ASME Spring/Summer 2022

Bioengineering Division News

In This Issue:

Summer Biomechanics, Bioengineering, and Biotransport Conference
Hyatt Regency Chesapeake Bay Resort in Maryland from June 20-23, 2022

REGISTER NOW!

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ASME BIOENGINEERING DIVISION

SPRING / SUMMER 2022

Message From the Chair

Alison Marsden
BED Chair
2021-2022

Here we are, two years into the pandemic (is it really still going on?), and with every day bringing more news of political unrest and changing world affairs, I am more thankful than ever to be part of the positive and supportive scientific and professional community of the ASME Bioengineering Division. Our division continues to expand, thrive and to make meaningful contributions to scientific discovery, engineering, industry, education, and diversity.

I'd like to first and foremost thank Jonathan Vande Geest and the leadership of SB³C who did an amazing job transitioning the conference to a virtual format for the past two years; their efforts kept our community connected and engaged during a challenging time. They even pulled off a virtual BEDRock concert! But, after two years of virtual meetings I, for one, am so excited to be returning to SB³C in person this year at the Chesapeake Bay Resort in Maryland. There are numerous exciting events and activities happening at the conference this year, under the leadership of Conference Chair Alisa Morss Clyne. The theme of "Reconnecting Networks in Biomechanics, Bioengineering and Biotransport" is particularly apt as we come together again for scientific exchanges and to reconnect with friends and colleagues. This year for the first time we are holding a Juneteenth celebration to honor the contributions of the black community both at our conference and in the broader community. We also look forward to hearing from plenary speaker Professor Shayn Pierce-Cottler. We will have the opportunity to learn about new findings, methods, and discoveries through workshops, podium, and poster presentations. I hope everyone will attend the student paper competition presentations, ASME Bioengineering Division Award presentations, and networking activities led by the Student Leadership Committee, Diversity Equity and Inclusion Committee and Industry Council. We will also hold post-conference in-depth software workshops.

During the virtual SB³C, the ASME Bioengineering Division technical committees Biotransport, Design, Dynamics and Rehabilitation, Fluids, Solids, and Tissue and Cellular Mechanics as well as administrative committees Education, Industry and Student Affairs will also meet (see page 4 for schedule) and plan future activities. The hard work of this conference organizing team and all the committee chairs deserve much thanks and many accolades.

The ASME Bioengineering Division is also increasingly active in sponsoring activities outside of SB³C. Importantly, we sponsor the ASME Journal of Biomechanical Engineering (JBME) and the ASME Journal of Medical Devices (JMD). We are pleased to announce that Tao (Vicky) Nguyen has joined as co-editor in chief of JBME along with C. Ross Ethier who began his term last year. The ASME Bioengineering Division also recognizes the accomplishments of our ASME members who have been elected to Fellow status (pp 21 and 22) and those who have been recognized with ASME medals (pp 24). We also congratulate Jennifer Wayne and Rita Patterson on accepting the Johnson and Johnson Medal, which was awarded to the

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ASME Bioengineering Division's Women's Networking Group at the 2021 International Mechanical Engineering Congress & Exposition® event. The medal recognizes outstanding contributions toward developing and implementing practices, processes and programs that value and strategically manage diversity and inclusiveness. We are proud to have this group in our community.

The ASME Bioengineering Division has been increasingly active in publicizing member activities via social media (LinkedIn https://www.linkedin.com/groups/2539874/, Twitter (@asme_bed) and this newsletter thanks to the tireless efforts of Zhenpeng Qin and Parisa Saboori. These contributions have been especially valuable in keeping our community connected during the pandemic and for engaging new members and trainees in activities of the division. The division hosted several well-attended webinars, including one honoring Black History Month, and professional development activities, including a paper writing workshop, in recent months. The division's new ASME website was launched recently with updated information on committees and activities and can be found at https://www.asme.org/get-involved/technical-divisions/technical-divisions-community-pages/bioengineering-division.

All these activities and more are possible thanks to a dedicated team of volunteers and ASME staff. Supporting me as Chair this year on the Executive Committee are Shannon Stott (Secretary), Alisa Morss Clyne (Secretary Elect), Naomi Chesler (Past Chair), Rafael Davalos (Treasurer), Rouzbeh Amini (Student relations), Robert Hauck, Spencer Lake, Christine Scotti, Josue Sznitman, Craig Goergen (Members-at-Large), Parisa Saboori and Zhenpeng Qin (Communications and outreach) and our dedicated ASME Staff liaisons April Tone and Krishna Hernandez. As a group, we look forward to continuing and strengthening ties between SB^{3}C and ASME in the coming years.

