, United States, Jayathi Murthy, University of Texas-at Austin, Austin, TX, United States*
1:15PM–3:00PM	**13-3-2 ANALYSIS, PROCESSES, AND TECHNOLOGY II** **ROOM 224A** *Session Organizer: Byoung Hee You, Texas State University-San Marcos, San Marcos, TX, United States* *Session Co-Organizer: Namwon Kim, Texas State University, San Marcos, TX, United States, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States, Adam Huang, University Of Arkansas, Fayetteville, AR, United States* **1:15PM – Cracking and Wrinkling in Elastomer-Metal Alloy Bilayers** **Technical Presentation.** IMECE2016-68744 – *Timothy Ibru, Antonia Antoniou, Kyriaki Kalaitzidou, Georgia Institute of Technology, Atlanta, GA, United States* **1:36PM – Flexible Plasma Sterilizers Based on Naturally Fibrous Materials** **Technical Presentation.** IMECE2016-67663 – *Jingjin Xie, Qiang Chen, Poornima Suresh, Rutgers University, Piscataway, NJ, United States, Maxim Lazoutchenkov, Rutgers University, East Brunswick, NJ, United States, James White, Aaron Mazzeo, Rutgers University, Piscataway, NJ, United States* **1:57PM – Design and Fabrication of a High Throughput Processing Module for Plasma Isolation** **Technical Presentation.** IMECE2016-68129 – *Daniel Park, Louisiana State Univ, Baton Rouge, LA, United States, Taehyun Park, Kyungnam University, Changwon, Korea (Republic), Junseo Choi, Louisiana State University, Baton Rouge, LA, United States, In-Hyouk Song, Namwon Kim, Texas State University, San Marcos, TX, United States, Byoung Hee You, Texas State University-San Marcos, San Marcos, TX, United States, Steven Soper, University of North Carolina at Chapel Hill, Chapel Hill, NC, United States, Dimitris E. Nikitopoulos, Sunggook Park, Michael Murphy, Louisiana State University, Baton Rouge, LA, United States* **2:18PM – DESIGN OF A KINEMATIC COUPLING FOR DOUBLE-SIDED MICRO HOT EMBOSSING** **Technical Presentation.** IMECE2016-67662 – *Devanda Lek, Texas State University, San Marcos, TX, United States, Byoung Hee You, Texas State University-San Marcos, San Marcos, TX, United States, In-Hyouk Song, Texas State University, San Marcos, TX, United States, Taehyun Park, Kyungnam University, Changwon, Korea (Republic), Du Hwan Chun, Yeungnam Univ, Gyongsan 712-749, Korea (Republic)* **13-9-3 FLUID ENGINEERING IN MICRO-SYSTEMS** **ROOM 222C** *Session Organizer: Hongwei Sun, Univ Of Mass-lowell, Lowell, MA, United States* **1:15PM – A MoS2 field effect transistor with a liquid back gate** **Technical Paper Publication.** IMECE2016-66544 – *Kabin Lin, Zhishan Yuan, Yu Yu, Kun Li, Haojie Yang, Pinyao He, Jian Ma, Jingjie Sha, Yunfei Chen, Southeast University, Nanjing, China* **1:36PM – Preventing Oxide Adhesion of Liquid Metal Alloys to Enable Actuation in Microfluidic Systems** **Technical Presentation.** IMECE2016-67691 – *Ishan Joshiprua, North Carolina State University, Raleigh, NC, United States, Alexander N.T. Johnson, Hudson R Ayers, Michael D Dickey, NC State University, Raleigh, NC, United States* **1:57PM – Role of Particle Size to Channel Thickness Ratio on Performance of Nanofluids in Microchannels** **Technical Paper Publication.** IMECE2016-66860 – *Sonya Smith, Mohsen Mosleh, Khosro Shirvani, Howard University, Washington, DC, United States* **2:18PM – Droplet Based Fluid Bearing** **Technical Presentation.** IMECE2016-67852 – *Qi Ni, Millicent Schlafly, University of South Florida, Tampa, FL, United States, Nathan Crane, Univ Of South Florida, Tampa, FL, United States*

TIME	
1:15PM–3:00PM	**13-17-2 ELECTRONICS AND PHOTONICS THERMAL MANAGEMENT TECHNOLOGIES** **ROOM 223** *Session Organizer: Hemanth Dhavaleswarapu, Intel Coporation, Chandler, AZ, United States* *Session Co-Organizer: Krishna Kota, New Mexico State University, Las Cruces, NM, United States, Baris Dogruoz, CISCO, San Jose, CA, United States, Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States, Arjang Shahriari, University of Texas at Austin, Austin, TX, United States* **1:15PM – Design Considerations Relating to Non-Thermal Aspects of Oil Immersion Cooling** **Technical Paper Publication.** IMECE2016-67320 – *Jimil M. Shah, Syed Haider Imam Rizvi, The University of Texas at Arlington, Arlington, TX, United States, Indu Sravani Kota, Sahithi Reddy Nagilla, Dhaval Thakkar, University of Texas at Arlington, Arlington, TX, United States, Dereje Agonafer, The University of Texas at Arlington, Arlington, TX, United States* **1:36PM – Heat Transfer in Liquid-Liquid Taylor Flow in Mini Scale Curved Tubing for Constant Wall Temperature** **Technical Paper Publication.** IMECE2016-67700 – *Wesam Adrugi, Memorial University, St. John's, NL, Canada, Yuri Muzychka, Kevin Pope, Memorial University of Newfoundland, St. John's, NL, Canada* **1:57PM – Thermal Enhancement of An LED Light Engine for Automotive Exterior Lighting with Advanced Heat Spreader Technology** **Technical Paper Publication.** IMECE2016-65602 – *Umut Uras, Mehmet Arik, Özyegin University, Istanbul, Turkey, Enes Tamdogan, Ozyegin University, Istanbul, Turkey* **2:18PM – Qualitative Study of Cumulative Corrosion Damage of IT Equipment in a Real Data Center Environment Utilizing Air-side Economizer** **Technical Paper Publication.** IMECE2016-66199 – *Jimil M. Shah, Oluwaseun Awe, Pavan Agarwal, Iziren Akhigbe, Dereje Agonafer, The University of Texas at Arlington, Arlington, TX, United States, Prabjit Singh, IBM Corporation, Poughkeepsie, NY, United States, Naveen Kannan, Mike Kaler, Mestex, Division of Mestek, Dallas, TX, United States* **2:39PM – Experimental Development and Computational Optimization of Flat Heat Pipes for CubeSat Applications** **Technical Paper Publication.** IMECE2016-67229 – *Steven Isaacs, University of Colorado, Boulder, CO, United States, Diego Arias, i2C Solutions, Louisville, CO, United States, Peter Hamlington, University of Colorado, Boulder, CO, United States, Derek Hengeveld, LoadPath, Albuquerque, NM, United States*
3:30PM–5:15PM	**13-4-1 COMPUTATIONAL STUDIES ON MEMS AND NANOSTRUCTURES-I** **ROOM 224A** *Session Organizer: Muhammad Akbar, Tennessee State University, Nashville, TN, United States* *Session Co-Organizer: Tonfiz U. Mahmood, The Boeing Company, Everett, WA, United States* **3:30PM – Effect of Geometric and Material Properties on Thermoelastic Damping (TED) of Hemispherical Inertial Resonator** **Technical Paper Publication.** IMECE2016-66277 – *Jiewen Liu, Joshua Jaekel, Dharamdeo Ramdani, Nabeel khan, University of Windsor, Windsor, ON, Canada, David Ting, Univ Of Windsor, Windsor, ON, Canada, Mohammed Jalal Ahamed, University of Windsor, Windsor, ON, Canada* **3:51PM – Numerically Determining Material Coefficients of Micro-injection Molded PVDF/PZT Piezoelectric Composites with Controlled Filler Orientation** **Technical Paper Publication.** IMECE2016-66600 – *Can Yang, Xiao-Hong Yin, Shiju E, Junwu Kan, Zhonghua Zhang, Dong Liang, Zhejiang Normal University, Jinhua, Zhejiang, China* **4:12PM – Adsorption-controlled Thermal Switch using Nonequilibrium Molecular Dynamics Simulation** **Technical Paper Publication.** IMECE2016-66707 – *Tadeh Avanessian, Gisuk Hwang, Wichita State University, Wichita, KS, United States* **4:33PM – STUDY ON BONDING AND SHEAR FLOW PHENOMENA OF SHEAR PROBE TEST FOR BGA SOLDER JOINT IN NANO-SCALE ANALYSIS** **Technical Paper Publication.** IMECE2016-66773 – *Bao-Hsin Liu, Yu-Liang Chen, Quang-Cherng Hsu, National Kaohsiung University of Applied Sciences, Kaohsiung, Taiwan* **4:54PM – Molecular Dynamics Study of Fast Ionic Transport in Carbon Nanotubes** **Technical Presentation.** IMECE2016-65364 – *Xiang GAO, The Hong Kong University of Science and Technology, Hong Kong, China, Tianshou Zhao, Hong Kong Univ Of Science Tech, Kowloon, China, Zhigang Li, Hong Kong University Of Science And Technology, Kowloon, China* **13-16-1 ADVANCED PACKAGING: SENSORS AND 3D/2.5D PACKAGING** **ROOM 223** *Session Organizer: Ankur Jain, University of Texas Arlington, Arlington, TX, United States* *Session Co-Organizer: Leila Choobineh, SUNY Polytechnic Institute, Uthica, NY, United States, Pritish R. Parida, IBM Research, Yorktown Heights, NY, United States, Ercan Dede, Toyota Research Institute of North America, Ann Arbor, MI, United States, Karthik Bodla, GE Global Research, Niskayuna, NY, United States* **3:30PM – A Damage Free Micro-patterned Metal Interconnection for 3D Flexible Electronic Devices** **Technical Presentation.** IMECE2016-65155 – *Jun Yeob Song, Yongjin Kim, Jae Hak Lee, Seung Man Kim, Korea Institute of Machinery and Materials (KIMM), Daejeon, Korea (Republic)* **3:51PM – Experimental Measurement of Inter-Die Thermal Resistance in a Two Die 3D IC** **Technical Paper Publication.** IMECE2016-65543 – *Leila Choobineh, SUNY Polytechnic Institute, Uthica, NY, United States, Ankur Jain, University of Texas Arlington, Arlington, TX, United States, Jared Jones, University of Texas at Arlington, Arlington, TX, United States* **4:12PM – Crystallinity Control of Electroplated Interconnections for Improving Their Stability and Lifetime** **Technical Paper Publication.** IMECE2016-67737 – *Jiatong Liu, Ken Suzuki, Tohoku university, Sendai, Miyagi, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan* **4:33PM – Micron Level Placement of Nanowires via Real Time observation under Optical Microscope on a Desired Nanochannel for Nanosensors Application** **Technical Paper Publication.** IMECE2016-67969 – *Mohammadsadegh Beheshti, Junseo Choi, Louisiana State University, Baton Rouge, LA, United States, Xiaohua Geng, Elizabeth Podlaha-Murphy, Northeastern University, Boston, IL, United States, Sunggook Park, Louisiana State University, Baton Rouge, LA, United States* **4:54PM – Crystallinity-induced Degradation of the Lifetime of Advanced Interconnections** **Technical Paper Publication.** IMECE2016-67619 – *Takeru Kato, Tohoku University, Sendai, Miyagi, Japan, Ken Suzuki, Tohoku University, Sendai, Miyagi, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan*

10:30AM–12:15PM

14-3-1 SAFETY MANAGEMENT: BUILDING EVACUATION AND TOXIN ELIMINATION

ROOM 129B

Session Organizer: Jennifer Cooper, RCP Inc., Houston, TX, United States

Session Co-Organizer: John Wiechel, The Ohio State University, Columbus, OH, United States

10:30AM – Development of the 100% food-derived lubricating grease for rolling bearings
Technical Presentation. IMECE2016-65355 – *Yujiro Toda, Michita Hokao, Eri Watabe, NSK Ltd., Fujisawa, Japan*

10:51AM – Panic in relation with human behavior and fire safety evacuation
Technical Paper Publication. IMECE2016-66144 – *QAMAR RASHID, Preston University, islamabad, Federal area, Pakistan, Badar Rashid, National University of Sciences and Technology, Islamabad, Federal Area, Pakistan, Amina Rashid, Army Public School And Collages System, Islamabad, Islamabad, Pakistan, Raja Saulat Ullah Khan, Muhammad Ali Jinnah University, Islamabad, Pakistan*

11:12AM – EXPERIMENTAL STUDY ON EVACUATION PROCESS CONSIDERING SOCIAL RELATION IN A TALL BUILDING
Technical Paper Publication. IMECE2016-66284 – *Yaping Ma, Tsinghua University, Beijing, China, Lihua Li, Tsinghua University/ People's Public Security University of China, Beijing, China, Ning Ding, People?s Public Security University of China, Beijing, China, Hui Zhang, Tao Chen, Tsinghua University, Beijing, China*

11:33AM – DECISION-MAKING AND GROUP BEHAVIORS IN A BUILDING EVACUATION EXPERIMENTS CONSIDERING OCCUPANCY SOCIAL NETWORK
Technical Paper Publication. IMECE2016-66050 – *Lihua Li, Tsinghua University/People's Public Security University of China, Beijing, China, Yaping Ma, Tsinghua University, Beijing, China, Hua Jin, People's Public Security University of China, Beijing, China, Hui Zhang, Tsinghua University, Beijing, China, Yi Liu, Peoples Public Security University of China, Beijing, China*

14-4-1 RISK MANAGEMENT: PRIORITIZATION, CONCEPTUAL DESIGNS, QUALITY CONTROL, AND MAINTENANCE

ROOM 129A

Session Organizer: Bin Zhou, FM Global, Norwood, MA, United States

Session Co-Organizer: Chimba Mkandawire, Exponent Inc, Atlanta, GA, United States

10:30AM – Foundry Data Analytics to Identify Critical Parameters Affecting Mechanical Properties of Investment Castings
Technical Paper Publication. IMECE2016-65014 – *Amit Sata, B H Gardi College of Engineering and Technology, Rajkot, Gujarat, India, B. Ravi, Indian Institute of Technology, Bombay, Mumbai, Maharashtra, India*

10:51AM – Development of the Reliability-Risk Modeling Framework for Ranking Conceptual Designs
Technical Paper Publication. IMECE2016-66791 – *Anthony D Angelo, Colorado State University, Hillsborough, NJ, United States*

11:12AM – Deterministic Hazard Evaluation for Natural Gas Pipes Failure
Technical Paper Publication. IMECE2016-67161 – *Mohammad Pourgol-Mohammad, Arash Mehrzad, Sahand University of Technology, Tabriz, East Azarbaijan, Iran, Morteza Soleimani, Islamic Azad University-Marand Branch, Marand, East Azarbaijan, Iran*

11:33AM – Risk Management for Rail Safety- Post Lac Megantic
Technical Paper Publication. IMECE2016-65443 – *Vijay Raghunathan, Robin Pitblado, DNV GL, Katy, TX, United States, Ron Mitchell, AECOM, Vancouver, BC, Canada, Hong Wu, DNV GL, Katy, TX, United States*

1:30PM–3:15PM

14-2-1 SAFETY ENGINEERING: PERSPECTIVES AND INNOVATION

ROOM 224A

Session Organizer: Chimba Mkandawire, Exponent Inc, Atlanta, GA, United States

Session Co-Organizer: John Wiechel, The Ohio State University, Columbus, OH, United States

1:30PM – Teaching the Elements of Safety Engineering in Mechanical Design: More Than Calculations
Track Plenary Presentation. IMECE2016-68772 – *Dennis Guenther, Ohio State University, Columbus, OH, United States*

1:51PM – Evaluation of the Risk Reduction Effectiveness in OSHA?s Workplace Atmosphere Sampling Activities
Technical Paper Publication. IMECE2016-65942 – *Jeremy Gernand, Pennsylvania State Unversity, University Park, PA, United States*

2:12PM – Steel sheets impact simulation for safety guards design: problems and perspectives
Technical Paper Publication. IMECE2016-65181 – *Luca Landi, Dept. of Engineering - University of Perugia, Perugia, Italy, Damiano Amici, University of Perugia - Dept. of Engineering, Perugia, italy, Italy*

2:33PM – Impulse Force as an Additional Safety Criterion for Improving the Injury Prevention Performance of Impact Attenuation Surfaces in Children?s Playgrounds
Technical Paper Publication. IMECE2016-65565 – *David Eager, University of Technology Sydney, Sydney Nsw 2007, NSW, Australia, Hasti Hayati, Chris Chapman, University of Technology Sydney, Sydney/Ultimo, NSW, Australia*