In closing, it has been an honor to serve as the ASME Bioengineering Division Chair this year. I look forward to continued partnership with this community and to our shared goals of forwarding scientific discovery, translational activities, education and diversity, equity, and inclusion. I look forward to reconnecting with friends and colleagues this year at the 2022 SB^{3}C meeting!

Alison Marsden, Chair
ASME Bioengineering Division
2021-2022
@MarsdenStanford on Twitter
Volunteer Leadership Directory

Get Involved > Technical Divisions > Technical Division Pages > Bioengineering Division

Bioengineering Division

Bioengineering Division (BED) is focused on the application of mechanical engineering knowledge, skills and principles from conception to the design, development, analysis and operation of biomechanical systems.

BED Committee Meetings Schedule		
Monday, June 20, 2022		
ASME BED Executive	2:15-3:45 pm	Brigantine Board Room
Wednesday, June 22, 2022		
SB³C Board Meeting	7:00-8:00	Brigantine Board Room
Industry	8:30-9:20	Chesapeake E
Fluid Mechanics (hybrid)	8:30-9:20	Chesapeake F Link
Education (hybrid)	8:30-9:20	Chesapeake G Link
Tissue & Cell Engineering (hybrid)	8:30-9:20	Cutter A/B Link
Biotransport (hybrid)	9:30-10:20	Schooner A/B Link
Design, Dynamics, & Rehabilitation (hybrid)	9:30-10:20	Clipper A/B/C Link
Solid Mechanics (hybrid)	9:30-10:20	Galleon A/B/C Link
ASME BED Open Business Meeting	10:30-11:30	Cutter A/B
JBME Editors	11:30-1:30	Brigantine Boardroom
Tuesday, June 28, 2022		
ASME BED Student Leadership (Virtual)	2:30-3:30 pm	Zoom Link Meeting ID: 847 4109 3878 Passcode: 4xSRaq

Message From SB³C Chair

ASME Bioengineering Division Secretary-Elect

Alisa Morss Clyne
SB³C Chair, 2022

Dear SB³C and ASME Bioengineering Community,

On behalf of the 2022 Summer Biomechanics, Bioengineering, and Biotransport Conference (SB³C) organizing committee, we encourage you to join us at SB³C from June 20-23, 2022, at the Chesapeake Hyatt Resort on the Eastern Shore of Maryland. We are excited to once again offer an in-person SB³C, bringing back the features that we all love about the conference. We are also retaining some of the virtual conference features that increased access, as well as adding new programming to further enhance SB³C.

The theme of this year's conference is "Reconnecting Networks in Biomechanics, Bioengineering, and Biotransport." Throughout the conference, we will focus on how to apply concepts from systems biology to biomechanics. This will start with a plenary presentation by Dr. Shane Peirce-Cottler, Harrison Distinguished Teaching Professor of Biomedical Engineering at the University of Virginia. Dr. Peirce-Cottler combines multiscale computational modeling with in vivo imaging to study structural and functional adaptations of tissues and develop regenerative therapies. The program theme will carry through the 48 technical sessions and two poster sessions, which will feature more than 525 outstanding abstracts submitted by researchers in our community. Special sessions will honor Dr. Ernie Cravalho and Dr. Ajit Yoganathan.

The SB³C 2022 program will also feature talks by the winners of five prestigious ASME medals. Dr. Lori Setton, Lucy and Stanley Lopata Distinguished Professor and Chair of Biomedical Engineering at Washington University in St Louis, will receive the H.R. Lissner Medal for outstanding achievements in bioengineering; Zhenpeng Qin, Associate Professor of Mechanical Engineering at the University of Texas Dallas, will receive the Y.C. Fung Early Career Award; Robert Mauck, Mary Black Ralston Professor of Education and Research in Orthopedic Surgery and Professor of Bioengineering at the University of Pennsylvania, will receive the Van C. Mow Medal; Zong-Ming Li, William and Sylvia Rubin Chair of Orthopedic Research and Professor of Biomedical Engineering at the University of Arizona, will receive the Savio L-Y. Woo Translational Biomechanics Medal; and Michele Grimm, Wielenga Creative Engineering Endowed Professor at Michigan State University, will receive the Robert M. Nerem Education and Mentorship Medal. We look forward to hearing from each of these accomplished researchers!

SB³C continues to be proud to host our signature Student Paper Competition! We had more than 200 submitted abstracts. We will feature 6 in-person podium sessions to showcase 36 PhD-level Student Paper Competition finalists, and we will have dedicated poster sessions for the MS-level and BS-level Student Paper Competition. These sessions have traditionally been a highlight of the conference. This year the PhD-level podium sessions will be on Tuesday and the BS- and MS-level poster sessions will be on Monday. Winners will be announced at the conference banquet on Wednesday evening.

The conference will feature educational workshops. These include "Diversity and Inclusion in Academic Publishing – Increasing the Impact of Your Publications," "Verification, Validation, and Uncertainty Quantification (VVUQ)," and "Engineering and Modeling of Lung Mechanics and Disease," among others. Additionally, we will feature 3 post-conference computational workshops for focused instruction related to the CRIMSON, FEBio, and SimVascular software packages.

We will also have many opportunities for networking and career building, including the Diversity Mentor-Mentee Lunch, the LGBTQ+ Networking Event, the Women's Networking Event, the ASME BED Student Leadership Committee Networking Event, and a new Building Future Faculty Session. And of course, we will

bring back the BEDRock concert on Tuesday evening!

Finally, while SB³C 2022 will officially start on Monday June 20th, we will host a Juneteenth celebration on the evening of Sunday June 19th. We will commemorate the end of slavery in the United States with a talk by Dr. Oliver Myers, Associate Dean of Inclusive Excellence for Undergraduate Studies at Clemson University, who was part of the inaugural graduating class of the renowned Meyerhoff Scholars Program at University of Maryland, Baltimore County. Dr. Myers will discuss the value of programs aimed at supporting marginalized students in STEM and present the challenges and opportunities to making progress towards equity, justice, and inclusion. We will then celebrate with a live performance by the local West African dance company KanKouran! We hope you will attend with your family.

We would particularly like to thank and recognize the tremendous efforts of the SB³C Organizing Committee, ASME BED technical committee chairs, workshop organizers and the many reviewers who worked tirelessly to bring us this high-quality program. We are fortunate to partner with ASME on the Student Paper Competition and receive financial sponsorship from industry sponsors as well as the National Institutes of Health and the National Science Foundation.

See you in Maryland in June!

Alisa Morss Clyne
SB³C Chair
BED Secretary Elect

Summer Biomechanics, Bioengineering, & Biotransport Conference Organizer

Alisa Morse Clyne
Conference Chair
University of Maryland College Park

Matthew Fisher
Program Chair
North Carolina State University & the University of North Carolina

Jessica Oakes
Information Chair
Northeastern University

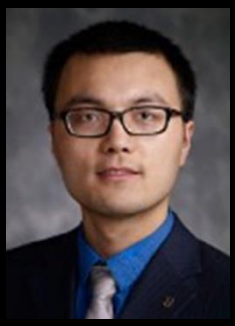
Anita Singh
Publications Chair
Widener University

Lakiesha Williams
Local Arrangements and Finance Chair
University of Florida

Will Richardson
Exhibits Chair
Clemson University

Spencer Szczesny
Diversity Chair
Pennsylvania State University

Joao S. Soares
ASME-BED Student Paper Competition Chair, Virginia Commonwealth University



Zhenpeng Qin
Social Media Chair/Online Chair
University of Texas Dallas

Many Thanks to the SB³C 2022 Sponsors & Exhibitors!

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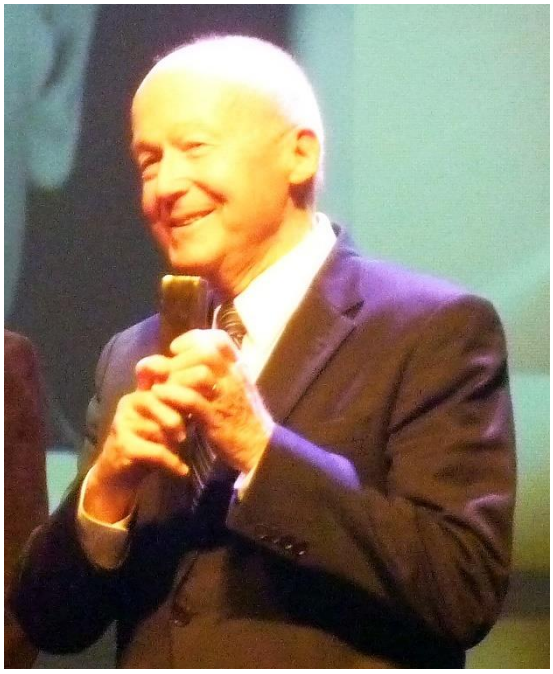
In Memoriam Shmuel Einav, 1942–2022