TIME		
3:45PM–5:30PM	**14-12-1 CONDITION MONITORING AND RELIABILITY ANALYSIS** **ROOM 224A** *Session Organizer: Bin Zhou, FM Global, Norwood, MA, United States* *Session Co-Organizer: Mohammad Pourgol-Mohammad, Sahand University of Technology, Tabriz, East Azarbaijan, Iran* **3:45PM – Handling Uncertainty in the Remnant Fatigue Life Assessment of Offshore Process Pipework** **Technical Paper Publication.** IMECE2016-65504 – *Arvind Keprate, R.M. Chandima Ratnayake, University of Stavanger, Stavanger, Norway* **4:06PM – Steam Turbine Loss Evaluation and Condition Monitoring-A Loss Data Based Study** **Technical Paper Publication.** IMECE2016-65087 – *Bin Zhou, FM Global, Norwood, MA, United States* **4:27PM – A Method for Velocity Reliability Analysis of the Complex Planar Linkage Mechanism Based on Equal-effective Mechanics Model** **Technical Paper Publication.** IMECE2016-65463 – *Jingyi Liu, Yugang Zhang, Wei Guo, Cong Sun, Northwestern Polytechnical University, Xi'an, China* **4:48PM – TIME FREQUENCY REPRESENTATION BASED ON ROBUST LOCAL MEAN DECOMPOSITION** **Technical Paper Publication.** IMECE2016-65184 – *Zhiliang Liu, Yaqiang Jin, University of Electronic Science and Technology of China, Chengdu, Sichuan, China, Ming Jian Zuo, University of Alberta, Edmonton, AB, Canada*	**14-12-2 FUZZY LOGIC, INJURIES, AND HUMAN HEALTH** **ROOM 224B** *Session Organizer: Jeremy Gernand, Pennsylvania State Unversity, University Park, PA, United States* *Session Co-Organizer: Jennifer Cooper, RCP Inc., Houston, TX, United States* **3:45PM – Computational Investigation of Wettability and the Threshold for Splatter or Splash for the Control of Fluids Hazardous to Human Health** **Technical Presentation.** IMECE2016-66188 – *Matthew Owen, Milind A. Jog, University of Cincinnati, Cincinnati, OH, United States, Jay Kim, Univ Of Cincinnati, Cincinnati, OH, United States* **4:06PM – Risk Assessment of Air Cannons at Sporting Events** **Technical Paper Publication.** IMECE2016-67213 – *Travis Chewning-Kulick, United States Military Academy, West Point, NY, United States, Marvin Lewis, United State Military Academy, West Point, NY, United States, Michael Benson, Joshua Keena, U.S. Military Academy, West Point, NY, United States, Matthew Posner, Keller Army Community Hospital, West Point, NY, United States* **4:27PM – A Fuzzy Logic Approach to Evaluate Transformer Fleet Risk from Geomagnetic Storms** **Technical Paper Publication.** IMECE2016-65382 – *Sujit Purushothaman, FM Global, Norwood, MA, United States* **4:48PM – Limitations on the Reliability of In Vitro Predictive Toxicity Models to Predict Pulmonary Toxicity in Rodents** **Technical Paper Publication.** IMECE2016-67151 – *Jeremy Gernand, Pennsylvania State Unversity, University Park, PA, United States*

TIME	
10:30AM–12:15PM	**14-6-1 RELIABILITY METHODS: OPTIMIZATION, CYCLIC STRESS, AND PHYSICS OF FAILURE** **ROOM 221A** *Session Organizer: Mohammad Pourgol-Mohammad, Sahand University of Technology, Tabriz, East Azarbaijan, Iran* *Session Co-Organizer: Jeremy Gernand, Pennsylvania State Unversity, University Park, PA, United States* **10:30AM – Reliability Analysis Method for Multi-State Repairable Systems Based on Goal Oriented Methodology** **Technical Paper Publication.** IMECE2016-65380 – *Xiaojian YI, Beijing Institute of Technology, Beijing, China, B.S. Dhillon, University of Ottawa, Ottawa, ON, Canada, Hui-na MU, Beijing Institute of Technology, Beijing, China, Zhong ZHANG, China North Vehicle Research Institute, Beijing, China, Peng HOU, Beijing Institute of Technology, Beijing, China* **10:51AM – Study On the Optimization Allocation Method On Balance Of Reliability & Maintainability Index With the Goal Of Availability** **Technical Paper Publication.** IMECE2016-65384 – *Hui-na MU, Li CHENG, Xiaojian YI, Beijing Institute of Technology, Beijing, China, B.S. Dhillon, University of Ottawa, Ottawa, ON, Canada, Peng HOU, Beijing Institute of Technology, Beijing, China* **11:12AM – Reliability Optimization Allocation Method for Multifunction Systems Based on Goal Oriented Methodology** **Technical Paper Publication.** IMECE2016-65383 – *Xiaojian YI, Beijing Institute of Technology, Beijing, China, B.S. Dhillon, University of Ottawa, Ottawa, ON, Canada, Jian SHI, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China, Hui-na MU, Peng HOU, Beijing Institute of Technology, Beijing, China* **11:33AM – THE RELIABILITY OF A COMPONENT UNDER MULTIPLE CYCLIC STRESS LEVELS WITH DISTRIBUTED CYCLIC NUMBERS** **Technical Paper Publication.** IMECE2016-65269 – *Xiaobin Le, Wentworth Inst Of Tech, Boston, MA, United States* **11:54AM – Probabilistic Reliability Evaluation of Space System Considering Physics of Failure: Case Study of Fatigue Analysis** **Technical Paper Publication.** IMECE2016-67206 – *Saeed Kiad, Mohammad Pourgol-Mohammad, Hossein Salimi, Sahand University of Technology, Tabriz, East Azarbaijan, Iran*	**14-10-1 SAFETY AND RISK IN TRANSPORTATION** **ROOM 221B** *Session Organizer: John Wiechel, The Ohio State University, Columbus, OH, United States* *Session Co-Organizer: Chimba Mkandawire, Exponent Inc, Atlanta, GA, United States* **10:30AM – FORKLIFT OPERATOR NECK LOADS AND BACK LOADS ON A SIT DOWN LIFT TRUCK DURING A SUDDEN DROP** **Technical Paper Publication.** IMECE2016-65169 – *Stacy Imler, Exponent, Inc., Atlanta, GA, United States, James Smith, Exponent, Inc., Phoenix, AZ, United States, Chimba Mkandawire, Exponent Inc, Atlanta, GA, United States* **10:51AM – The Combined Effects of Impact Direction and Impact Location on Serious-to-Maximum Injuries among Drivers in Motor Vehicle Frontal Crashes** **Technical Paper Publication.** IMECE2016-65349 – *Peiyu Li, Chunsheng Ma, Tsinghua University, Beijing, Beijing, China, Kai Zhang, Hunan University, Changsha, Hunan, China, Longli Shi, Jinhuan Zhang, Tsinghua University, Beijing, Beijing, China* **11:12AM – Comparative analysis on traumatic brain injury risk due to primary and secondary impacts in a vehicle?pedestrian sideswipe accident** **Technical Paper Publication.** IMECE2016-66021 – *Atsutaka Tamura, Tottori University, Tottori, Japan, Junji Hasegawa, Tokyo Metropolitan University, Tokyo, Japan, Takao Koide, Tottori University, Tottori, Japan* **11:33AM – Applications of the G-DaTADV? System of Equations when Determining Total Velocity Change Resulting from Motor Vehicle Collisions** **Technical Paper Publication.** IMECE2016-65013 – *Jerry Ogden, Mathew Martonovich, Courtney Engle, OEC Forensics, Littleton, CO, United States*
1:30PM–3:15PM	**14-6-2 RELIABILITY METHODS: SATELLITES, TRANSMISSIONS, CYCLIC SHEAR, AND BOOTSTRAPPING** **ROOM 226A** *Session Organizer: Mohammad Pourgol-Mohammad, Sahand University of Technology, Tabriz, East Azarbaijan, Iran* *Session Co-Organizer: Jeremy Gernand, Pennsylvania State Unversity, University Park, PA, United States* **1:30PM – Dynamics Reliability Evaluation of Space Systems: Case Study of Satellite Attitude Control** **Technical Paper Publication.** IMECE2016-65327 – *Mohammad Pourgol-Mohammad, Arash Farhadi, Farzin Salehpour Oskouei, Sahand University of Technology, Tabriz, East Azarbaijan, Iran* **1:51PM – Reliability Prediction Approach Based on Interval-Based Non-Probability: Case Study of Transmission System** **Technical Paper Publication.** IMECE2016-65387 – *Xiaojian YI, Beijing Institute of Technology, Beijing, China, Jian SHI, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China, B.S. Dhillon, University of Ottawa, Ottawa, ON, Canada, Hai-ping DONG, Yue-hua LAI, Beijing Institute of Technology, Beijing, China* **2:12PM – Reproduction of localized slip and effect of FE parameters on the loosening due to cyclic shear loading** **Technical Paper Publication.** IMECE2016-66086 – *Hao Gong, Zhimeng Yang, Feikai Zhang, Tianlei Li, Yinghui Xiong, Beijing Institute of Technology, Beijing, Beijing, China* **2:33PM – An Improved Model-free Sampling technique based on Bootstrap method** **Technical Paper Publication.** IMECE2016-66404 – *XinShui Yu, Zhaohui Yang, KunLing Song, Tianxiang Yu, BoZhi Guo, Northwestern Polytechnical University, Xi'an, China*	
3:45PM–5:30PM	**14-12-3 HAZARDS AND SAFETY FEATURES FOR VEHICLES AND WORKERS** **ROOM 226A** *Session Organizer: Jeremy Gernand, Pennsylvania State Unversity, University Park, PA, United States* *Session Co-Organizer: Bin Zhou, FM Global, Norwood, MA, United States* **3:45PM – Research on Function Reliability of Gear Door Lock System with Correlated Failure Models Based On Mixed Copula** **Technical Paper Publication.** IMECE2016-66619 – *Linjie Shen, Yugang Zhang, Xinchen Zhuang, Northwestern Polytechnical University, Xi'an, Shaanxi, China* **4:06PM – Review of Hazards and Assessment of Safety Features for Agricultural Equipment** **Technical Paper Publication.** IMECE2016-67331 – *Jeffrey Kornuta, Exponent, Inc., Houston, TX, United States, Eugenia Kennedy, Exponent Failure Analysis, Natick, MA, United States* **4:27PM – Ride-On Mower Rollover Accidents - Study and Design Solutions** **Technical Paper Publication.** IMECE2016-67718 – *Kevin Sevart, Kevin B. Sevart P.E., Wichita, KS, United States* **4:48PM – Virtual Testing Applied to Vehicle Door Latch Performance Evaluation** **Technical Paper Publication.** IMECE2016-65095 – *Keith Friedman, Khanh Bui, John Hutchinson, Matthew Stephens, Friedman Research Corporation, Austin, TX, United States*	

TIME	
10:30AM–12:15PM	**15-3-1 CAD/CAM/CAE IN DESIGN** **ROOM 131A** *Session Organizer: Craig Shakarji, NIST, Gaithersburg, MD, United States* **10:30AM – Computational Investigations for a new, constrained least-squares datum defintion for circles, cylinders, and spheres** **Technical Paper Publication.** IMECE2016-67753 – *Craig Shakarji, Vijay Srinivasan, NIST, Gaithersburg, MD, United States* **10:51AM – CAD Integration in Virtual Reality Design Reviews for Improved Engineering Model Interaction** **Technical Paper Publication.** IMECE2016-66948 – *Ian Freeman, John Salmon, Joshua Q Coburn, Brigham Young University, Provo, UT, United States* **11:12AM – Simulation of Wear for Revolute Joint experiencing periodic load of a Gear Door Lock** **Technical Paper Publication.** IMECE2016-66502 – *Xinchen Zhuang, Tianxiang Yu, Zhongchao Sun, Zhaohui Yang, BoZhi Guo, Northwestern Polytechnical University, Xi'an, shaanxi, China* **11:33AM – FINITE ELEMENT ANALYSIS OF TOOL CHANGING MECHANISM OF ATC USED IN VMC** **Technical Paper Publication.** IMECE2016-66874 – *Manoj Vaghela, Lukhdhirji Engineering College, Morbi, Morbi, India, Siddharthsinh Jadeja, B H Gardi College of Engineering & Technology, Rajkot Gujarat, India, Vimal Savsani, Pandit Deendayal Petroleum University, Gandhinagar, India, A. Lal, svnit, surat, India* **11:54AM – SINGLE LAYERED CABLE UNDER CONSTRAINED BENDING - DEVELOPMENT OF NEW MATHEMATICAL MODEL AND VALIDATION** **Technical Paper Publication.** IMECE2016-67854 – *Shibu Gopalakrishnan, Anna University, Chennai, India, Gopinath Dhandapani, G.K.M College of Engineering and Technology, Chennai, India*
1:30PM–3:15PM	**15-2-1 APPLYING A SOCIAL CONTEXT TO DESIGN** **ROOM 225A** *Session Organizer: John Salmon, Brigham Young University, Provo, UT, United States* *Session Co-Organizer: Matt Bohm, University of Louisville, Louisville, KY, United States* **1:30PM – Cassowary Casques for Shock Absorption** **Technical Paper Publication.** IMECE2016-65120 – *Scott Widholm, General Atomics Aeronautical Systems, Palmdale, CA, United States, Mariappan Jawaharlal, California State Polytechnic University, Pomona, Pomona, CA, United States* **1:51PM – A Preliminary Study: The Effects of Personal Motivations on Design Quality** **Technical Paper Publication.** IMECE2016-66818 – *Philip Mountain, Marie Riggs, Matt Bohm, Robert Carini, University of Louisville, Louisville, KY, United States* **2:12PM – Feasibility Study of Multi-User Collaboration Awareness Concepts in Computer-Aided Design Applications** **Technical Paper Publication.** IMECE2016-67127 – *J. Logan Hill, John Salmon, Brigham Young University, Provo, UT, United States* **2:33PM – A Systems Design Approach To Appropriate, Smart Technology In A Youth Agriculture Initiative** **Technical Paper Publication.** IMECE2016-67139 – *Nickey Janse Van Rensburg, Warren S. Hurter, Naude C. Malan, University of Johannesburg, Johannesburg, South Africa* **15-8-1 SYSTEMS AND COMPLEXITY** **ROOM 224B** *Session Organizer: Christopher Hoyle, Oregon State University, Corvallis, OR, United States* *Session Co-Organizer: Matthew Campbell, OREGON STATE UNIVERSITY, corvallis, OR, United States* **1:30PM – Design of a Stewart-Gough Platform for Engineering Material Characterization** **Technical Paper Publication.** IMECE2016-66669 – *Sean Fry, Cameron Turner, Clemson University, Clemson, SC, United States* **1:51PM – Functional Models with Inherent bBehavior: Towards a Framework for Safety Analysis Early in the Design of Complex Systems** **Technical Paper Publication.** IMECE2016-67040 – *Matthew McIntire, Oregon State University, Newberg, OR, United States, ELHAM KESHAVARZI, Christopher Hoyle, Irem Tumer, Oregon State University, Corvallis, OR, United States* **2:12PM – Structural Design of a Small Earth Remote Sensing Satellite** **Technical Presentation.** IMECE2016-68007 – *Ali Aborehab, Hisham Kamel, Mohamed Kamel, MTC, Cairo, Egypt, Eldesoky Elsoaly, Higher Tech. Institute, Cairo, Egypt* **2:33PM – Acquiring Embodied Knowledge through Practice: A Wisdom Engineering Approach** **Technical Paper Publication.** IMECE2016-65667 – *Shuichi Fukuda, Keio University, Tokyo 180-0002, Japan* **2:54PM – Challenges of Industry 4.0 for the Next Step** **Technical Presentation.** IMECE2016-68605 – *Shuichi Fukuda, Keio University, Tokyo 180-0002, Japan*

TIME	
3:45PM–5:30PM	**15-4-1 CASE STUDIES IN SYSTEMS, DESIGN AND COMPLEXITY** **ROOM 225A** *Session Organizer: Briana Lucero, Los Alamos National Laboratory, Los Alamos, NM, United States* *Session Co-Organizer: Matt Bohm, University of Louisville, Louisville, KY, United States* **3:45PM – Challenges and Key Techniques for Design and Manufacturing of High Temperature Solar Reactors and Auxiliaries: An Iris Mechanism as an Example Case** **Technical Presentation.** IMECE2016-68654 – *Cédric Ophoff, KU Leuven, Leuven, Belgium, Nesrin Ozalp, Katholieke Universiteit (KU) Leuven, Leuven, Belgium* **4:06PM – A METHODOLOGICAL APPROACH TO SUPPORT THE DESIGN OF INDUCTION HOBS** **Technical Paper Publication.** IMECE2016-65661 – *Daniele Landi, Anna Costanza Russo, Paolo Cicconi, Università Politecnica Delle Marche, Ancona, Italy, Michele Germani, Università Politecnica delle Marche, Ancona 60131, Italy* **4:27PM – MATLAB Simulation of autonomous servo driven oil-hydraulic power unit** **Technical Paper Publication.** IMECE2016-66582 – *Eurico Seabra, Jorge Costa, Hélder Puga, Celina P. Leão, University of Minho, Guimarães, Minho, Portugal* **4:48PM – Evaluation of Techniques to Describe Device Complexity in Pre and Post Design Stages** **Technical Paper Publication.** IMECE2016-66998 – *Philip Mountain, Marie Riggs, Matt Bohm, University of Louisville, Louisville, KY, United States* **5:09PM – Review and Comparison of Buckling Methodologies for ASME B&PV Code, Section III Subsection NF Linear Piping Restraints** **Technical Paper Publication.** IMECE2016-67207 – *Shrikant Nargund, Dennis Williams, Lisega Inc., Kodak, TN, United States*	**15-5-1 DESIGN UNDER UNCERTAINTY** **ROOM 225B** *Session Organizer: Sandeep Patil, University of Texas Arlington, Arlington, TX, United States* **3:45PM – An Enhanced Surrogate Model based Vehicle Robust Design Method under Materials and Manufacturing Uncertainties** **Technical Paper Publication.** IMECE2016-67714 – *Jie Li, Chongqing Changan Auto R&D Center, Changan Automobile Co, Ltd., Chongqing, Chongqing, China, Yudong Fang, Zhenfei Zhan, State Key Laboratory of Mechanical Transmission, Chongqing University, Chongqing, Chongqing, China, Yazhou Jiang, Chongqing Changan Auto R&D Center, Changan Automobile Co, Ltd., Chongqing, Chongqing, China* **4:06PM – Modeling Of An Experimental Hydraulic System With Two Flow Control Parameters** **Technical Paper Publication.** IMECE2016-65167 – *Yuval Ben-Galim, NRCN, Beer Sheva, Israel, Liran Bar Or, Rotem Industries LTD, Arava, Israel, Kfir Barda, Nesi Horesh, Rotem Industries LTD., Arava, Israel, Yitschak Cahana, Yagil Kadmon, NRCN, Beer Sheva, Israel, Gideon Miron, Yeshayahu Weiss, Rotem Industries LTD., Arava, Israel* **4:27PM – Verification Method for the Design of Remote Handling Devices using a Reliability-based Stochastic Petri Nets Approach** **Technical Paper Publication.** IMECE2016-66027 – *Romain Sibois, Mikko Siuko, Timo Määttä, VTT Technical Research Centre of Finland, Tampere, Finland* **4:48PM – Determination of orthotropic thermal conductivity of heat generating cylinder** **Technical Paper Publication.** IMECE2016-67918 – *Sandeep Patil, University of Texas Arlington, Arlington, TX, United States, Siddarth Chintamani, University of Texas at Arlington, Irving, TX, United States, Brian Dennis, University of Texas arlington, Arlington, TX, United States, Ratan Kumar, University of Texas at Arlington, Arlington, TX, United States*