A pillar of the biomedical engineering community and the field of biofluids and cardiovascular engineering- Prof. Shmuel Einav, passed away in Israel on February 20, 2022. Besides his major contributions to our field, Prof. Einav was an inspiring and beloved figure who was appreciated by many in the bioengineering community. During its nascent years he was a part of a small group of visionary academics who helped establish biomedical engineering as an independent academic discipline and a prosperous research field. He received his B.S. in mechanical engineering in 1964 and M.S. in nuclear engineering in 1968 from the Technion, Israel Institute of Technology, followed by a Ph.D. in mechanical engineering in 1972 from Stony Brook University. At that time, he developed his lifelong interest in the emerging field of bioengineering and pursued a postdoc in Physiology and Medicine at Boston University. Returning to Israel he became a faculty at Tel Aviv University (TAU) and rose through the academic ranks while collaborating with leading researchers in the US and Europe. He led the process for granting advanced degrees in biomedical engineering and was the founding chair of the biomedical engineering department (1993). He then led other BME departments in Israel to offer undergraduate studies in Biomedical Engineering. Driven by boundless curiosity and always looking for innovative research directions, his research has led to new insights in the way we diagnose and treat cardiovascular diseases and develop cardiovascular devices. He was among the first to investigate and publish in 1975 on LDA measurements of the flow of red blood cells in the living body. His studies focused on the role of hemodynamics in the initiation of atherosclerosis, the dynamics of cardiovascular flows and the associated shear stress on vascular endothelial biology. Prof. Einav also served as a visiting professor at Boston University, Berkley, Caltech, and MIT. He was a fellow of ASME, BMES, AIMBE, ICMBE, a member of several international academies, and past President of the Israeli Society for Medical and Biological Engineering. Prof. Einav was the driving force of the International Biofluid Symposium and Workshop and led and chaired its conferences from 2003 on. He returned in 2004 to his alma mater Stony Brook University where he served in leading roles until his retirement last year. Prof. Einav was an inspirational figure who saw himself as a mentor for young talent and facilitator of new ideas. He was a researcher, teacher, leader, mentor, and friend to many in the biomedical engineering community. He will be deeply missed.



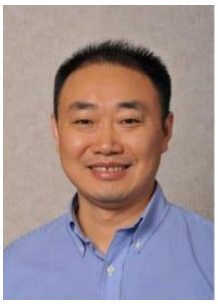
Bioengineering Division Technical Committees

Technical Divisions and Research Committees

At ASME, members can join Technical Divisions and Research Committees based upon their professional and technical interests. More than 50,000 members have elected to affiliate with at least one and up to five divisions. Division and Research Committee opportunities include access to a collaborative community of peers, leadership & volunteer opportunities, career development, numerous student activities, technical/research conferences, and the chance to contribute to the publication of technical journals.

About Technical Divisions and Research Committees

Biotransport



X. Shawn He
Committee Chair, 2018-2022

We welcome Sihong Wang from the City College of New York, who started the vice-chair role of the BIOT committee. We would like to thank Xiaoming He, the outgoing Chair, for his service during this challenging time. Portonovo S. Ayyaswamy completed his term as the Editor of the Journal of Heat Transfer.

A special issue of ASME Journal of Heat Transfer is edited in the memory of Professor Ernest G. Carvalho, entitled “Heat and Mass Transfer in Biotechnology.” In SB^{3}C 2022, BIOT is also sponsoring a symposium honoring Professor Cravalho for his profound impacts on research, education, and mentoring of the biotransport communities and broader bioengineering fields. BIOT also started quarterly mentoring meetings led by Malisa Sarntinoranont to provide mentoring for junior faculty members in the BIOT community. From this meeting, our junior members tart BIOT Twitter account. Please follow @BioTScience for the latest news, position, and announcement related to biotransport. Thank Govind Srimathveeravalli, Rebecca Sandlin, and Shannon Tessier for running this channel.

Shawn He, Ph.D
Committee Chair

Bumsoo Han
Committee Co-Chair, 2020-2022

Bumsoo Han, Ph.D
Committee Co-Chair
https://twitter.com/biotscience

Design, Dynamics, & Rehabilitation

Mike Moreno
Committee Chair
2020-2023

The Design Dynamics and Rehab (DDR) Technical Committee is looking forward to our in-person gathering at the 2022 SB3C at the Chesapeake Hyatt Resort on the Eastern Shore of Maryland. We will be holding our hybrid committee meeting on Wednesday, June 22 from 9:30-10:20 am. Location and zoom details will be available online at www.SB3C.org. Please join us and engage in discussions of our ongoing activities, and the future direction of our committee. This is an open meeting, and everyone is interested in DDR topics (Biomechanics of Human Motion, Cardiovascular and Musculoskeletal Device Design, Design of Medical Technologies, Design of Global Health Solutions, Rehabilitation and Assistive Technologies, and other related topics) are encouraged to attend.

We are also excited to share that this year we have two podiums and one poster session. Please review the program book for details of time and location. Our Undergraduate Design Competition (UDC) session, organized by current DDR's Vice Chair, Anita Singh, will be held on Thursday, June 22. Even if you do not have a team submitting a project, we strongly recommend a visit to this session – the devices being developed by undergraduates are amazing! Finally, we'd like to send a thank you to all our DDR members who reviewed abstracts and continued to show their support.

Anita Singh
Committee Co-Chair
2020-2023

Please contact the committee Vice-chair by clicking here to join our e-mail list for updates or any questions.

Mike Moreno, Ph.D
Committee Chair & Undergraduate Design Competition Chair
Anita Singh, Ph.D
Committee Co-Chair

Tissue & Cellular Engineering

Grace D. O'Connell
Committee Chair
2021-2024

For the 2022 SB³C meeting, our members reviewed 60 abstracts, including 6 finalists for the PhD paper competition, which represents 18% of the finalist for the PhD paper competition. TCE organized 5 scientific sessions in addition to one joint session with Solids. We would like to thank the theme leaders for engaging with the community and encouraging abstract submissions.

The Tissue & Cellular Engineering (TCE) Committee will hold their annual meeting as a hybrid meeting on Wednesday, June 22nd at 8:30 AM ET. We will discuss past initiatives, ongoing activities, and future direction of our committee in the ASME Bioengineering division. We will take this opportunity to recognize achievements of our members. This meeting is open to all conference attendees. If you would like to attend virtually, please use the QR code to register and receive the Zoom link.

David T. Corr
Committee Chair
2021-2024

Please contact the committee chair or vice chair for further details or clarification.

Grace D. O'Connell, Ph.D (she/her
Associate Professor of Mechanical Engineering
David T. Corr, Ph.D
Professor, Biomedical Engineering
Rensselaer Polytechnic Institute

Solid Mechanics

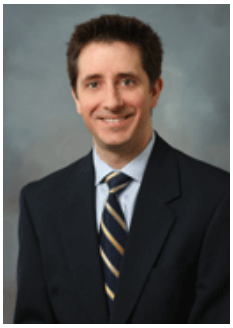
Kristin Myers
Committee Co-Chair
2020-2023

I bring you greetings as the new chair of the Solids technical committee. I thank Vicky Nguyen from Johns Hopkins for her continued service to the Solids committee and to the Bioengineering Division for her new role as Co-Editor of the Journal of Mechanical Engineering. This last year the committee worked diligently to organize the upcoming 2022 Summer Biomechanics, Bioengineering, and Biotransport (SB³C). Working with this year's SB³C Program Chair, Matt Fischer, the committee reviewed and organized over half the abstracts submitted to this year's meeting. A special thanks go to Matt for fulling both his role as overall Program Chair and Musculoskeletal sub-theme Chair. Additional thanks go to the following sub-theme chairs for managing the abstract review process and program building. The theme leaders are Cardiovascular: Daniela Valdez-Jasso and Jun Liao, Growth and Remodeling: Patrick Alford, Injury: Brittany Coats, Musculoskeletal:

Matthew Fisher, Joint and Spine: Beth Winkelstein, Bone: Alix Deymier, and Other Solid Mechanics: Kristin Miller and Rouzbeh Amini. Cardiovascular held the most abstracts, with seven sessions for the upcoming meeting, and Other Solid Mechanics had the second most abstracts with four sessions. The Other Solid Biomechanics sub-theme continues to grow year after year as we find ourselves in emerging fields to apply biomechanics. For example, Lung Biomechanics is new this year, thanks to the organizing efforts of Ed Sander and Mono Eskandari. If you are interested in serving as a reviewer next year or if you have ideas for sessions and workshops to organize for the 2023 meeting, please join us at this year's committee meeting. It will occur via a hybrid format on Wednesday, June 22 at 9:30-10:20AM ET at SB³C. Please see the final SB³C program for in-person room and zoom information. Please join. I am looking forward to seeing you again.