TIME	
10:30AM–12:15PM	**15-1-1 GENERAL TOPICS IN SYSTEMS, DESIGN AND COMPLEXITY** **ROOM 131A** *Session Organizer: Edward Osakue, Texas Southern University, Houston, TX, United States* **10:30AM – Simplified Spur Gear Design** **Technical Paper Publication.** IMECE2016-65426 – *Edward Osakue, Texas Southern University, Houston, TX, United States* **10:51AM – Geometry design and contact ratio analysis for circular arc parallel-axis helical gears** **Technical Paper Publication.** IMECE2016-65820 – *Zhen Chen, Bo Lei, Quan Zhao, China University of Geosciences (Wuhan), Wuhan, China* **11:12AM – Random Generation and Kinematic Information Retrieval of Hybrid Morphologies for Task-based Manipulator Synthesis** **Technical Presentation.** IMECE2016-68221 – *Sameer Gupta, Indian Institute of Technology Ropar, Rupnagar, Punjab, India, Ekta Singla, IIT Ropar, Rupnagar, India* **11:33AM – A Translation Technique: Dimensionless Ratings and Conversion Factors between ISO and AGMA Gear Standards** **Technical Paper Publication.** IMECE2016-65123 – *Necdet Geren, Çagri Uzay, University of Cukurova, Adana, — select state —, Turkey* **11:54AM – Human-Robot Collaboration Application in Automotive Industry : Brake Disk Assembly** **Technical Paper Publication.** IMECE2016-65906 – *SAHAR HEYDARYAN, Giovanni Belingardi, Joel Sauza-Bedolla, Politecnico di Torino, torino, piomonte, Italy* **15-6-1 OPTIMIZATION IN DESIGN** **ROOM 221C** *Session Organizer: Andrew Lambe, York University, Toronto, ON, Canada* **10:30AM – An Ants-Search Based Method for Optimum Synthesis of Compliant Mechanisms** **Technical Paper Publication.** IMECE2016-65142 – *Nadim Diab, Rafik Hariri University, Mount Lebanon, NA, Lebanon, Ahmad Smaili, Rafik Hariri University, Mechref, Lebanon* **10:51AM – Adaptive Topology Optimization using a Continuous Approximation of Material Distribution** **Technical Paper Publication.** IMECE2016-65537 – *Andrew Lambe, Aleksander Czekanski, York University, Toronto, ON, Canada* **11:12AM – The Reduced Tolerance Allocation Problem** **Technical Paper Publication.** IMECE2016-65848 – *David Sh.L. Shoukr, Minia University, Minia, Egypt, Mohamed H. Gadallah, Cairo University, Cairo, Egypt, Sayed Metwalli, Cairo University, Giza, Egypt* **11:33AM – Fast Multidisciplinary Design Optimization in the Development of Mechatronic Systems** **Technical Paper Publication.** IMECE2016-65599 – *Andreas Reul, Technische Universität Darmstadt, Darmstadt, Hessen, Germany, Lukas Schwerdt, Leibniz Universität Hannover, Hannover, Niedersachsen, Germany, Stephan Rinderknecht, Technische Universität Darmstadt, Darmstadt, Hessen, Germany* **11:54AM – Dynamic and Predictive Optimization Concept for Energy Supply Systems of Energy-Intensive Industry** **Technical Paper Publication.** IMECE2016-66536 – *Martin Koller, Technical University of Vienna, Vienna, Austria, Rene Hofmann, Technical University of Vienna, Moedling, Austria*
1:30PM–3:15PM	**15-7-1 PRODUCT AND PROCESS DESIGN I** **ROOM 226B** *Session Organizer: Shuichi Fukuda, Keio University, Tokyo 180-0002, Japan* *Session Co-Organizer: Warren S. Hurter, University of Johannesburg, Johannesburg, Gauteng, South Africa, weifeng huang, OREGON STATE UNIVERSITY, corvallis, OR, United States* **1:30PM – An Object-Oriented and Modular Computational Framework for Designing Reconfigurable Unmanned Aerial Vehicles** **Technical Paper Publication.** IMECE2016-67328 – *Benjamin Rinauto, University at Buffalo, The State University of New York, Buffalo, NY, United States, Sanchit Gupta, University at Buffalo, Buffalo, NY, United States, Victor Maldonado, University of Texas at San Antonio, San Antonio, TX, United States, Souma Chowdhury, University at Buffalo, Buffalo, NY, United States* **1:51PM – Analysing a Design and Technology Development Framework Through the Implementation of a Prototype Composite Vehicle Suspension System** **Technical Paper Publication.** IMECE2016-66497 – *Warren S. Hurter, University of Johannesburg, Johannesburg, Gauteng, South Africa, Nickey Janse van Rensburg, Daniel Madyira, The University of Johannesburg, Johannesburg, Gauteng, South Africa* **2:12PM – Design of Experiments to Support Automated Assembly Planning** **Technical Paper Publication.** IMECE2016-66910 – *YUE LIU, weifeng huang, Nima Rafibakhsh, Matthew Campbell, Christopher Hoyle, Oregon State University, corvallis, OR, United States* **2:33PM – Boom Lift Operator Protection From Stored Energy Hazards** **Technical Paper Publication.** IMECE2016-66743 – *William Pierce, Knott Laboratory, LLC, Centennial, CO, United States, Ben Railsback, Knott Laboratory Llc, Centennial, CO, United States* **2:54PM – A FRINGE SIGNAL PROCESSING METHOD WITH MULTI-SAMPLE ZERO-CROSSING DETECTION BASED ON DSP AND ITS APPLICATION IN ABSOLUTE GRAVIMETERS** **Technical Paper Publication.** IMECE2016-66653 – *Jin Qian, Kang Wu, Lijun Wang, Tsinghua University, Beijing, China*

TIME	
3:45PM–5:30PM	**15-7-2 PRODUCT AND PROCESS DESIGN II** **ROOM 226B** *Session Organizer: Shuichi Fukuda, Keio University, Tokyo 180-0002, Japan* *Session Co-Organizer: Mariappan Jawaharlal, California State Polytechnic University, Pomona, Pomona, CA, United States* **3:45PM – Design of Products That Meet Contradictory Requirements** **Technical Paper Publication.** IMECE2016-65108 – *Len MALININ, Gen3 Partners, Boston, MA, United States* **4:06PM – Probabilistic Description of the Function-Structure Relationship in Products** **Technical Paper Publication.** IMECE2016-66041 – *Pan Wang, Yuan Li, Jie Zhang, Jianfeng Yu, Northwestern Polytechnical University, Xi'an, China* **4:27PM – LIFE CENTERED DESIGN USING MORPHOLOGICAL CHART** **Technical Paper Publication.** IMECE2016-65121 – *Mariappan Jawaharlal, California State Polytechnic University, Pomona, Pomona, CA, United States*, *Stephanie Ellingwood, Jay Lim Golf Academy, FULLERTON, CA, United States*, *Kiran Bala Thokchom, Manipur University, Imphal, India* **4:48PM – Knowledge Based Engineering and Ontology Engineering approaches for product development: methods and tools for Design Automation in industrial engineering.** **Technical Paper Publication.** IMECE2016-67292 – *Francesco Furini, Politecnico Di Milano, Castano Primo, Italy*, *Marco rossoni, Politecnico di Milano, Milano, Italy*, *Giorgio Colombo, Politecnico Di Milano, DIP. MECCANICA, Milano, Italy* **5:09PM – NUMERICAL INVESTIGATION OF THE EFFECT OF TIP CLEARANCE AND VANELESS GAP ON IMPELLER-DIFFUSER INTERACTION IN A TURBOCHARGER COMPRESSOR STAGE** **Technical Paper Publication.** IMECE2016-66613 – *RICHARD AMANKWA ADJEI, Weizhe Wang, Nailong Zhao, Yingzheng Liu, Shanghai Jiao Tong University, Shanghai, China*, *Tomoki Kawakubo, IHI Corporation, Yokohama, Japan*

TIME	
10:30AM–12:15PM	**16-1-1 HYBRID/ELECTRIC VEHICLES AND AFTERTREATMENT TECHNOLOGIES** **ROOM 131C** *Session Organizer: Christopher Depcik, University of Kansas, Lawrence, KS, United States* *Session Co-Organizer: Mohamed El-Sayed, Kettering University, Flint, MI, United States* **10:30AM – DESIGN AND DEVELOPMENT OF A FOLDING ELECTRICALLY ASSISTED BICYCLE** **Technical Paper Publication.** IMECE2016-66238 – *Mohamed El-Sayed, David Lingerfelt, Austin McGuire, Allan Wicker, Kettering University, Flint, MI, United States* **10:51AM – Research and Bench Test of Fuzzy Logic-Based Power Allocation Strategy for Hybrid Energy Storage System** **Technical Paper Publication.** IMECE2016-66070 – *Yulong Zhao, Weida Wang, Beijing Institute of Technology, Beijing, China, Xiang Changle, Beijing Intsitute Of Technology, Beijing 100081, Beijing, China, Hui Liu, Yanzi Wang, Beijing Institute of Technology, Beijing, Beijing, China* **11:12AM – Parameter Matching And Optimization Of A Series Hybrid Electric Vehicle Powertrain System** **Technical Paper Publication.** IMECE2016-66312 – *Swagata Borthakur, Shankar Coimbatore Subramanian, Indian Institute of Technology Madras, Chennai, India* **11:33AM – Design of an Efficient Catalytic Converter using CFD Techniques** **Technical Paper Publication.** IMECE2016-67181 – *Brent Warner, Ayele Tegegne, Muhammad Akbar, Tennessee State University, Nashville, TN, United States* **11:54AM – A STUDY OF SHAPE OPTIMIZATION METHOD ON CONNECTION CONES FOR DIESEL PARTICULATE FILTER (DPF)** **Technical Paper Publication.** IMECE2016-66080 – *Mingfei Mu, Xinghu Li, Jawad Aslam, Yong Qiu, Hao Yang, Guiyue Kou, Yan Wang, Beihang University, Beijing, China*	**16-3-1 TRANSPORTATION SYSTEMS DYNAMICS AND CONTROLS** **ROOM 221A** *Session Organizer: Iman Hazrati Ashtiani, Concordia University, Montreal, QC, Canada* *Session Co-Organizer: Ioannis Nikolos, Technical University Of Crete, Chania, Greece* **10:30AM – Collision Avoidance Algorithm for a Heavy Commercial Road Vehicle under Heterogeneous Traffic** **Technical Paper Publication.** IMECE2016-66307 – *Vignesh Rajaram, Shankar Coimbatore Subramanian, Indian Institute of Technology Madras, Chennai, India* **10:51AM – Analysis Of Vehicle Lateral Response During Regenerative Braking In a Turn** **Technical Paper Publication.** IMECE2016-66355 – *C S Nanda Kumar, Shankar Coimbatore Subramanian, Indian Institute of Technology Madras, Chennai, India* **11:12AM – Dynamic Impact Simulation Study of Tubeless Pneumatic Tires** **Technical Paper Publication.** IMECE2016-67123 – *Floyd Linayao, San Jose State University, San Lose, CA, United States, Raymond K. Yee, San Jose State University, San Jose, CA, United States* **11:33AM – LOCATION SENSOR FUSION AND ERROR CORRECTION IN INTELLIGENT VEHICLES** **Technical Paper Publication.** IMECE2016-67084 – *Valentin Soloiu, Thomas Beyerl, Bernard Ibru, Johnnie Williams, Imani Augusma, Georgia Southern University, Statesboro, GA, United States* **11:54AM – Nonlinear Stability Analysis of a Macroscopic Traffic Flow Model For Adaptive Cruise Control Systems** **Technical Paper Publication.** IMECE2016-66470 – *Kallirroi N. Porfyri, Ioannis Nikolos, Anargiros I. Delis, Markos Papageorgiou, Technical University Of Crete, Chania, Greece*
1:30PM–3:15PM	**16-4-1 DYNAMIC MODELING AND CONTROL OF TRANSPORTATION SYSTEMS** **ROOM 225B** *Session Organizer: Yuping He, University of Ontario Institute of Technology, Oshawa, ON, Canada* *Session Co-Organizer: Narayanan Komerath, Georgia Institute of Technology, Atlanta, GA, United States* **1:30PM – Model-Reference Based Adaptive Control for Enhancing Lateral Stability of Car-Trailer Systems** **Technical Paper Publication.** IMECE2016-65090 – *Smitha Vempaty, Yuping He, Eungkil Lee, University of Ontario Institute of Technology, Oshawa, ON, Canada* **1:51PM – Development of Parameters for Dynamic Modeling of Underground Haulage Vehicles** **Technical Paper Publication.** IMECE2016-65381 – *Christopher Jobes, NIOSH/OMSHR, Pittsburgh, PA, United States, Peter Bissert, NIOSH, Pittsburgh, PA, United States, Nina Mahmoudian, Michigan Technological University, Houghton, MI, United States, Bingxi Li, Michigan Technolgical University, Houghton, MI, United States* **2:12PM – Lateral Stability Analysis for Car-Trailer Combinations** **Technical Paper Publication.** IMECE2016-65648 – *Eungkil Lee, Tao Sun, Yuping He, University of Ontario Institute of Technology, Oshawa, ON, Canada* **2:33PM – Embedded Controller Based Automatic Gear Change Mechanism For Two Wheeled Manual Transmission Motorcycle** **Technical Paper Publication.** IMECE2016-68128 – *Aditya Mairal, Akash Pandey, The Maharaja Sayajirao University of Baroda, Vadodara, Gujarat, India, Jimil M. Shah, The University of Texas at Arlington, Arlington, TX, United States* **2:54PM – A VIRTUAL MODELLING OF A HYBRID ROAD TRACTOR FOR FREIGHT DELIVERY** **Technical Paper Publication.** IMECE2016-68013 – *Paolo Cicconi, Daniele Landi, Università Politecnica Delle Marche, Ancona, Ancona, Italy, Michele Germani, Università Politecnica delle Marche, Ancona 60131, Italy*	

TIME	
3:45PM–5:30PM	**16-4-2 NEW AND ADVANCED TRANSPORTATION TECHNOLOGIES** **ROOM 226A** *Session Organizer: Narayanan Komerath, Georgia Institute of Technology, Atlanta, GA, United States* *Session Co-Organizer: Yuping He, University of Ontario Institute of Technology, Oshawa, ON, Canada* **3:45PM – Optimized Modular Design for Energy Efficiency: the case of an innovative electric vehicle design** **Technical Paper Publication.** IMECE2016-65430 – *Michele Trancossi, Sheffield Hallam University, Sheffield, United Kingdom, Jose Pascoa, Universidade Da Beira Interior, Covilha, Portugal* **4:06PM – Performance Summary of Continuous Mining Machine Proximity Detection Systems** **Technical Paper Publication.** IMECE2016-65536 – *Peter Bissert, Joseph DuCarme, Jacob Carr, NIOSH, Pittsburgh, PA, United States, Christopher Jobes, NIOSH/OMSHR, Pittsburgh, PA, United States, Jeffrey Yonkey, NIOSH, Pittsburgh, PA, United States* **4:27PM – A Pneumatic Multi-Dome Active Energy Harvesting System** **Technical Paper Publication.** IMECE2016-66162 – *Daniel Goodey, Austin Fidlar, Varuna Denawakage Don, Donnie Hudnell, Ronell Pemberton, Mohamed Salim Azzouz, Jan Brink, Midwestern State University, Wichita Falls, TX, United States* **4:48PM – Small Arrays of Single Beam Laser Sensors as Effective LIDAR Obstacle Detection Systems for Autonomous Vehicles** **Technical Paper Publication.** IMECE2016-67130 – *Valentin Soloiu, Bernard Ibru, Thomas Beyerl, Georgia Southern University, Statesboro, GA, United States*