Kristin Myers, Ph.D.
Solid Mechanics Committee Co-Chair

Fluid Mechanics



John LaDisa
Committee Chair
2018-2022

The Biofluids Technical Committee (TCOM) chairs and theme leaders were again focused this past year on implementing the collective feedback received from members during our annual committee meeting held virtually in June 2021. Suggestions included focusing on abstracts for SB³C 2022 that considered women's health and/or infectious disease. A joint publication from subthemes of the Biofluids sessions was also proposed and will be a focus following SB³C 2022. A revised version of the "CFD challenge" was also discussed. Finally, it was suggested that we consider focusing future Biofluids sessions on clinical vs engineering perspectives, possibly related to 4D Flow MRI and potently with sponsorship by one or more companies. SB³C 2022 will feature 48 podium presentations and 38 poster presentations from Biofluids, some of which will be co-hosted talks with other TCOMs. Session co-chairs at SB³C 2022 will again feature a diverse group of junior faculty members and trainees whose work is being presented in each session.

Alejandro Roldan-Alzate
Committee Co-Chair
2018-2022

John LaDisa, Ph.D.
Fluid Mechanics Committee Chair

Alejandro Roldan-Alzate, Ph.D.
Fluid Mechanics Committee Co-Chair

Education Committee

Stephanie George
Committee Chair
2020-2023

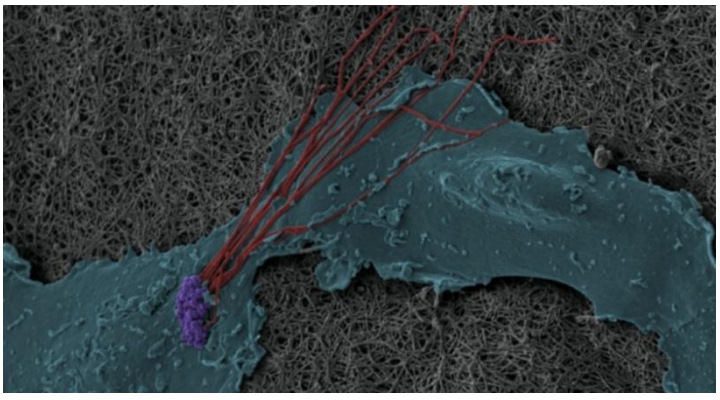
The past academic year marked the resumption of in-person classes for most of us in academia, which is both exciting yet also challenging as we continue to grapple with the pandemic. We would like to thank members of the Education Committee for their help with organizing the technical program for the upcoming conference. This year, in addition to our annual Committee Meeting at the upcoming SB^{3}C 2022 conference, we will also have several poster presentations on topics including teaching virtual reality labs, community-based capstone design projects, and BME curriculum innovations. We hope that many of you will attend these presentations and join us for our Committee Meeting if you are interested in becoming more involved with the Education Committee!

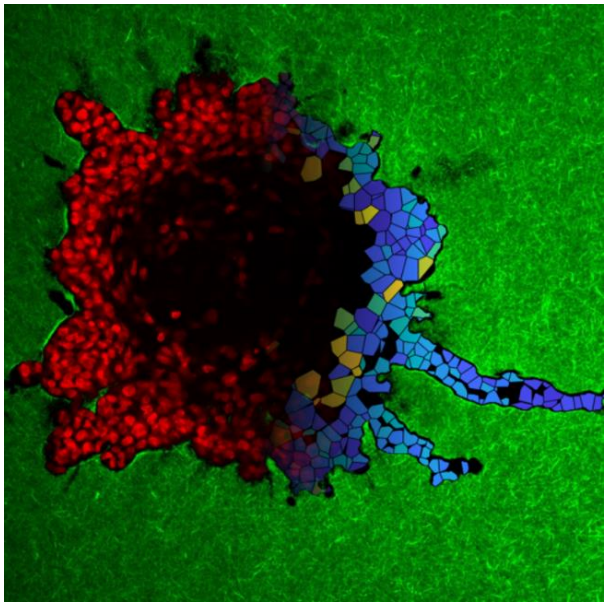
This summer will also mark the end of our three-year terms as the chair and co-chair of the Education Committee. When we were elected to these positions in 2019, we had no idea what the next three years would bring. The current Chair of the Committee, Stephanie George, would like to thank you for your tireless pursuit of high-quality engineering education, the novel and creative virtual resources that have been developed and will be useful moving forward, and the community that has been strengthened by the pandemic providing support to each other along the way. While we will still be grappling with the ramifications of the pandemic for many years to come, we look forward to the return to normalcy and the bright future ahead. At the Committee Meeting we will be seeking nominations and voting on leadership for this Committee. Please consider volunteering for this role by contacting the Chair and Co-Chair.