TIME	
10:30AM–12:15PM	**16-2-1 VEHICLES CRASHWORTHINESS** **ROOM 222A** *Session Organizer: Lingyu Sun, Beihang University, Beijing, China* *Session Co-Organizer: Mohamed Ridha Baccouche, Ford, Ann Arbor, MI, United States* **10:30AM – PARAMETRIC ANALYSIS OF FACTORS INFLUENCING STIFFNESS AND CRASHWORTHINESS OF A LADDER FRAME** **Technical Paper Publication.** IMECE2016-65408 – *Shammy Devaraj, Ashok Leyland, Chennai, Tamilnadu, India, Raghu Prakash, Indian Institute of Technology Madras, Chennai, Tamilnadu, India* **10:51AM – Conventional Locomotive Coupling Tests** **Technical Paper Publication.** IMECE2016-67236 – *Patricia Llana, Karina Jacobsen, USDOT/Volpe Center, Cambridge, MA, United States, David Tyrell, USDOT/Volpe Center, Wakefield, MA, United States* **11:12AM – FEA Design and Crashworthiness Evaluation of a 31-inch W-Beam Guardrail System for Placement on a 3H:1V Sloped Terrain Configuration** **Technical Paper Publication.** IMECE2016-67754 – *Chiara Silvestri Dobrovolny, Dusty Arrington, Texas A&M Transportation Institute, College Station, TX, United States, Nathan Schulz, Texas A&M Transportation Institute, Bryan, TX, United States, Connie Xavier, Texas A&M Transportation Institute, College Station, TX, United States* **11:33AM – A Mixed-Kernel-Based Support Vector Regression Model for Automotive Body Design Optimization** **Technical Paper Publication.** IMECE2016-67669 – *Yudong Fang, Zhenfei Zhan, Junqi Yang, Jun Lu, State Key Laboratory of Mechanical Transmission, Chongqing University, Chongqing, Chongqing, China, Chong Chen, Chongqing University, Chongqing, Chongqing, China*
1:30PM–3:15PM	**16-2-2 OCCUPANT PROTECTION AND BIOMECHANICS** **ROOM 226C** *Session Organizer: Saeed Barbat, Ford Motor Company, Dearborn, MI, United States* *Session Co-Organizer: Lingyu Sun, Beihang University, Beijing, China* **1:30PM – Head Injury Study of Electric Self-balance Scooter during Vehicle Crash Accident** **Technical Presentation.** IMECE2016-65492 – *Jun Xu, Shi Shang, Beihang University, Beijing, China* **1:51PM – Using an extendable bumper with an aid of vehicle dynamics control system to improve the occupant safety in frontal vehicle-to-vehicle collision scenario** **Technical Paper Publication.** IMECE2016-66523 – *Ahmed Elmarakbi, University of Sunderland, Sunderland, United Kingdom, Mostafa Elkady, Lebanese International University, Beirut, Lebanon, John MacIntyre, St Peter's campus, Sunderland, United Kingdom* **2:12PM – Investigation of Heavy Truck Restraint System Effectiveness through Finite Element Computer Simulations in Frontal Crashses** **Technical Paper Publication.** IMECE2016-67356 – *Nathan Schulz, Texas A&M Transportation Institute, Bryan, TX, United States, Chiara Silvestri Dobrovolny, Texas A&M Transportation Institute, College Station, TX, United States, Abhinav Mohanakrishnan, Texas A&M Transportation Institute, Bryan, TX, United States* **2:33PM – A Base Study to Investigate MASH Conservativeness of Occupant Risk Evaluation** **Technical Paper Publication.** IMECE2016-67671 – *Chiara Silvestri Dobrovolny, Harika Prodduturu, Dusty Arrington, Texas A&M Transportation Institute, College Station, TX, United States, Nathan Schulz, Texas A&M Transportation Institute, Bryan, TX, United States, Stefan Hurlebaus, Texas A&M University, College Station, TX, United States, Jonathan Rupp, University of Michigan Transportation Research Institute, Ann Arbor, MI, United States* **2:54PM – A Finite Element Upper Legform Model and Governing Equations to Know the Load Distribution** **Technical Presentation.** IMECE2016-67684 – *Hyeong Joo Moon, Hyun-Yong Jeong, Sogang University, Seoul, Korea (Republic)*
3:45PM–5:30PM	**16-2-3 SYSTEMS CRASHWORTHINESS** **ROOM 226C** *Session Organizer: Ahmed Elmarakbi, University of Sunderland, Sunderland, United Kingdom* *Session Co-Organizer: Mohamed Ridha Baccouche, Ford, Ann Arbor, MI, United States* **3:45PM – Energy Absorption Optimization of GFRP Laminate by Considering Inner-Lamina Damage Model with Parameter Identification** **Technical Paper Publication.** IMECE2016-65774 – *Bowen Zhan, Lingyu Sun, Bincheng Huang, Le Shen, Beihang University, Beijing, China* **4:06PM – Micromechanics Modelling Of Graphene Platelets Reinforced Polymer Composite Materials With Imperfect Interfaces** **Technical Paper Publication.** IMECE2016-65876 – *Wiyao Azoti, Ahmed Elmarakbi, University of Sunderland, Sunderland, United Kingdom* **4:27PM – The joining techniques for thermoplastics materials in automotive industries: A comprehensive literature review** **Technical Paper Publication.** IMECE2016-66185 – *Ayça Küçüko?lu, Fiat Tofa? automotive company, Bursa, Turkey, Fatih Karpat, Uludag University, Bursa, Turkey* **4:48PM – Hygrothermal Degradation of GFRP/HSS Interface in Metal-Polymer Hybrid Structures** **Technical Paper Publication.** IMECE2016-65779 – *Qian Wang, Lingyu Sun, Lijun Li, Le Shen, Beihang University, Beijing, China*

WED. NOV. 16 TRACK 17: NDE, Diagnosis, and Prognosis

TIME	
10:30AM–12:15PM	**17-12-1 PLENARY SESSION** **ROOM 222C** *The plenary lecture provides an introduction to NDE with a focus of efforts in the area of "Computational and Experimental Guided Wave Ultrasonics.* **Ultrasonic and electromagnetic waves for non-destructive evaluation and structural health monitoring (IMECE2016-68878)** *Prof. Tribikram Kundu, University of Arizona*
1:30PM–3:15PM	**17-1-1 GUIDED WAVE ULTRASONICS - PART 1** **ROOM 226C** *Session Organizer: Sourav Banerjee, University of South Carolina, Columbia, SC, United States* *Session Co-Organizer: Cara C Leckey, NASA Langley Research Center, Hampton, VA, United States* **1:30PM – Fully Coupled Numerical Simulation for Wave Propagation in Composite Materials** **Technical Paper Publication.** IMECE2016-66159 – *Guoyi Li, Rajesh Kumar Neerukatti, Arizona State University, Tempe, AZ, United States, Aditi Chattopadhyay, Arizona State Univ, Tempe, AZ, United States* **1:51PM – GUIDED WAVES IN A PLATE WITH A DELAMINATION-LIKE DISCONTINUITY** **Technical Paper Publication.** IMECE2016-68193 – *Christoph Schaal, California State University, Northridge, Northridge, CA, United States, Ajit Mal, University Of California, Los Angeles, CA, United States* **2:12PM – Long-Term Acoustic Emission Monitoring of Corrosion Damage in Prestressed Concrete Exposed to Saltwater** **Technical Paper Publication.** IMECE2016-65919 – *William Vélez, Chao and Associates, Inc., Columbia, SC, United States, Mohamed ElBatanouny, Wiss, Janney, Elstner Associates, Inc., Northbrook, IL, United States, Fabio Matta, Paul Ziehl, University of South Carolina, Columbia, SC, United States* **2:33PM – Modelling of Lamb Wave Propagation in Beam-like Structures via Wavelet Finite Element Method** **Technical Paper Publication.** IMECE2016-65366 – *Hao Zuo, Xuefeng Chen, Zhibo Yang, Laihao Yang, Xi'an Jiaotong University, Xi'an, Shaanxi, China* **2:54PM – SMART HEALTH ASSESSMENT OF WAVEGUIDES USING ELECTROMECHANICAL IMPEDANCE AND ULTRASONIC WAVES** **Technical Presentation.** IMECE2016-66017 – *Amir Nasrollahi, Zhaoyun Ma, Piervincenzo Rizzo, University of Pittsburgh, Pittsburgh, PA, United States*
1:30PM–3:15PM	**17-2-1 ALTERNATIVE NOVEL METHODS FOR NDE SHM - PART 1** **ROOM 227A** *Session Organizer: Andrei Zagrai, New Mexico Institute of Mining and Technology, Socorro, NM, United States* **1:30PM – Compressed Sensing Techniques for Ultrasonic Imaging of Cargo Containers** **Technical Paper Publication.** IMECE2016-66641 – *Jose Martinez Lorenzo, Northeastern University, Boston, MA, United States, Yuri Alvarez Lopez, University of Oviedo, Gijon, Spain* **1:51PM – The Effects of Carbon Fiber Misalignment on Material Composite Strength** **Technical Paper Publication.** IMECE2016-68208 – *Luke Stangler, Mayo Clinic, Waseca, MN, United States, Jikai Du, The State University of New York at Buffalo, Buffalo, NY, United States* **2:12PM – Non-Collinear Mixing Techniques for Nondestructive Evaluation of Material Degradation** **Technical Presentation.** IMECE2016-66865 – *Taeho Ju, Jan D. Achenbach, Northwestern University, Evanston, IL, United States, Laurence J. Jacobs, Georgia Institute of Technology, Atlanta, GA, United States, Jianmin Qu, Tufts University, Medford, MA, United States* **2:33PM – An Experimental Investigation of Industrial Gear-Box Condition Using Wear Particle Analysis Technique** **Technical Paper Publication.** IMECE2016-65333 – *Sayed Akl, British Univ. In Egypt, Cairo, Egypt, Hamed Mosleh, Oriental Weaver Company, 10th of Ramadan, Egypt, Sherif Abd El-Ghafar, British Univ. In Egypt, Cairo, Egypt* **17-8-1 NOVEL METHODS FOR CHARACTERIZATION DIAGNOSIS AND PROGNOSIS** **ROOM 227B** *Session Organizer: Sourav Banerjee, University of South Carolina, Columbia, SC, United States* **1:30PM – Visualization of Stress Waves Via Acoustic Emission Beamforming Technique For Damage Detection and Localization** **Technical Presentation.** IMECE2016-65458 – *Gil-Yong Lee, Joshua Rivey, Jinkyu Yang, University of Washington, Seattle, WA, United States, Youngkey Kim, SM Instruments, Daejon, Korea (Republic), Sungchan Kim, Korea Aerospace Research Institute, Daejon, Korea (Republic)* **1:51PM – Advances in damage imaging by ultrasonic synthetic aperture focusing** **Technical Presentation.** IMECE2016-66777 – *Francesco Lanza di Scalea, Simone Sternini, Thompson Nguyen, University of California San Diego, La Jolla, CA, United States* **2:12PM – CHARACTERIZATION OF MATERIALS FABRICATED BY ADDITIVE MANUFACTURING METHOD USING LINE FOCUSED ULTRASONIC TRANSDUCER** **Technical Paper Publication.** IMECE2016-67186 – *Qiuyan Li, Xuande Zhang, Yuxiang Wang, Qing-Ming Wang, University of Pittsburgh, Pittsburgh, PA, United States* **2:33PM – Integrated Damage Monitoring and Quantification in 3D Woven Composites** **Technical Presentation.** IMECE2016-67533 – *Nestor Castaneda, Brian Wisner, Antonios Kontsos, Drexel University, Philadelphia, PA, United States, Jefferson Cuadra, Drexel University, West New York, NJ, United States, Ryan Whitmore, Drexel University, Philadelphia, PA, United States*

TIME	
3:45PM–5:30PM	**17-1-2 GUIDED WAVE ULTRASONICS - PART 2** **ROOM 226C** *Session Organizer: Cara C Leckey, NASA Langley Research Center, Hampton, VA, United States* *Session Co-Organizer: Sourav Banerjee, University of South Carolina, Columbia, SC, United States* **3:45PM – Damage location and identification in aerospace panels via piezoelectric rosettes** **Technical Presentation.** IMECE2016-66768 – *Francesco Lanza di Scalea, University of California San Diego, La Jolla, CA, United States* **4:06PM – Simulation of Wave Propagation in Damaged Anisotropic Material Using a K-space Method** **Technical Presentation.** IMECE2016-67755 – *Qinan Chang, Tishun Peng, Yongming Liu, Arizona State University, Tempe, AZ, United States* **4:27PM – Efficient Modeling of Nonlinear Scattering of Ultrasonic Guided Waves from Fatigue Cracks Using Local Interaction Simulation Approach** **Technical Paper Publication.** IMECE2016-68197 – *Yanfeng Shen, Shanghai Jiao Tong University, Shanghai, China, Carlos Cesnik, Univ Of Michigan, Ann Arbor, MI, United States* **4:48PM – A NOVEL ULTRASONIC TECHNIQUE FOR THE DETECTION OF DISTRIBUTED PRECURSOR DAMAGES IN COMPOSITES** **Technical Paper Publication.** IMECE2016-67784 – *Subir Patra, Sourav Banerjee, University of South Carolina, Columbia, SC, United States, Ed Habtour, Army Research Laboratory, APG, MD, United States, Robert Haynes, US Army Research Laboratory, Aberdeen Proving Ground, MD, United States*	**17-2-2 ALTERNATIVE NOVEL METHODS FOR NDE SHM - PART 2** **ROOM 227A** *Session Organizer: Andrei Zagrai, New Mexico Institute of Mining and Technology, Socorro, NM, United States* **3:45PM – INSPECTION OF HIGH DENSITY POLYETHYLENE PIPE Using microwave based interferometry** **Technical Presentation.** IMECE2016-65208 – *Robert Stakenborghs, ILD Power, Baton Rouge, LA, United States* **4:06PM – A Model-Based Guided Ultrasonic Imaging and Acoustic Emission Source Localization in Isotropic Plate Structures using Edge Reflections** **Technical Presentation.** IMECE2016-65760 – *Arvin Ebrahimkhanlou, Brennan Dubuc, University of Texas at Austin, Austin, TX, United States, Salvatore Salamone, University of Texas, Austin, Austin, TX, United States* **4:27PM – Residual Stress Evaluation in Friction Stir Welded Aluminum Plates using Lamb Waves by Acoustic Emission Technique** **Technical Paper Publication.** IMECE2016-66130 – *Jalal Yousefi, Ali Mahdian, Amirkabir university of technology, Tehran, Tehran, Iran, Navid Zarif Karimi, University of Bologna, Bologna, BO, Italy, Mohamad Ghayumi, Mehdi Ahmadi, Amirkabir university of technology, Tehran, Tehran, Iran, Giangiacomo Minak, University of Bologna, Bologna, BO, Italy* **4:48PM – Piezoelectric-based Viscosity Probe for Early-Age Concrete Curing Process Monitoring** **Technical Paper Publication.** IMECE2016-68055 – *Chen Zhang, University of North Texas, Denton, TX, United States, Xun Yu, New York Institute of Technology, Old Westbury, NY, United States*
	17-10-1 QUANTITATIVE AND PREDICTIVE NDE OF STRUCTURES **ROOM 227B** *Session Organizer: Yuris Dzenis, Univ Of Nebraska, Lincoln, NE, United States* **3:45PM – Selection of Vibro-Characteristics for Monitoring Flange Integrity in the Field Conditions** **Technical Paper Publication.** IMECE2016-65024 – *Len MALININ, Gen3 Partners, Boston, MA, United States, Vladimir Palmov, St.Petersburg State Polytechnical University, St.Petersburg, Russia, Russia* **4:06PM – Wireless Interrogation of a High Temperature Antenna Sensor Without Electronics** **Technical Paper Publication.** IMECE2016-65954 – *Franck Mbanya Tchafa, Jun Yao, University of Texas Arlington, Arlington, TX, United States, Haiying Huang, Univ Of Texas/arlington, Arlington, TX, United States* **4:27PM – Electro-Mechanical Impedance Measurements in an Imitated Low Earth Orbit Radiation Environment** **Technical Paper Publication.** IMECE2016-66855 – *Mary Anderson, New Mexico Institute of Mining and Technology, Socorro, NM, United States, Joshua Daniel, White Sands Missile Range, Las Cruces, NM, United States, Andrei Zagrai, David J. Westpfahl, New Mexico Institute of Mining and Technology, Socorro, NM, United States* **4:48PM – A Novel Damage Detection Approach using Output-only Responses based on mode shape identification and Improved Gapped Smoothing Method** **Technical Paper Publication.** IMECE2016-67764 – *Yibin Zhou, Jingjing He, Weifang Zhang, Beihang University, Beijing, China* **5:09PM – Nondestructive Evaluation with Predictive Capabilities** **Technical Presentation.** IMECE2016-67991 – *Yuris Dzenis, Univ Of Nebraska, Lincoln, NE, United States*	

TRACK 18: ASME International Undergraduate Research and Design Expo (Posters Only)

TIME	
6:00PM–7:30PM	**18-1-1**

Design and Development of Non-point Stormwater Runoff Collection and Treatment System for Urban Agriculture and Food Security
Undergraduate Expo Presentation. IMECE2016-65714 – *Jiajun Xu, Robert Stephenson, University of the District of Columbia, Washington, DC, United States*

Design and Characterization of Nanoparticles Infused Mesoporous Materials for Environmental Applications
Undergraduate Expo Presentation. IMECE2016-65720 – *Jiajun Xu, Trinh Vu, University of the District of Columbia, Washington, DC, United States*

Using a Custom-Made 3D Printer to Engage High School Students in 3D Printing Workshop
Undergraduate Expo Presentation. IMECE2016-68505 – *Steven Eric Zeltmann, William Peng, Bianca Barletta, Filippo Cellini, New York University, Brooklyn, NY, United States*

Modal Identification in Flat Plates during Vibrational Resonance at High Temperatures
Undergraduate Expo Presentation. IMECE2016-68583 – *Trevor J. Bird, Utah State University, North Logan, UT, United States, Shelby Ames, Ryan B. Berke, Utah State University, Logan, UT, United States*

Numerical investigation of fixation of broken bone by orthopedic screw
Undergraduate Expo Presentation. IMECE2016-68740 – *Lokesh Dhanasekaran, Morshed Khandaker, University of Central Oklahoma, Edmond, OK, United States*

Numerical Analysis of Instantaneous Availability Fluctuation under Weibull Distributions
Undergraduate Expo Presentation. IMECE2016-68768 – *Yang Chen, Beihang University, Beijing, China*

A Liver Tumor Diagnosis Method Using Biomechanical Properties As A Biomarker
Undergraduate Expo Presentation. IMECE2016-68771 – *Xiaolong Xia, Mo Zhu, Lining Sun, Soochow University, Suzhou, Jiangsu, China, Michael Sacks, The University of Texas at Austin, Austin, TX, United States, Guy Genin, Washington University in St. Louis, St. Louis, MO, United States, Chunhong Hu, Liang Guo, Yuan Feng, Soochow University, Suzhou, China*

Hybrid Friction Stir Process (FSP) : One of the Novel Approaches to Attain Superplasticity
Undergraduate Expo Presentation. IMECE2016-68781 – *Swarg Patel, Vivek Patel, Pandit Deendayal Petroleum University, gandhinagar, gujarat, India, Sagar Patel, Utsav Dineshbhai Patel, Pandit deendayal petroleum university, Gandhinagar,Gujarat, Select State/Province, India*

Simulation of the Manufacturing Process of Foamed Cement
Undergraduate Expo Presentation. IMECE2016-68783 – *Julian Chipkin, SUNY New Paltz, Brewster, NY, United States, Kevin T Chipkin, SUNY New Paltz, New Paltz, NY, United States, Dustin Crandall, Department of Energy, South Park Township, PA, United States*

Computational Aerodynamic Analysis using Vortex Model for Darrieus VAWT in Highways
Undergraduate Expo Presentation. IMECE2016-68784 – *Leelakrishnan E, Saveetha Engineering College, Chennai, Tamil Nadu, India, B K Gnanavel, Saveetha Engineering College, Anna University, Chennai, Tamil Nadu, India, Raja Rajeswari N, Saveetha Engineering College, Chennai, State, India, P Malliga, Anna University, Chennai, India*

An indentation tester for soft biological tissues with micro-meter and micro-newton accuracy
Undergraduate Expo Presentation. IMECE2016-68792 – *Xuefeng Zhao, Suhao Qiu, Yuan Feng, Soochow University, Suzhou, China*