Victor Lai
Committee
Co-Chair
2020-2023

Stephanie George, PhD
Education Committee Chair

Victor Lai, Ph.D.
Education Committee Co-Chair





Industry Committee

Ethan Kung
Committee Chair

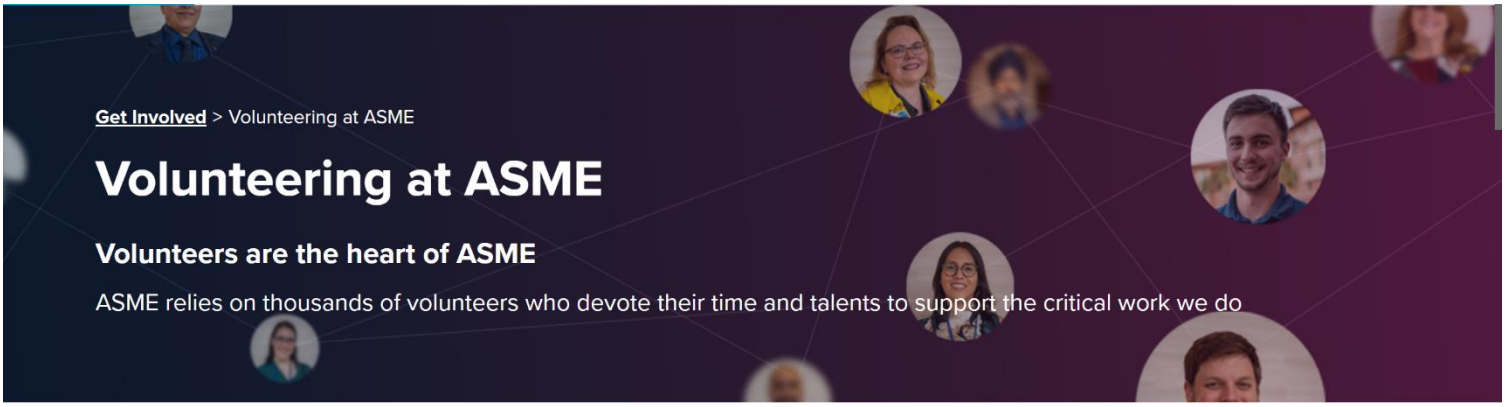
The Industry committee comprises members from bioengineering industry, government, and academia and seeks to foster collaboration through three specific objectives: 1) Foster networking opportunities; 2) Facilitate career development opportunities for students in the industry; and 3) Promote industry-relevance in bioengineering curriculum and education. At the SB³C 2022, the Industry Committee is organizing a Verification, Validation, and Uncertainty Quantification (VVUQ) workshop focused on educating participants on how VVUQ can be properly handled in a biomedical industry setting, with particular emphasis on the ASME V&V-40 standards and FDA regulatory pathways. The goal of this highly industry-relevant workshop is to create an environment at SB³C that facilitates industry-academia connection and collaboration. The workshop will be on Wednesday, June 22, 9:30AM~1:30PM. More details may be found on the SB³C Workshop Information Page.

Lin Li
Committee Co-Chair

Our annual committee meeting at SB³C will be on Wednesday, June 22, 8:30AM ET and is open to anyone interested in being involved or staying updated on relevant activities. If you are unable to attend this meeting, you can join the committee by emailing us. We welcome participants from industry, faculty with industry interest, or student/postdoc interested in entrepreneurship and/or industry careers. Committee members also meet online periodically during the year to discuss committee directions and work on activity-planning.

Dr. Ethan Kung
Committee chair

Dr. Lin Li
Committee co-chair



Student Affairs and Student Leadership Committee

In 2021, we held two virtual workshops titled "Introduction to Paper Writing" and "Creating Effective Scientific Figures". The four panelists, Dr. Farshid Guilak, Dr. Jay Humphrey, Dr. Shannon Stott, and Dr. Sarah Wells, shared their experiences with manuscript writing and shared tips on improving the writing process, while Dr. Esther Reinbay gave a virtual workshop on how to build clear figures and effectively convey data. A broad spectrum of topics were discussed among the participants and facilitator. This four-panelist interactive and single facilitator webinar was an excellent platform for opening communication between students and professors regarding technical writing as well as creating scientific figures. Our webinar reached an attendance of 147 total participants with an 18% international presence and 82% domestic. We are excited to implement more webinars in the future to encourage mentorship and accessibility to knowledge with a diverse range of scientists and members of the community.

Virtual Twitter Q&A Sessions:

Enthusiasm for the Introduction to Paper Writing seminar gave rise to virtual question and answer sessions utilizing unanswered questions from the webinar. The Q&A sessions sought to re-engage the audience and garner new participation for future webinars. The Twitter Q&A session connected the original panel members to the audience via social media channels over the course of several days. These Q&A sessions also acted as an opportunity to grow our social media presence and introduce a broader group to ASME Bioengineering Division.