Smart Vaccine Carrier For Rural Delivery
Undergraduate Expo Presentation. IMECE2016-68800 – *Shitanshu Devrani, SRM University, Kancheepuram District, India, Rahul Tiwari, SRM univeristy, chennai, tamil nadu, India, Sanat Kumar, SRM University, Kancheepuram District, Tamilnadu, India, Kr John, krishnakumar sankar, SRM Univeristy, chennai, tamil nadu, India, S Prabhu, SRM University, Chennai, TamilNadu, India*

Efficient Dialysis Methods for Processing Regenerated Silk Films
Undergraduate Expo Presentation. IMECE2016-68802 – *Michelle Morency, University of South Florida, Tampa, FL, United States, Donggang Yao, Jing Shi, Adam Maffe, Georgia Institute of Technology School of Materials Science and Engineering, Atlanta, GA, United States*

Design and Optimization of Asymmetric Nozzle and Inlet Geometries of Shock-Induced Combustion Ramjet (Shcramjet) Engine
Undergraduate Expo Presentation. IMECE2016-68803 – *Sajan Sharma, Lokesh Silwal, Nitish Acharya, Sudip Bhattrai, Tribhuvan University, Institute of Engineering, Lalitpur, Nepal*

Mechanism of Carbon Nanotube Film Growth By Electrophoretic Deposition
Undergraduate Expo Presentation. IMECE2016-68805 – *Aris Mardirossian, University of Delaware, Arnold, MD, United States*

TRACK 18: ASME International Undergraduate Research and Design Expo (Posters Only)

TIME	
6:00PM–7:30PM	**Design and Development of a Low Cost Laser Microfabrication System for Microfluidic Isotachophoresis (ITP) Experiment** **Undergraduate Expo Presentation.** IMECE2016-68807 – *Jacob Nielesen, Israel Palacios, Saranja Annalingam, Shelby Morris, University of Central Oklahoma, Edmond, OK, United States, Mohammad Hossan, Univ Of Central Oklahoma, Edmond, OK, United States* **Effect of Passive Support System On Lower Body Kinematics And Kinetics** **Undergraduate Expo Presentation.** IMECE2016-68808 – *Daniel Grindle, Kevin McGinnis, Andrew Whitford, University of Delaware, Newark, DE, United States, Tashreefa Zunaid, University of Delaware, Bear, DE, United States, Jill Higginson, University of Delaware, Newark, DE, United States* **Smartphone Dermatoscope for the Early Detection of Melanoma Skin Cancer** **Undergraduate Expo Presentation.** IMECE2016-68813 – *Andrew Larkey, Bridgewater-Raritan High School, Bridgewater, NJ, United States* **The Formulation of Landing and Take-off Performance Calculation Tool for Domestic Aircrafts in Nepal** **Undergraduate Expo Presentation.** IMECE2016-68816 – *Bibek Poudel, Tribhuvan University, Institute of Engineering, Kathmandu, Outside US and Canada, Nepal, Spad Acharya, Tribhuvan University, Institute of Engineering, Biratnagar, Outside US and Canada, Nepal, Sachin Sah, Niraj Pudasaini, Sudip Bhattrai, Tribhuvan University, Institute of Engineering, Lalitpur, Outside US and Canada, Nepal* **Haptic Communication for Deaf and Blind Individuals** **Undergraduate Expo Presentation.** IMECE2016-68817 – *Katie Hart, University of South Florida, Clearwater, FL, United States, Jennifer Chapin, Kyle Reed, University of South Florida, Tampa, FL, United States* **Effect of Common Print Parameters on the Mechanical Properties of the Produced Parts** **Undergraduate Expo Presentation.** IMECE2016-68838 – *Dylan Atkins, SUNY New Paltz, Wallkill, NY, United States, Jared W Nelson, State University of New York at New Paltz, New Paltz, NY, United States, Christian Zoeger, SUNY New Paltz, Gardiner, NY, United States, Jeffrey Huang, SUNY New Paltz, Brooklyn, NY, United States, Jack Yang, State University of New York at New Paltz, Highland, NY, United States* **Energy, exergy and exergoeconomic analysis of a natural gas fired boiler at different loads** **Undergraduate Expo Presentation.** IMECE2016-68839 – *Cristian F. Jaimes Saavedra, Carlos Diaz, Sebastian Roa, Universidad Autónoma de Bucaramanga, Bucaramanga, Santander, Colombia* **Electrical Fault Diagnosis in Induction Motors Using Envelope Analysis from Vibration Signals** **Undergraduate Expo Presentation.** IMECE2016-68841 – *Lucas Brito, Federal University of Sao Joao del Rei, Sao Joao del Rei, Brazil, Paulo Lamim, Vinícius Silva, Federal University of São João del Rei, Sao Joao del Rei, Brazil, Fabiano Bianchini, Jorge Brito, Federal University of Sao Joao del Rei, Sao Joao del Rei, Brazil* **Use of Digital Image Correlation to Find Compressive Material Properties of Carbon Fiber Composites** **Undergraduate Expo Presentation.** IMECE2016-68846 – *Christian Zoeger, SUNY New Paltz, Gardiner, NY, United States, Jared W Nelson, State University of New York at New Paltz, New Paltz, NY, United States, Dylan Atkins, SUNY New Paltz, Wallkill, NY, United States, Jeffrey Huang, SUNY New Paltz, Brooklyn, NY, United States, Jack Yang, SUNY New Paltz, Flushing, NY, United States* **Effects of Geometric Variations on 2D Rough Fracture Flow** **Undergraduate Expo Presentation.** IMECE2016-68857 – *Greg Schotte, State University of New York at New Paltz, Shoreham, NY, United States, Kevin Shanley, U. S. Department of Energy, New Paltz, NY, United States, Dustin Crandall, Department of Energy, South Park Township, PA, United States* **Transient Solution to the Bidirectional Vortex Using Numerical Methods** **Undergraduate Expo Presentation.** IMECE2016-68809 – *Gerardo Talamantes, The Pennsylvania State University, Saint Clair, PA, United States, Brian Maicke, The Pennsylvania State University, Harrisburg, PA, United States* **Design and Development of a Mechatronics Interface for a Service Robot** **Undergraduate Expo Presentation.** IMECE2016-68880 – *Manuel Alejandro Pano Sanjuan, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico* **Effect of performance parameters on the exergy of direct injection diesel engine** **Undergraduate Expo Presentation.** IMECE2016-68888 – *veena chaudhary, INDIAN INSTITUTE OF TECHNOLOGY ROORKEE, ROORKEE, UTTRAKHAND, India, rakesh p gakkhar, IIT ROORKEE, roorkee, uttrakhand, India*

TRACK 19: NSF Student Competition

TIME

11:30AM–2:30PM

19-1-1

NSF-FUNDED RESEARCH (GRADUATE AND UNDERGRADUATE RESEARCHERS)

Nonlocal Homogenization Model for Wave Dispersion and Attenuation in Elastic and Viscoelastic Heterogeneous Media
Poster Presentation. IMECE2016-68811 – *Ruize Hu, Caglar Oskay, Vanderbilt University, Nashville, TN, United States*

Controlling Frost Formation on Engineered Surfaces
Poster Presentation. IMECE2016-68826 – *Nanxi Li, Kansas State University, Manhattan, KS, United States, Cara Snyder, Highland Park High School, Topeka, KS, United States, Amy Betz, Melanie Derby, Kansas State University, Manhattan, KS, United States, Chuang Qu, Missouri University of Science and Technology, Rolla, MO, United States, Edward Kinzel, Missouri S&T, Rolla, MO, United States*

Pool boiling performance on shallow microgrooved surface
Poster Presentation. IMECE2016-68827 – *Pruthvik Raghupathi, Satish Kandlikar, RIT, Rochester, NY, United States*

High heat flux dissipation beyond 1 kW/cm2 Using Radial Microchannels with Plain and Offset Strip Fin Design
Poster Presentation. IMECE2016-68828 – *Alyssa Recinella, Rochester Institute of Technology, Rochester, NY, United States, Satish Kandlikar, RIT, Rochester, NY, United States*

Experimental Research on Non-Platinum Group Metal (non-PGM) Catalyst for Electrochemical Systems
Poster Presentation. IMECE2016-68831 – *Shiqiang Zhuang, New Jersey Institute of Technology, Harrison, NJ, United States, Bharath Babu Nunna, New Jersey Institute of Technology, Randolph, NJ, United States, Eon Soo Lee, New Jersey Institute of Technology (NJIT), Newark, NJ, United States*

Magnesium Contained Chitosan Scaffolds for Bone Tissue Regeneration
Poster Presentation. IMECE2016-68832 – *Udhab Adhikari, Shalil Khanal, Devdas Pai, North Carolina A&T State University, Greensboro, NC, United States, Jagannathan Sankar, North Carolina A&T State Univ, Greensboro, NC, United States, Narayan Bhattarai, North Carolina A&T State University, Greensboro, NC, United States*

Polymeric Microbeads for Magnesium Release
Poster Presentation. IMECE2016-68836 – *Shalil Khanal, Udhab Adhikari, Devdas Pai, North Carolina A&T State University, Greensboro, NC, United States, Jagannathan Sankar, North Carolina A&T State Univ, Greensboro, NC, United States, Narayan Bhattarai, North Carolina A&T State University, Greensboro, NC, United States*

An Innovative Way to Enhance Cross-Plane Thermal Conductivity of Polymer-based Thin Films
Poster Presentation. IMECE2016-68837 – *Hao Ma, Zhiting Tian, Virginia Tech, Blacksburg, VA, United States*

Electrical Impedance Microflow Cytometry for Sickle Cell Analysis
Poster Presentation. IMECE2016-68842 – *Lyndsey Mandelare, Jia Liu, Yuhao Qiang, Darryl Dieujuste, Sarah E Du, Florida Atlantic University, Boca Raton, FL, United States*

Development of a Portable Electrical Impedance Flow Cytometer
Poster Presentation. IMECE2016-68843 – *Darryl Dieujuste, Lyndsey Mandelare, Jia Liu, Yuhao Qiang, Sarah E Du, Florida Atlantic University, Boca Raton, FL, United States*

Human Cognition Assisted Control of Industrial Robots in Manufacturing
Poster Presentation. IMECE2016-68844 – *yao li, Thenkurussi Kesavadas, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

Developing the Future Engineers
Poster Presentation. IMECE2016-68845 – *Alexandra Lehnes, Manhattan College, Brick, NJ, United States, Zahra Shahbazi, Manhattan College, Stamford, CT, United States, MaryAnn Jacobs, Kathleen Mancuso, Anthony Scotti, Manhattan College, Bronx, NY, United States*

Thermodynamics of a Dual Stage Sodium Thermo-Electro-Chemical Converter (Na-TECC)
Poster Presentation. IMECE2016-68850 – *Alexander Limia, Shannon K. Yee, Georgia Institute of Technology, Atlanta, GA, United States*

Electrical Conductivity of Palladium- and Platinum- Nanoparticle-Decorated Graphene
Poster Presentation. IMECE2016-68852 – *Abayomi Omolewu, University of Arkansas, Fayetteville, AR, United States, Caroline Conroy, Northeastern University, Boston, MA, United States, Jeffery Burford, University of Kentucky, Lexington, KY, United States, Uchechukwu Wejinya, Ryan Tian, University of Arkansas, Fayetteville, AR, United States*

Point of Care (POC) Micro Biochip for Ovarian Cancer Diagnostics at Early Stages
Poster Presentation. IMECE2016-68853 – *Bharath Babu Nunna, New Jersey Institute of Technology, Randolph, NJ, United States, Shiqiang Zhuang, New Jersey Institute of Technology, Harrison, NJ, United States, Eon Soo Lee, New Jersey Institute of Technology (NJIT), Newark, NJ, United States*

The Impact of Hydrogenation on the Thermal Transport of Silicene
Poster Presentation. IMECE2016-68860 – *Zeyu Liu, University of Notre Dame, Notre Dame, IN, United States, Xufei Wu, University of Notre Dame, South Bend, IN, United States, Tengfei Luo, University of Notre Dame, Notre Dame, IN, United States*

Effect of Electric Field Non-Uniformity on Droplets Coalescence
Poster Presentation. IMECE2016-68861 – *Shirui Luo, Jarrod Schiffbauer, Tengfei Luo, University of Notre Dame, Notre Dame, IN, United States*

TIME	
11:30AM–2:30PM	**The role of electronic and vibrational scattering on thermal tranport across multiple interfaces in nanostructures** **Poster Presentation.** IMECE2016-68877 – *Ashutosh Giri, Patrick Hopkins, University of Virginia, Charlottesville, VA, United States* **Vertically Aligned Carbon Nanotube-Supported Graphene as Stretchable Electrodes** **Poster Presentation.** IMECE2016-68881 – *Junjun Ding, Shichen Fu, Eric Boon, Frank Fisher, Stevens Institute of Technology, Hoboken, NJ, United States, Eui-Hyeok Yang, Stevens Inst of Tech, Hoboken, NJ, United States* **Self-cleaning polymer membrane with carbon nanotube and nanowires for oil/water treatment** **Poster Presentation.** IMECE2016-68882 – *Jian Xu, Shichen Fu, Youhua Jiang, Wei Xu, Chang-Hwan Choi, Stevens Institute of Technology, Hoboken, NJ, United States, Eui-Hyeok Yang, Stevens Inst of Tech, Hoboken, NJ, United States* **Molecular Dynamics Study of Contact Line Dynamics of Water Droplet on Polytetrafluoroethylene Surface** **Poster Presentation.** IMECE2016-68883 – *Lei Zhao, jiangtao cheng, Virginia Tech, Blacksburg, VA, United States* **Quantification of the uncertainty of thermal conductivities from equilibrium molecular dynamics simulations** **Poster Presentation.** IMECE2016-68884 – *Zuyuan Wang, Purdue University, West Lafayette, IN, United States, Xiulin Ruan, Purdue Univ, West Lafayette, IN, United States* **Target Cell Detection via Microfluidic Magnetic Beads Assay** **Poster Presentation.** IMECE2016-68894 – *Fan Liu, Pawan Kc, Ge Zhang, Jiang Zhe, University of Akron, Akron, OH, United States* **Effects of Nozzle Geometry on the Instability of Liquid Films Flowing Down a Thin Vertical String** **Poster Presentation.** IMECE2016-68897 – *Abolfazl Sadeghpour, University of California, Los Angeles (UCLA), Los Angeles, CA, United States, Zezhi Zeng, Sungtaek Ju, University of California, Los Angeles(UCLA), Los Angeles, CA, United States*

Notes

TIME

20-1-1

Using Gas-Phase Methods for Silicon Nanorod Growth
Poster Presentation. IMECE2016-67110 – *Alborz Izadi, Rebecca Anthony, Michigan State University, East Lansing, MI, United States*

Three-Dimensional Assembly of Two-Dimensional Materials via Substrate Engineering
Poster Presentation. IMECE2016-67375 – *Jonghyun Choi, Minsu Kim, SungWoo Nam, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

Electrolyte-free Nano-electronic Sensor for the Rapid Quantification of DNA
Poster Presentation. IMECE2016-67632 – *Darius Saadat-Moghaddam, Jong-Hoon Kim, Washington State University Vancouver, vancouver, WA, United States*

Rational hierarchical structures for suppression of Leidenfrost phenomenon
Poster Presentation. IMECE2016-67695 – *Seyed Mohammad Sajadi, Nazanin Farokhnia, Peyman Irajizad, Hadi Ghasemi, University of Houston, Houston, TX, United States*

Graphene oxide reinforced double network hydrogel
Poster Paper Publication. IMECE2016-67729 – *jilong Wang, Jenny Qiu, Texas Tech University, Lubbock, TX, United States*

Thermal Rectification in Tapered Bottlebrush Polymers
Poster Presentation. IMECE2016-67730 – *Hao Ma, Zhiting Tian, Virginia Tech, Blacksburg, VA, United States*

New paradigm of icephobic surfaces
Poster Presentation. IMECE2016-67735 – *Peyman Irajizad, Munib Hasnain, Nazanin Farokhnia, Seyed Mohammad Sajadi, Hadi Ghasemi, University of Houston, Houston, TX, United States*

Bio-inspired smart thermal spreaders
Poster Presentation. IMECE2016-67762 – *Nazanin Farokhnia, Peyman Irajizad, Seyed Mohammad Sajadi, Hadi Ghasemi, University of Houston, Houston, TX, United States*

Thermoelectric Properties Of Polypyrrole From First-principles Calculations
Poster Presentation. IMECE2016-67783 – *Chen Li, Virgnia Tech, Blacksburg, VA, United States, Hao Ma, Zhiting Tian, Virginia Tech, Blacksburg, VA, United States*

Controlled Crumpling of Two-dimensional Materials for Enhanced and Tunable Optical Absorption and Mechanical Stretchability
Poster Presentation. IMECE2016-67877 – *Pilgyu Kang, University of Illinois at Urbana-Champaign, Urbana, IL, United States, Michael Cai Wang, Peter M. Knapp, University of Illinois, Urbana-Champaign, Urbana, IL, United States, Juyoung Leem, University of Illinois, Urbana-Champaign (UIUC), Urbana, IL, United States, SungWoo Nam, University of Illinois at Urbana-Champaign, Urbana, IL, United States*

Wireless, Stretchable Intraoral Electronics for pH Monitoring
Poster Presentation. IMECE2016-68062 – *Yongkuk Lee, James P. Coffey, Richard M. Costanzo, Woon-Hong Yeo, Virginia Commonwealth University, Richmond, VA, United States*

Design and Development of Compliant Micrograpper-based Assembly Station
Poster Paper Publication. IMECE2016-68210 – *Khushboo Shrivastava, Indian Institute of Technology Bombay, Powai, Mumbai, Maharashtra, India, Suhas Joshi, Indian Inst Of Tech, Bombay, Mumbai 400076, Maharashtra, India*

A Molecular Dynamics Study of Carbon Nanotube Sheet Scrolled Fiber Composite for Enhanced Interfacial Mechanical Properties
Poster Presentation. IMECE2016-68412 – *Pruthul Kokkada, The University of Alabama, Tuscaloosa, AL, United States, Samit Roy, Univ Of Alabama, Tuscaloosa, AL, United States, Hongbing Lu, University of Texas, Richardson, TX, United States*

Microscopic Analysis of the Initiation of High-Temperature Damage of Ni-based Heat-resistant Alloy
Poster Presentation. IMECE2016-68435 – *Takuya Murakoshi, Ken Suzuki, Isamu Nonaka, Tohoku University, Sendai, Miyagi-ken, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan*

Highly-sensitive graphene nano ribbon base strain sensor
Poster Presentation. IMECE2016-68436 – *SHINICHIROU SASAKI, Meng Yang, Ken Suzuki, Tohoku University, sendai, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan*

Crystallinity-induced Degradation of the Lifetime of Advanced Interconnections
Poster Presentation. IMECE2016-68453 – *Takeru Kato, Tohoku University, Sendai, Miyagi, Japan, Ken Suzuki, Tohoku University, Sendai, Miyagi, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan*

Thermoelectric Properties of PbS Prepared by Using a Bottom-Up Technique with (S, Se, Te) High Temperature Surface Treatments
Poster Presentation. IMECE2016-68478 – *Raul Montano, University of Arizona, Pirtleville, AZ, United States, Sajad Yazdani, The University of Connecticut, Storrs, CT, United States, Yufei Liu, Clemson University, Clemson, SC, United States, Raana Kashfi-Sadabad, University of Connecticut, Storrs, AZ, United States, Jian He, Clemson University, Clemson, SC, United States, Michael Pettes, University of Connecticut, Storrs, CT, United States*

Stresses at Electrode-Electrolyte Interface in Lithium-ion Batteries via Multiphysics Modeling
Poster Presentation. IMECE2016-68506 – *Sangwook Kim, Hsiao-Ying Shadow Huang, North Carolina State University, Raleigh, NC, United States*
Thermal management of hot spots using liquid cooled heterogeneous pin-fin enhanced microgaps
Poster Presentation. IMECE2016-68680 – *Yuanchen Hu, Georgia Institute of technology, Atlanta, GA, United States, Yogendra Joshi, Georgia Tech, Atlanta, GA, United States, Thomas Sarvey, Muhannad Bakir, Georgia Institute of technology, Atlanta, GA, United States*

Rational micro/nano structuring for thin-film evaporation
Poster Presentation. IMECE2016-68696 – *Nazanin Farokhnia, Peyman Irajizad, Seyed Mohammad Sajadi, Hadi Ghasemi, University of Houston, Houston, TX, United States*

Flexible artificially networked structure for ambient/high pressure solar steam generation
Poster Presentation. IMECE2016-68698 – *Seyed Mohammad Sajadi, Nazanin Farokhnia, Peyman Irajizad, Munib Hasnain, Hadi Ghasemi, University of Houston, Houston, TX, United States*

New Polymer Thermal Bonding System Using Boiling Water
Poster Presentation. IMECE2016-68727 – *Dongjin Park, TaeHyun Park, Kyungnam university, Changwon-si, Changwon, Korea (Republic)*

TIME

20-14-1

An Experimental Study of a Polyimide-PDMS Hybrid Flexible Substrate Applied for HySiF (Hybrid System in Flexible) System
Poster Presentation. IMECE2016-65154 – *Yongjin Kim, Jun Yeob Song, Jae Hak Lee, Seung Man Kim, Korea Institute of Machinery and Materials (KIMM), Daejeon, Korea (Republic)*

MEMS vibrating ring gyroscope in (100) silicon based on octagonal star-shaped anchor
Poster Presentation. IMECE2016-65314 – *Daniel S. Choi, Jisung Lee, Waqas A. Gill, Boo Hyun An, Mariam Mansouri, Masdar Institute of Science and Technology, Abu Dhabi, United Arab Emir., Seungoh Han, Hoseo University, Asan, Korea (Republic), Hyun Kee Chang, Institute of Microelectronics, Singapore, Singapore, Singapore, Aveek N. Chatterjee, GLOBALFOUNDRIES, Singapore, Singapore*

3D Printed Self-Powered Milli/Microfluidic Lab on a Chip for Faster Biochemical Analysis
Poster Presentation. IMECE2016-66262 – *Timothy Kennedy, Austin Liolli, University of Windsor, Windsor, ON, Canada, Asif Salahuddin, Altair ProductDesign Inc, Auburn Hills, MI, United States, Josianne Said, Mohammed Jalal Ahamed, University of Windsor, Windsor, ON, Canada*

Enhanced thermal rectification of near-field thermal diode using surface gratings
Poster Presentation. IMECE2016-68287 – *Alok Ghanekar, University of Rhode Island, Kingston, RI, United States, Jun Ji, Shanghai Maritime University, Shanghai, China, Mingdi Sun, CANATAL Environ Tech. Co., Nanjing, Jiangsu, China, Zongqin Zhang, Canatal Environmental Technology Corp., Nanjing, China, Yi Zheng, University of Rhode Island, Kingston, RI, United States*

Atomic Diffusion Induced Damage of Ni-base Superalloy at Elevated Temperature
Poster Presentation. IMECE2016-68437 – *MOTOKI TAKAHASHI, Ken Suzuki, TOHOKU University, Sendai, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan*

Crystallinity Control of Electroplated Interconnections for Improving Their Stability and Lifetime
Poster Presentation. IMECE2016-68455 – *Jiatong Liu, Tohoku university, Sendai, Miyagi, Japan, Hideo Miura, Tohoku Univ, Sendai 980-8579, Miyagi, Japan, Ken Suzuki, Tohoku University, Sendai, Miyagi, Japan*

An Electromagnetic System for Untethered Micromanipulation
Poster Presentation. IMECE2016-68577 – *Mahdi Ilami, Karthik Ramagiri, Arizona State University, Tempe, AZ, United States, Ethan Fisher, Arizona State University, Lawrence, KS, United States, Michael Bejarano, Vivek Ajjampur, Andre Apostol, Hamidreza Marvi, Arizona State University, Tempe, AZ, United States*

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	20-2-1 **Acoustic Baseline Response of the Advanced Test Reactor** **Poster Presentation.** IMECE2016-68679 – *Vivek Agarwal, James A. Smith, Idaho National Laboratory, Idaho Falls, ID, United States, Alexander Pharr, North Carolina State University, Raleigh, NC, United States*
	20-3-1 **An automatic system for separately generating mode-locked pulses and noise-like pulses in one fiber laser oscillator** **Poster Presentation.** IMECE2016-65409 – *Seung Man Kim, Jun Yeob Song, Tae Ho Ha, Jae Hak Lee, Yongjin Kim, Korea Institute of Machinery and Materials (KIMM), Daejeon, Korea (Republic)* **Development of a Water Hydraulic Pressure-compensated Electromagnetic Flow Regulating Valve to Control Small Flow Rate under Low Pressure** **Poster Paper Publication.** IMECE2016-66623 – *Kenji Suzuki, Kanagawa University, Yokohama, Kanagawa, Japan* **An On-line Inspection Method for the Finishing Cutting Section of Helical Broaching Tool** **Poster Presentation.** IMECE2016-66674 – *Kang Jia, Baotong Li, The State Key Laboratory for Manufacturing System Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China, Shuai Zheng, Xi`An Jiaotong University, Xi`An, China, Jun Hong, The State Key Laboratory for Manufacturing System Engineering, Xi'an Jiaotong University, Xi'an, Shaanxi, China* **A review on direct laser deposition of superalloy powders on low alloy steel substrate** **Poster Presentation.** IMECE2016-67703 – *Hoyeol Kim, Texas Tech University, Lubbock, TX, United States* **Design and development of a twisting machine and tooling for the manufacturing of pieces applied in shock absorbers** **Poster Presentation.** IMECE2016-68467 – *Rodrigo Alva Gallegos, Francisco Flores Galván, Francisca Nava Morales, Jose Landeros Guzmán, Universidad Tecnológica del Valle de Toluca, LERMA, MÉXICO, Mexico* **Studying the effect of process parameters on the final mechanical properties of FDM parts** **Technical Presentation.** IMECE2016-68473 – *Ala'aldin Alafaghani, Ala Qattawi, University of California, Merced, Merced, CA, United States* **Liquid Bridge Based Microstereolithography (LBMSL) Process** **Poster Presentation.** IMECE2016-68486 – *Md. Omar Faruk Emon, Yanfeng Lu, Sumanth Kashyap, The University of Akron, Akron, OH, United States, Jae-Won Choi, University of Akron, Akron, OH, United States* **Mechanical Response Of Laser Powder Bed Printed AlSi10Mg Under High Strain-Rate Deformation** **Poster Presentation.** IMECE2016-68631 – *Kristofer Kuelper, Brahma Pramanik, Montana Tech of the University of Montana, Butte, MT, United States, Bruce Madigan, Montana Tech of University of Montana, Butte, MT, United States*
	20-4-1 **GEOSail - Geometrically Optimized Compact Solar Sail Design for Responsive Space Systems in GEO** **Poster Presentation.** IMECE2016-66761 – *Darin Koblick, Sandhya Selvaraj, Praveen Shankar, California State University - Long Beach, Long Beach, CA, United States, Shujing Xu, University of California San Diego, LA JOLLA, CA, United States* **Simulated Novel Approaches to Asteroid Mobility** **Poster Presentation.** IMECE2016-68530 – *Andrew Thoesen, Hamidreza Marvi, Arizona State University, Tempe, AZ, United States*

TIME

20-5-1

Standardization Aspects of Specimens for Fracture Toughness Testing of Bone and Biomaterials
Poster Presentation. IMECE2016-65356 – *Satya Prasad Paruchuru, VNR VJIET, Hyderabad, India*

Standardization Aspects of Indentation and Scratch Tests for Bone at the Multiple-Scales
Poster Presentation. IMECE2016-65358 – *Satya Prasad Paruchuru, VNR VJIET, Hyderabad, India*

Design Aspects of a Physical Simulator for Castings
Poster Presentation. IMECE2016-65416 – *Satya Prasad Paruchuru, VNR VJIET, Hyderabad, India*

Design Aspects of a Metallurgical Simulator and a Bioreactor
Poster Presentation. IMECE2016-65418 – *Satya Prasad Paruchuru, VNR VJIET, Hyderabad, India*

Research on Evaluation of Mental Stress Level Using a Modified Duffing Oscillator
Poster Paper Publication. IMECE2016-66215 – *Kentaro Miyago, Japan/Yamaguchi University, Ube / Yamaguchi, Japan, Kenyu Uehara, Japan/Yamaguchi University, Ubecity, Japan, Koji Mori, Japan/Yamaguchi University, Ube / Yamaguchi, Japan, Takashi Saito, Yamaguchi university, Ube / Yamaguchi, Japan*

Optimization of Body Temperature Distribution in Radio-Frequency Hyperthermia Cancer Treatment
Poster Presentation. IMECE2016-66328 – *Ki Sun Park, Jung Kyung Kim, Hee Joon Lee, Kookmin University, Seoul, Korea (Republic)*

Reduced Order Modeling and Experimental Investigation of Acoustic Particle Manipulation in Complex 3D Geometries
Poster Paper Publication. IMECE2016-66904 – *Michael Binkley, Andrew Ledbetter, Stefanie Shahan, Washington University in St. Louis, St. Louis, MO, United States, J. Mark Meacham, Washington University in Saint Louis, Saint Louis, MO, United States*

CFD Analysis Comparing Steady Flow and Pulsatile Flow through the Aorta and its Main Branches
Poster Paper Publication. IMECE2016-67155 – *John Martin, Youngstown State University, Youngstown, OH, United States*

Study of Dynamic Response of Grass-like Crops Using High-speed Digital Image
Poster Presentation. IMECE2016-67519 – *Jiang Zhou, Hossain Ahmed, CHUN-WEI YAO, Kendrick Aung, Lamar University, Beaumont, TX, United States*

Development of Residence Time Instrumentation for Evaluating Embolic Devices
Poster Presentation. IMECE2016-67531 – *Adam Orendain, Texas A&M University, College Station, TX, United States*

Haptic and Visual Feedback Technology for Upper-Limb Disability Assessment
Poster Paper Publication. IMECE2016-67541 – *Norali Pernalete, Amar Raheja, California State Polytechnic University Pomona, Pomona, CA, United States, Stephanie Carey, University of South Florida, Tampa, FL, United States*

Disruption in Electromechanical Behavior of Axonal Fiber Tracts during Concussion: A Multiscale Modeling Approach
Poster Presentation. IMECE2016-67799 – *Harsha T. Garimella, The Pennsylvania State University, State College, PA, United States, Reuben Kraft, The Pennsylvania State University, University Park, PA, United States*

Local delivery of protein and minerals by electrospun nanofiber mesh on a titanium: In vitro and In vivo studies
Poster Presentation. IMECE2016-68742 – *Fariha Sultana, Shahram Riahinezhad, Morshed Khandaker, University of Central Oklahoma, Edmond, OK, United States*

Mechanical characterization of PVA/PVP, silicone gels and silicone-anchored intervertebral disc
Poster Presentation. IMECE2016-68743 – *Harsha Jamadagni, Shahram Riahinezhad, Morshed Khandaker, University of Central Oklahoma, Edmond, OK, United States*

20-6-1

Finite Element analysis of a CNC Milling Machine Frame
Poster Paper Publication. IMECE2016-65613 – *Antonin Max, University of West Bohemia, Faculty of Mechanical Engineering, Department of Machine Design, Pilsen, Czech Republic, Lubos Rehounek, University of Hradec Kralove, Hradec Kralove, Czech Republic, Tomas Keckstein, University of West Bohemia, Faculty of Mechanical Engineering, Department of Machine Design, Pilsen, Czech Republic*

Dynamic Model of a Membrane Pump Powered by a Scroll Pump in an Absorption Refrigeration Cycle
Poster Paper Publication. IMECE2016-66060 – *Tiago F. Costa, Carlos A. C. dos Santos, UFPB - Universidade Federal da Paraíba, João Pessoa, PB - Paraíba, Brazil*

Modeling and Control of an Elastic Inverted Pendulum using Real-Time Determination of Bending Modes
Poster Presentation. IMECE2016-66232 – *Andrew Blackney, California State University Long Beach, Long Beach, CA, United States, Praveen Shankar, California State University - Long Beach, Long Beach, CA, United States*

Damping Effect of Grass-like Crops Using High-speed Digital Image
Poster Presentation. IMECE2016-67537 – *Jiang Zhou, Hossain Ahmed, Lamar University, Beaumont, TX, United States*

Performance of Proportional Directional Flow Control Valve in Rotational Hydraulic Movement
Poster Presentation. IMECE2016-68400 – *Ahmad Qassim, Faculty of Engineering, Minia, Egypt, Tahany W. Sadak, Beni-Suef University, Beni-Suef, Egypt, Mahassen R.I. Rizk, Faculty of Engineering, Minia, Egypt*

Simulation of Robotic Systems on Granular Media
Poster Presentation. IMECE2016-68537 – *Hosain Bagheri, Spandana Vajrala, Vishwarath Taduru, Shawn White, Daniel Lee, Heather Emady, Hamidreza Marvi, Arizona State University, Tempe, AZ, United States*

TIME	
	20-7-1 **Student Presentation Based Effective Teaching (SPET) Approach for Advanced Courses** **Poster Paper Publication.** IMECE2016-66029 – *Pawan Tyagi, University of the District of Columbia, Washington, DC, United States*
	20-8-1 **Grid-independent Water Desalination of Brackish Water using a Combined Solar Thermal and Photovoltaics** **Poster Presentation.** IMECE2016-67652 – *Sean Yazdi, Ali Sharbat, California State Polytechnic University, Pomona, CA, United States, Kevin Anderson, California State Polytech Univ, Pomona, CA, United States, Andy Ceja, Vien Nguyen, Abraham Morales, California State Polytechnic University, Pomona, CA, United States, Reza Baghaei Lakeh, University of California Los Angeles, Los Angeles, CA, United States* **Switchable Adhesives for Space Applications** **Poster Presentation.** IMECE2016-68589 – *Kathleen Farrell, Hamidreza Marvi, Douglas Elson, Arizona State University, Tempe, AZ, United States*

TIME

20-9-1

A Study on the Feasibility of Generating Power Using Tidal Energy
Poster Presentation. IMECE2016-65494 – *Satya Prasad Paruchuru, Siva Kalyani Koneti, Deepthi Jammula, VNR VJIET, Hyderabad, India*

Numerical Studies of the Effectiveness of Electrodes with Conductive Dots in Flow Batteries
Poster Paper Publication. IMECE2016-65931 – *Xuyang Zhang, Song Luo, Hongtan Liu, University of Miami, Coral Gables, FL, United States, Conghua Wang, TreadStone Technologies, Inc., Princeton, NJ, United States*

Wind Effects on Blower Door Testing
Poster Presentation. IMECE2016-66988 – *Wesley Russelburg, Robert Choate, Western Kentucky University, Bowling Green, KY, United States*

Fast and Accurate Calculation of Thermodynamic and Transport Properties with the Spline-Based Table Look-Up Method (SBTL) ? Applied in Heat-Cycle Calculations
Poster Presentation. IMECE2016-67137 – *Matthias Kunick, Zittau/Goerlitz University of Applied Sciences, Zittau, Germany, Hans-Joachim Kretzschmar, Zittau/Goerlitz University of Applied Scences, Zittau, Germany, Francesca di Mare, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Cologne, Germany, Uwe Gampe, Dresden University of Technology, Dresden, Germany*

Waste Methane-based Atmospheric Water Harvesting (AWH) for Shale Oil Production
Poster Presentation. IMECE2016-68487 – *Enakshi Wikramanayake, The University of Texas At Austin, Austin, TX, United States, Vaibhav Bahadur, University of Texas at Austin, Austin, TX, United States*

Experimental and numerical investigation of oxygen transport membrane under pressurized feeding condition
Poster Presentation. IMECE2016-68527 – *WooNam Jung, Sungkook Hong, Kwang Sup Song, Daekeun Lee, Jihaeng Yu, Korea Institute of Energy Research, Daejeon, Korea (Republic)*

Energy Analysis of Dodecane Combustion in a Heterogeneous/Homogeneous Heat-Recirculating Microreactor for Portable Power Applications
Poster Presentation. IMECE2016-68545 – *C. Mike Waits, US Army Research Laboratory, Adelphi, MD, United States, Erik D. Tolmachoff, US Naval Air Systems Command, China Lake, CA, United States, William R. Allmon, Noah E. Zecher-Freeman, US Army Research Laboratory, Adelphi, MD, United States*

Preliminary cycle design for a stand-alone oxygen generation system using a ceramic membrane
Poster Presentation. IMECE2016-68590 – *Dong Hyun Lee, Jinyoung Jang, Sungkook Hong, Jihaeng Yu, Korea Institute of Energy Research, Daejeon, Korea (Republic)*

Ethanol Autothermal Reforming On Rh/CeO2 Coated Monolith Reactor: A CFD Study Using Porous Media Approximation
Poster Presentation. IMECE2016-68607 – *Renika Baruah, Marm Dixit, Pratik Basarkar, Sudhanshu Sharma, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

Development of a Cool Flame Based Vaporizer System for Diesel Autothermal Reformer: Preliminary Experimental Results
Poster Presentation. IMECE2016-68608 – *Marm Dixit, Anand Parejiya, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Manjeet Chaudhary, Sai Mani Prudhvi Valleti, IIT Gandhinagar, Gandhinagar, India, Pratik Basarkar, Dhwanil Shah, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

Understanding the negative temperature coefficient phenomenon in methane-air mixtures at high pressures
Poster Presentation. IMECE2016-68609 – *Anand Parejiya, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Manjeet Chaudhary, Sai Mani Prudhvi Valleti, IIT Gandhinagar, Gandhinagar, India, Marm Dixit, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

An Experimental Investigation of Effective Diffusivities in Rh\CeO2 Coated Monolith Layer
Poster Presentation. IMECE2016-68610 – *Sai Mani Prudhvi Valleti, IIT Gandhinagar, Gandhinagar, India, Marm Dixit, Anand Parejiya, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Manjeet Chaudhary, IIT Gandhinagar, Gandhinagar, India, Sudhanshu Sharma, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

Numerical Modelling of Heptane Autoignition: Determination of stable working zone for cool flame vaporizer
Poster Presentation. IMECE2016-68611 – *Anand Parejiya, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Manjeet Chaudhary, Sai Mani Prudhvi Valleti, IIT Gandhinagar, Gandhinagar, India, Marm Dixit, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

Non-Catalytic Modelling of Reactor for Autothermal Reforming of a Diesel-based System
Poster Presentation. IMECE2016-68613 – *Vikas Sharma, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Marm Dixit, Anand Parejiya, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Sai Mani Prudhvi Valleti, IIT Gandhinagar, Gandhinagar, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

Miniaturized Redox Flow Batteries for Electronic Applications: CFD and Thermal Modeling
Poster Presentation. IMECE2016-68621 – *Nehakausar Pinjari, Brijesh Kumar, Indian Institute of Technology, Gandhinagar, Gandhinagar, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India, Patrick Ruch, IBM Research Zurich, Zurich, Switzerland*

TIME

20-11-1 BOILING FOCUS PHOTOGALLERY

Session Organizer: **Chang Kyoung Choi**, *Michigan Technological University, Houghton, MI, United States*
Session Co-Organizer: **David Pratt**, *Wright-Patterson Air Force Base, Dayton, OH, United States,* **Jungho Lee**, *Korea Institute of Machinery and Materials (KIMM), Deajeon, Korea (Republic)*

Local charge injection of CVD grown graphene on SiO2 using atomic force microscopy
Technical Presentation. IMECE2016-65433 – *Fei Long, Michigan Technologilcal University, Houghton, MI, United States*, *Chang Kyoung Choi, Michigan Technological University, Houghton, MI, United States*

Simultaneous Measurement of Topography and Temperature Distribution using AFM with Conventional Si Cantilever
Technical Presentation. IMECE2016-66560 – *Jinsung Rho, KAIST, Daejeon, Korea (Republic)*, *Bong Jae Lee, Korea Advanced Institute of Science and Technology, Daejeon, Korea (Republic)*

Thermal Distribution of Microscale Transpiration Cooling for Next-generation Gas Turbine Cooling
Technical Presentation. IMECE2016-67802 – *Junsik Lee, Korea Institute of Machinery & Materials, Daejeon, Korea (Republic)*, *Jungho Lee, Korea Institute of Machinery and Materials (KIMM), Deajeon, Korea (Republic)*, *Hyung-Soo Lim, Korea Institute of Machinery and Materials (KIMM), Daejeon, Korea (Republic)*, *Je Sung Bang, Korea Institute Of Machinery and Materials, Daejeon, Korea (Republic)*, *JeongMin Seo, KIMM(Korea Institute of Machinery & Materials), Daejeon, Korea (Republic)*, *Jeong Lak Sohn, Korea Institute of Machinery & Materials, Daejeon, Korea (Republic)*

Observation of thin films between frozen and sub-cooled droplets by using SPR imaging
Invited Presentation. IMECE2016-68500 – *Chang Kyoung Choi, Michigan Technological University, Houghton, MI, United States*

Nucleate Boiling Comparison between Plain and Cu-HTCMC in Subcooled Water at Heat Flux of 1000 kW/m2
Invited Presentation. IMECE2016-68709 – *Seongchul Jun, University of Texas at Dallas, Richarson, TX, United States*

Visualization of Microscale Transpiration Cooling for Gas Turbine Applications
Invited Presentation. IMECE2016-68710 – *Jungho Lee, Korea Institute of Machinery and Materials (KIMM), Deajeon, Korea (Republic)*

Flow Boiling on a Hydrophobic Surface
Invited Presentation. IMECE2016-68724 – *Seung Mun You, The University Of Texas At Dallas, Richardson, TX, United States*

Flow Boiling Heat Transfer of Saturated Water on Sintered Microporous Surfaces
Invited Presentation. IMECE2016-68758 – *Jungho Lee, Korea Institute of Machinery and Materials (KIMM), Deajeon, Korea (Republic)*

Two-Phase Flow Patterns of Air-water Mixture with Surfactant Additives in Microchannels
Invited Presentation. IMECE2016-68858 – *Dong Liu, University of Houston, Houston, TX, United States*

Dynamics of Leidenfrost Droplet Modulated by Electrowetting
Invited Presentation. IMECE2016-68859 – *Dong Liu, University of Houston, Houston, TX, United States*

TIME

20-11-2

Effect of Groove Dimension on Thermal Performance of Turbulent Fluid Flow in Internally Grooved Tubes
Poster Paper Publication. IMECE2016-66236 – *Sogol Pirbastami, University of Nevada, Las Vegas, Las Vegas, NV, United States, Samir Moujaes, Univ of Nevada Las Vegas, Las Vegas, NV, United States*

Simultaneously Measuring of Thermal Conductivity and Specific Heat in a Single TDTR Experiment
Poster Presentation. IMECE2016-66731 – *Fangyuan Sun, Ming Yang, Zhe Chen, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, China, Dawei Tang, Chinese Academy of Science, Beijing, China*

Modulation of Electronic and Heat-transport Properties of Bilayer Boronitrene
Poster Presentation. IMECE2016-67776 – *Ming Yang, Fangyuan Sun, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, Beijing, China, Rui-Ning Wang, College of Physics Science and Technology, Hebei University, Baoding, Hebei, China, Hang Zhang, Institute of Engineering Thermophysics, Chinese Academy of Sciences, Beijing, Beijing, China, Dawei Tang, Chinese Academy of Science, Beijing, China*

A molecular dynamics approach to investigate the effect of carbon nanotube diameter on thermal interfacial resistance by vibrational mismatch analysis
Poster Presentation. IMECE2016-68372 – *Ajinkya Sarode, Zeeshan Ahmed, Pratik Basarkar, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India, Debjyoti Banerjee, Texas A&M University, College Station, TX, United States*

Transient Characterisation of Data Center on Racks
Poster Presentation. IMECE2016-68515 – *Yogesh Fulpagare, Indian Institue of Technology Gandhinagar, Gujarat, India, Yogendra Joshi, Georgia Tech, Atlanta, GA, United States, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

A numerical study on heat transfer and flow characteristics of a finned downhole coaxial heat exchanger
Poster Presentation. IMECE2016-68591 – *Chun-Dong Park, Dong Hyun Lee, Byung-Sik Park, Jaejoon Choi, Korea Institute of Energy Research, Daejeon, Korea (Republic)*

Determination of thermal conductivity of copper-CO2 supercritical nanofluid from molecular dynamics simulations
Poster Presentation. IMECE2016-68623 – *Zeeshan Ahmed, Ajinkya Sarode, Pratik Basarkar, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India, Debjyoti Banerjee, Texas A&M University, College Station, TX, United States*

An Experimental and Numerical Study on the Dynamics and Temperature Control of a Solar Reactor Featuring Human Eye Inspired Mechanism
Poster Presentation. IMECE2016-68634 – *Cédric Ophoff, Hamed Abedini, KU Leuven, Leuven, Belgium, Nesrin Ozalp, Katholieke Universiteit (KU) Leuven, Leuven, Belgium*

Finite Element Modelling for effectiveness analysis of Thermal Management Systems of Laptops
Poster Presentation. IMECE2016-68636 – *Ankita Sinha, Vivek Kumar Singh, Indian Institute of Technology Gandhinagar, Gandhinagar, Gujarat, India, Nehakausar Pinjari, Indian Institute of Technology, Gandhinagar, Gandhinagar, India, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India, Gaurav Shrivastav, Indian Institute of Technology Gandhinagar, Gandhinagar, India*

Radiation Heat Transfer Analysis of Infrared Spectrometer Detector
Poster Presentation. IMECE2016-68669 – *Anshal Jhaveri, Mayuri Kushare, Atul Bhargav, Indian Institue of Technology Gandhinagar, Gandhinagar, Gujarat, India*

High Speed Flow Visualization and Heat Transfer Measurements in Flow Boiling from an Enhanced Microgap
Poster Presentation. IMECE2016-68707 – *Pouya Asrar, Peter Kottke, Georgia Institute of Technology, Atlanta, GA, United States, Andrei Fedorov, Georgia Inst Of Tech, Atlanta, GA, United States, Yogendra Joshi, Georgia Tech, Atlanta, GA, United States*

New technoly in centrifugal compressors
Poster Presentation. IMECE2016-68752 – *Sunil Gund, Home, Pune, India*

Hydrodynamic seal in centrifugal compressor for sealing the leakage
Poster Presentation. IMECE2016-68753 – *Sunil Gund, Home, Pune, India*

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Committee Meeting Program

Committee Meeting Program

MEETING TITLE	DAY	DATE	START TIME	END TIME	VENUE	ROOM
AMD Committee on Computing in Applied Mechanics	MON	11/14/16	11:00AM	12:00PM	Phx CC (North Building)	128A
AMD Executive Committee Meeting	TUE	11/15/16	7:00AM	05:00PM	Phx CC (North Building)	127C
AMD TC of Mechanics of Soft Materials	TUE	11/15/16	01:30PM	02:30PM	Sheraton	Laveen B
AMD TC on Composite Materials	TUE	11/15/16	04:30PM	05:30PM	Sheraton	Laveen B
AMD TC on Dynamics and Control of Structures and Systems	TUE	11/15/16	05:30PM	06:30PM	Sheraton	Laveen B
AMD TC on Elasticity	TUE	11/15/16	10:30AM	11:30AM	Sheraton	Laveen B
AMD TC on Fracture and Failure Mechanics	TUE	11/15/16	03:30PM	04:30PM	Sheraton	Laveen B
AMD TC on Instabilities in Solids and Structures	TUE	11/15/16	11:30AM	12:30PM	Sheraton	Laveen B
AMD TC on Materials Processing and Manufacturing	TUE	11/15/16	02:30PM	03:30PM	Sheraton	Laveen B
Annual Management Division Meeting	SAT	11/12/16	8:00AM	12:00PM	Phx CC (North Building)	125B
Applied Mechanics Division and Materials Division Joint Committee on Constitutive Equations	TUE	11/15/16	10:30AM	11:30AM	Phx CC (North Building)	127A
Applied Mechanics Division Honors and Awards Banquet	TUE	11/15/16	06:30PM	09:00PM	Sheraton	Phoenix Grand Ballroom D
ASME Business Meeting	FRI	11/11/16	05:30PM	06:00PM	Phx CC	223
ASME Diversity Strategy Inclusion Committee (DISC)	TUE	11/15/16	8:30AM	12:00PM	Phx CC (North Building)	125B
ASME History and Heritage Meeting	SAT	11/12/16	8:00AM	04:00PM	Sheraton	Laveen A
ASME IAM3D Judges Orientation	SAT	11/12/16	02:00PM	04:00PM	Phx CC (North Building)	223
ASME Structures and Materials TC Meeting	WED	11/16/16	07:00PM	09:00PM	Phx CC (North Building)	127C
ASME Student-ECE-DME Task Force	FRI	11/11/16	10:00AM	12:00PM	Phx CC (North Building)	131C
ASME Women in Engineering Reception	TUE	11/15/16	05:30PM	07:00PM	Sheraton	Oculus
Auxiliary Board Meeting	TUE	11/15/16	8:30AM	11:30AM	Sheraton	Maryvale A
Auxiliary Guest Luncheon	TUE	11/15/16	01:00PM	03:00PM	Sheraton	Paradise Valley
Biomedical and Biotechnology Organizers Meeting	TUE	11/15/16	05:00PM	06:00PM	Phx CC (North Building)	127B
Board of Governors Lunch	SAT	11/12/16	12:00PM	01:00PM	Sheraton	Deer Valley
Board of Governors Meeting (CLOSED Session)	SAT	11/12/16	8:30AM	12:00PM	Sheraton	Paradise Valley
Board of Governors Meeting (OPEN Session)	SAT	11/12/16	01:00PM	04:30PM	Sheraton	Paradise Valley
Board on Safety Codes and Standards	TUE	11/15/16	9:00AM	05:00PM	Phx CC (North Building)	128B
Career Workshop	TUE	11/15/16	01:30PM	03:00PM	Phx CC (North Building)	Exhibit Hall Stage
Codes & Standards Development Committee for Verification & Validation of Energy Applications	MON	11/14/16	10:00AM	06:00PM	Phx CC (North Building)	125B
Committee of Past Presidents - Private Dinner	MON	11/14/16	06:00PM	09:00PM	Sheraton	Deer Valley
Committee of Past Presidents Meeting	MON	11/14/16	02:00PM	04:00PM	Sheraton	Maryvale B
Committee on Engineering Education	SUN	11/13/16	01:00PM	05:00PM	Phx CC (North Building)	126AB
Committee on Government Relations	SUN	11/13/16	8:00AM	01:00PM	Phx CC (North Building)	126AB
Committee on Honors	TUE	11/15/16	8:30AM	01:00PM	Phx CC (North Building)	128A
Community Development Meeting	SAT	11/12/16	9:00AM	12:00PM	Phx CC (North Building)	223
Composite and Heterogeneous Materials	MON	11/14/16	11:00AM	12:00PM	Phx CC (North Building)	127A
Congress Steering Committee (CSC) Meeting (CLOSED Meeting)	SUN	11/13/16	04:00PM	05:00PM	Sheraton	Laveen A

MEETING TITLE	DAY	DATE	START TIME	END TIME	VENUE	ROOM
Congress Steering Committee (CSC) Wrap Up Meeting (CLOSED Meeting)	WED	11/16/16	04:00PM	05:00PM	Phx CC (North Building)	125B
Council on Standards and Certification	MON	11/14/16	10:15AM	05:00PM	Sheraton	Phoenix Grand Ballroom D
Cross Sector Meet-Up	MON	11/14/16	07:00PM	08:30PM	Sheraton	Maryvale B
DMM Segment Leadership Team Meeting	SAT	11/12/16	8:00AM	05:00PM	Phx CC (North Building)	221C
ECE Programming Committee	SAT	11/12/16	01:00PM	05:00PM	Phx CC (North Building)	125B
ECLIPSE Alumni Reception	SAT	11/12/16	06:00PM	07:30PM	Phx CC (North Building)	128B
ECLIPSE Intern Breakfast	SUN	11/13/16	7:30AM	9:30AM	Phx CC (North Building)	125A
EDESC (CLOSED Meeting)	THU	11/10/16	02:00PM	06:00PM	Phx CC (North Building)	131B
EED Executive Committee and Division Meeting	MON	11/14/16	7:00AM	05:00PM	Phx CC (North Building)	126AB
Electronic Materials	MON	11/14/16	9:00AM	10:00AM	Phx CC (North Building)	127A
Energy Conversion & Storage Segment Leadership Team Meeting	SAT	11/12/16	8:00AM	05:00PM	Phx CC (North Building)	222C
Energy Storage and Processing Segment Leadership Team Meeting	SAT	11/12/16	12:00PM	04:00PM	Phx CC (North Building)	222A
Engineering Sciences Segment (ESS) Leadership Team Meeting	SAT	11/12/16	7:00AM	04:00PM	Sheraton	Laveen B
EPPD Executive Committee Meeting (CLOSED Meeting)	WED	11/16/16	12:00PM	01:00PM	Phx CC (North Building)	127B
EPPD Wine and Cheese Reception	WED	11/16/16	05:30PM	07:00PM	Phx CC (North Building)	126B
ESS Meeting with Divisions	SUN	11/13/16	01:00PM	02:00PM	Sheraton	Maryvale B
Exhibitor Feedback Session	TUE	11/15/16	04:30PM	06:00PM	Phx CC (North Building)	125B
FED CFDTC Meeting	TUE	11/15/16	08:30PM	09:30PM	Sheraton	Maryvale A
FED Executive Committee Meeting (CLOSED Meeting)	SUN	11/13/16	02:00PM	05:00PM	Sheraton	Maryvale B
FED Executive Committee Meeting with Advisory Board	TUE	11/15/16	04:00PM	05:30PM	Sheraton	Maryvale A
FED Executive Committee Meeting with Staff (CLOSED Meeting)	MON	11/14/16	02:00PM	03:00PM	Phx CC (North Building)	127C
FED Executive Committee Meeting with TC Chairs and Vice Chairs	MON	11/14/16	03:30PM	05:00PM	Phx CC (North Building)	127C
FED Executive Committee Meeting with TC Chairs and Vice Chairs	WED	11/16/16	05:00PM	06:30PM	Phx CC (North Building)	127C
FED FASTC Meeting	MON	11/14/16	07:30PM	08:30PM	Phx CC (North Building)	127C
FED FMITC Meeting	TUE	11/15/16	05:30PM	06:30PM	Sheraton	Maryvale A
FED FMTC Meeting	MON	11/14/16	05:30PM	06:30PM	Phx CC (North Building)	127C
FED GSSC Meeting	SUN	11/13/16	05:00PM	06:00PM	Phx CC (North Building)	125B
FED H&A Meeting	SUN	11/13/16	05:00PM	06:00PM	Phx CC (North Building)	127B
FED MFTC Meeting	MON	11/14/16	08:30PM	09:30PM	Phx CC (North Building)	127C
FED MNFDTC Meeting	MON	11/14/16	06:30PM	07:30PM	Phx CC (North Building)	127C
FED Towne Hall Assembly	MON	11/14/16	12:00PM	01:30PM	Sheraton	Paradise Valley
Fellow Review Committee	MON	11/14/16	04:15PM	05:45PM	Phx CC (North Building)	128B

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MEETING TITLE	DAY	DATE	START TIME	END TIME	VENUE	ROOM
Fiduciary Committee (CLOSED Meeting)	FRI	11/11/16	02:00PM	06:00PM	Phx CC (North Building)	131B
Fluids Engineering Division Reception	TUE	11/15/16	06:30PM	08:30PM	Sheraton	Maryvale B
FutureME Mini-Talks & Social Meetup	MON	11/14/16	05:30PM	07:00PM	Phx CC (North Building)	120A
Group Engagement & Alignment Task Force	MON	11/14/16	01:30PM	03:30PM	Phx CC (North Building)	128B
Heat Transfer Division Awards Luncheon	TUE	11/15/16	11:00AM	01:00PM	Sheraton	Phoenix Grand Ballroom D
Honors Assembly	SUN	11/13/16	07:00PM	08:00PM	Phx CC (North Building)	North Ballroom CD
HTD Executive Committee Meeting (CLOSED)	SUN	11/13/16	02:00PM	04:00PM	Phx CC (North Building)	127A
HTD Executive Committee Meeting (OPEN Session)	SUN	11/13/16	04:00PM	06:00PM	Phx CC (North Building)	127A
HTD IMECE 2017 Planning	WED	11/16/16	8:00AM	10:00AM	Phx CC (North Building)	127A
HTD Journal of Heat Transfer Editorial Board	MON	11/14/16	03:00PM	05:00PM	Phx CC (North Building)	127A
HTD Journal of Thermal Science and Engineering Applications Editorial Board	TUE	11/15/16	03:00PM	05:00PM	Phx CC (North Building)	127A
HTD/FED 2017 Summer Heat Transfer Conference Planning	WED	11/16/16	10:00AM	12:00PM	Phx CC (North Building)	127A
IMECE 2016 Feedback Session	WED	11/16/16	10:00AM	11:00AM	Phx CC (North Building)	125B
IMECE 2017 Track Organizers and Co-Organizers Meeting	WED	11/16/16	01:30PM	02:30PM	Phx CC (North Building)	125B
IMECE First-Time Attendee Orientation	SUN	11/13/16	02:30PM	03:30PM	Phx CC (North Building)	124AB
IMECE Volunteer and Student Recognition Reception	WED	11/16/16	05:30PM	07:00PM	Sheraton	Paradise Valley
Increasing Industry Leadership Engagement Task Force	FRI	11/11/16	10:00AM	12:00PM	Phx CC (North Building)	221C
InterPACK Planning Meeting	TUE	11/15/16	05:00PM	07:00PM	Phx CC (North Building)	126AB
JEP Meeting	TUE	11/15/16	07:30PM	08:30PM	Phx CC (North Building)	126AB
Joint Board of Editors (BOE) and Technical Committee on Publications and Communications	SAT	11/12/16	12:00PM	04:00PM	Sheraton	Maryvale AB
Joint Presidential Task Force Meeting - High Performing Board and Strategy & Planning	FRI	11/11/16	7:30AM	9:00AM	Phx CC (North Building)	221A
Journal Editor Workshop	SUN	11/13/16	9:30AM	11:30AM	Phx CC (North Building)	125A
HTD: K-10	MON	11/14/16	06:00PM	08:00PM	Phx CC (North Building)	127B
HTD: K-11	TUE	11/15/16	06:00PM	08:00PM	Phx CC	125B
HTD: K-12	WED	11/16/16	06:00PM	08:00PM	Phx CC (North Building)	128A
HTD: K-13	TUE	11/15/16	06:00PM	08:00PM	Phx CC (North Building)	128A
HTD: K-14	WED	11/16/16	06:00PM	08:00PM	Phx CC (North Building)	128B
HTD: K-15	TUE	11/15/16	06:00PM	08:00PM	Phx CC (North Building)	128B
HTD: K-16	MON	11/14/16	06:00PM	08:00PM	Phx CC (North Building)	128B
HTD: K-18	MON	11/14/16	06:00PM	08:00PM	Phx CC (North Building)	125B
HTD: K-19	TUE	11/15/16	06:00PM	07:00PM	Phx CC (North Building)	127B

MEETING TITLE	DAY	DATE	START TIME	END TIME	VENUE	ROOM
HTD: K-20	WED	11/16/16	04:00PM	06:00PM	Phx CC (North Building)	127B
HTD: K-22	MON	11/14/16	06:00PM	08:00PM	Phx CC (North Building)	128A
HTD: K-3	SUN	11/13/16	12:00PM	03:00PM	Phx CC (North Building)	127B
HTD: K-5	WED	11/16/16	06:00PM	08:00PM	Phx CC (North Building)	127A
HTD: K-6	MON	11/14/16	06:00PM	08:00PM	Phx CC (North Building)	127A
HTD: K-7	TUE	11/15/16	06:00PM	08:00PM	Phx CC (North Building)	127A
HTD: K-8	TUE	11/15/16	02:00PM	04:00PM	Phx CC (North Building)	126AB
HTD: K-9	MON	11/14/16	06:00PM	08:00PM	Phx CC (North Building)	126AB
Koiter Lecture	TUE	11/15/16	05:00PM	06:15PM	Phx CC (North Building)	125A
Lunch and Learn Workshop, sponsored by Getson & Schatz	MON	11/14/16	12:00PM	02:00PM	Phx CC (North Building)	126C
Materials Division Awards and Presentations	MON	11/14/16	03:45PM	05:30PM	Sheraton	Phoenix Grand Ballroom E
Materials Division Executive Committee Meeting	TUE	11/15/16	10:00AM	02:00PM	Sheraton	Laveen A
Materials Division Reception	MON	11/14/16	05:30PM	07:00PM	Sheraton	Phoenix Grand Ballroom E
Materials Processing	MON	11/14/16	9:00AM	10:00AM	Phx CC (North Building)	128B
ME Department Heads Executive Committee Meeting	MON	11/14/16	04:00PM	06:00PM	Sheraton	Laveen AB
ME/MET Department Heads Forum	MON	11/14/16	01:30PM	03:30PM	Sheraton	Phoenix Grand Ballroom AB
ME/MET Department Heads Professional Development Workshop	TUE	11/15/16	10:30AM	12:00PM	Sheraton	Phoenx Grand Ballroom AB
Members & Students Luncheon	SUN	11/13/16	12:00PM	01:30PM	Phx CC (North Building)	124AB
MEMS Division Executive Committee Meeting (OPEN)	WED	11/16/16	07:00PM	08:00PM	Phx CC (North Building)	126C
MEMS Division's Volunteer Reception and Best Paper Award Presentation	WED	11/16/16	05:30PM	07:00PM	Phx CC (North Building)	126C
Multifunctional Materials	MON	11/14/16	10:00AM	11:00AM	Phx CC (North Building)	128B
NanoEngineering for Energy and Sustainability Steering Committee (NEES)	TUE	11/15/16	04:00PM	05:00PM	Phx CC (North Building)	128A
Nanomaterials for Energy	MON	11/14/16	11:00AM	12:00PM	Phx CC (North Building)	128B
Nanomaterials for Medicine and Biology	MON	11/14/16	9:00AM	10:00AM	Phx CC (North Building)	128A
NCAD Executive Committee Meeting	TUE	11/15/16	8:00AM	9:00AM	Phx CC (North Building)	127B
NCAD General Committee Meeting	TUE	11/15/16	9:00AM	10:00AM	Phx CC (North Building)	127B
NCAD Tutorial Workshop	TUE	11/15/16	01:30PM	02:15PM	Phx CC (North Building)	125B
NCAD Wine & Cheese Reception	TUE	11/15/16	05:00PM	06:30PM	Sheraton	Deer Valley
NDPD EC Meeting	TUE	11/15/16	06:00PM	010:00PM	Phx CC (North Building)	127C
NSF ENG/CBET Division Program Directors Panel Session	MON	11/14/16	04:00PM	05:00PM	Sheraton	Camelback AB
NSF ENG/CMMI Division Program Directors Panel Session	TUE	11/15/16	01:00PM	02:30PM	Phx CC (North Building)	126C

Committee Meeting Program

MEETING TITLE	DAY	DATE	START TIME	END TIME	VENUE	ROOM
NSF Research Program Development Workshop	TUE	11/15/16	03:00PM	05:30PM	Phx CC (North Building)	126C
Old Guard and History & Heritage Engineer-Historian Award Reception	SAT	11/12/16	06:00PM	07:30PM	Sheraton	Deer Valley
Old Guard Committee Meeting	SUN	11/13/16	8:30AM	04:00PM	Sheraton	Laveen B
Old Guard Oral Competition Breakfast	SAT	11/12/16	7:30AM	8:30AM	Sheraton	Deer Valley
Old Guard Oral Competition Finals	SAT	11/12/16	9:00AM	04:00PM	Sheraton	Camelback AB
Opening Reception	SUN	11/13/16	05:00PM	06:30PM	Phx CC (North Building)	Exhibit Hall CD
Polymer and Soft Materials	MON	11/14/16	10:00AM	11:00AM	Phx CC (North Building)	128A
Power and Energy EAC Meeting	MON	11/14/16	03:00PM	04:00PM	Phx CC (North Building)	128A
Presidential Task Force Groups	FRI	11/11/16	12:00PM	05:00PM	Phx CC (North Building)	222AB
Presidential Task Force Meeting - High Performing Board	FRI	11/11/16	9:00AM	12:00PM	Phx CC (North Building)	221A
Presidential Task Force Meeting - Strategy & Planning	FRI	11/11/16	9:30AM	12:00PM	Phx CC (North Building)	221B
President's Luncheon	MON	11/14/16	12:00PM	01:30PM	Phx CC (North Building)	124AB
Public Affairs and Outreach Council	MON	11/14/16	10:00AM	04:00PM	Sheraton	Maryvale A
Rayleigh Lecture	TUE	11/15/16	03:30PM	05:00PM	Phx CC (North Building)	125A
Robert Henry Thurston Lecture	MON	11/14/16	10:00AM	12:00PM	Phx CC (North Building)	231C
SECD Council Meeting	SUN	11/13/16	8:00AM	04:00PM	Phx CC (North Building)	128B
SERAD Awards Dinner	MON	11/14/16	07:00PM	09:00PM	Phx CC (North Building)	126C
SERAD Business Meeting	TUE	11/15/16	12:00PM	02:00PM	Phx CC (North Building)	127B
Sponsor and Exhibitor Thank You Reception (Invitation Only)	TUE	11/15/16	06:00PM	07:30PM	Sheraton	Valley Overlook
Standards Education Project Meeting	MON	11/14/16	04:00PM	06:00PM	Phx CC (North Building)	128A
Student Design Competition Committee Meeting	SAT	11/12/16	01:00PM	05:00PM	Phx CC (North Building)	126AB
Student Design Competition Finals	SUN	11/13/16	8:00AM	06:00PM	Phx CC (North Building)	120B
Student Leadership Training Conference (SLTC)	FRI	11/11/16	07:00PM	09:00PM	Phx CC (North Building)	221AB
Student Leadership Training Conference (SLTC)	SAT	11/12/16	7:30AM	06:00PM	Phx CC (North Building)	221AB
Student Leadership Training Conference (SLTC)	SUN	11/13/16	7:30AM	01:00PM	Phx CC (North Building)	221AB
Student Programming Committee	MON	11/14/16	8:00AM	12:00PM	Sheraton	Maryvale B
Symposium for New and Prospective Faculty: "Tips for Faculty Job Search, Promotion and Tenure"	TUE	11/15/16	9:00AM	10:30AM	Sheraton	Deer Valley
Technical Committee on Publications and Communications (TCPC)	SAT	11/12/16	7:30AM	12:00PM	Sheraton	Maryvale AB
Technical Events and Content (TEC) Council	SUN	11/13/16	9:00AM	04:30PM	Sheraton	Maryvale A
Transforming Engineering Culture to Advance Inclusion and Diversity (TECAID)	TUE	11/15/16	01:00PM	04:30PM	Sheraton	Phoenix Grand Ballroom AB
VOLT Executive Committee Meeting	FRI	11/11/16	06:00PM	09:00PM	Phx CC (North Building)	221C
VOLT Leadership Workshop	SUN	11/13/16	02:00PM	04:00PM	Sheraton	Deer Valley
VOLT Leadership Workshop	MON	11/14/16	10:00AM	12:00PM	Sheraton	Deer Valley

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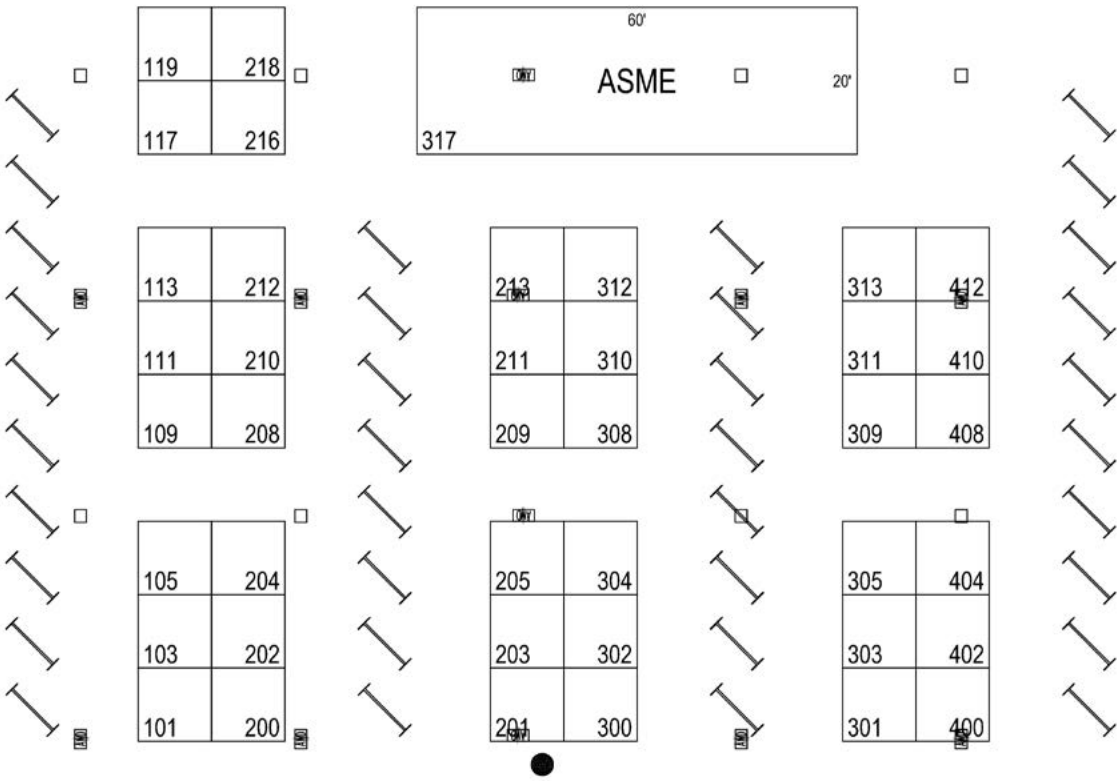

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Brian H. Getson, Esq., 1995 UPenn School of Law graduate, leads the US immigration law firm of Getson & Schatz, P.C. His law firm often provides a money-back guarantee to scientific researchers qualified for EB-1/NIW green cards. Major scientific organizations have invited Mr. Getson to speak, including the American Society for Cell Biology and the American Chemical Society, in addition to the Wistar Institute. Mr. Getson is a published author on obtaining EB-1/NIW green cards.

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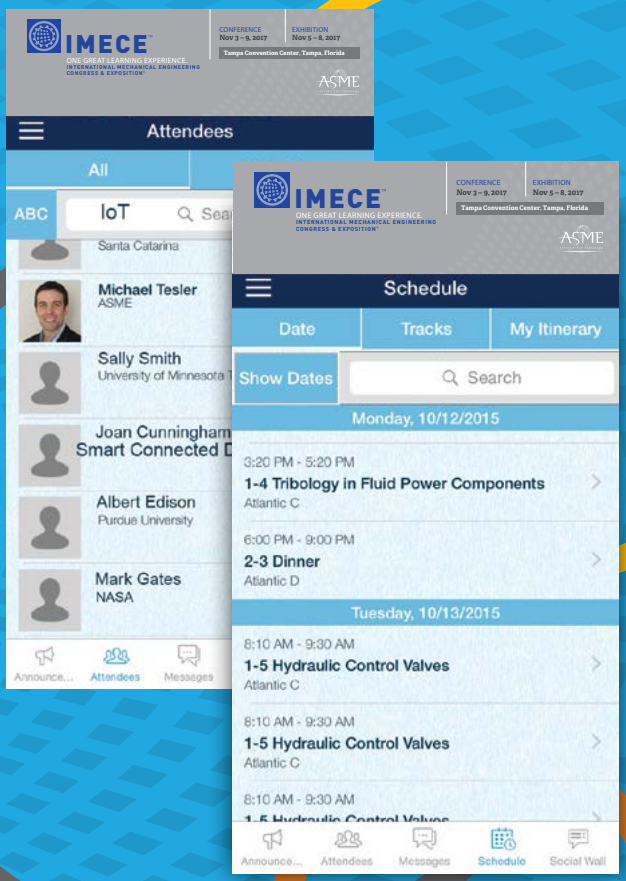

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