ASME BIOENGINEERING DIVISION Student Leadership Committee Future Plans:

The student leadership committee (SLC) seeks to further establish our organization through the development of an Operating Guide. We seek to improve the inclusivity of the SLC and garner more volunteers under delegation from each chair position. In addition, we are planning on hosting a social event at the SB³C conference to encourage student engagement.

Rouzbeh Amini

Student Affairs Committee Chair and Faculty Advisor (2020-2022)

As the faculty advisor, Dr. Amini oversees and mentors the student leadership committee, communicates important information from the SB³C organizing committee, and acts as a liaison between the student leadership, ASME Bioengineering Division, and S SB³C organizing committee.

Meet the Members of the Student Leadership Committee:

Bipin Tiwari

Chair

Bipin, the student leadership chair, coordinates the student leadership position and takes on responsibilities like attending SB³C, organizing committee meetings, coordinating with a faculty advisor to plan leadership committee meetings, integrating feedback from student leadership and student involvement from ASME and SB³C, and overseeing projects from other student leadership chairs.

Caleb C Berggren

Co-Chair

Caleb supports the chair and other student leadership committee members with their various responsibilities, in addition to maintaining organization of the online archives and communication channel and aiding with timely completion of committee projects.

Shelby White

Secretary

Shelby acts as the secretary for the student affairs committee and is responsible for managing meetings through taking attendance, taking meeting minutes, and assists with items associated with record keeping.

Xiaoqing Li

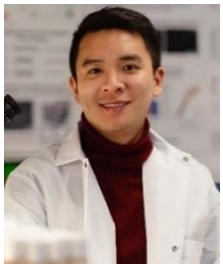
Online Networking Chair

Xiaoqing, the online networking chair, manages the LinkedIn page, assists with faculty members to advertise ASME, boosts engagement of LinkedIn platforms, and advertises professional opportunities.

Adam Galloy

Social Events Chair

As the social events chair, Adam plans in-person events for the SB³C meeting.



Xun Wang

Cameron Villarreal

In-Person Networking Chairs

As the In-Person Networking Chairs, Xun and Cameron assist with coordinating networking and collaborate with other chairs to help develop the resume book for distribution to industry attendees.

Meghan Kupratis

Social Media Chair

Meghan maintains the social media presence for the student leadership committee on our Twitter account. Our social media content includes updates on SLC members and sponsored activities, promoting recent research in bioengineering, and updates from SB³C.

Marco A Nino

Student Workshop Chair

As the Student Workshop Chair, Marco organizes an in-person computational workshop for the 2022 SB³C meeting. This workshop will allow participants to learn more about open-source software and scripting techniques to enhance workflow of modeling fluids in the body.

Promoting Diversity and Inclusion in SB³C-Inclusive Reconnections

Spencer Szczesny
Diversity Chair

After the last two tumultuous and arduous years dealing with COVID, it is very exciting to be able to reconnect in-person at SB³C! However, while the idea of returning to "normal" is appealing, we should not squander the opportunity to learn from our previous struggles and improve the scientific conference experience. In response to the requirements for virtual meetings during COVID, there has been a lot of innovation in how conferences have been organized and structured, which has led to an unprecedented increase in access for many students and scientists. We should not abandon these achievements now that in-person conferences are coming back, but rather attempt to learn how to maintain increased access while also providing the experiential depth of face-to-face encounters. To that end, I am very proud that the organizing committee has chosen to pursue a hybrid format for the 2022 SB³C. Specifically, there will be the option to disseminate one's work and view the work of others virtually. Additionally, in-person podium and poster presenters are being strongly encouraged to submit videos of their presentations so that virtual registrants will be able to access nearly all of the scientific content. Furthermore, the student costs for virtual registration have been highly discounted to reduce the barriers as much as possible for students who are unable to attend in-person. Finally, grant funding from the National Institutes of Health will be used to provide free site-licenses to minority serving institutions for them to use the scientific content to enhance their educational efforts by exposing students to current biomedical research. Through these efforts, we hope to maximize access to SB³C and be able to provide an example of how hybrid conferences can be effective and economical so that they may become the norm in the future.

In addition to the hybrid format of the conference, SB³C will include its first commemoration of the national Juneteenth holiday to celebrate the achievements of Black Americans, to educate about the history of emancipation, and to agitate for further progress toward equality. This event will include a talk by guest speaker Dr. Oliver Myers, Associate Dean of Inclusive Excellence for Undergraduate Studies, Clemson University, who was part of the inaugural graduating class (M1) of the renowned Meyerhoff Scholars Program at the University of Maryland, Baltimore County. Dr. Myers will discuss the value of programs aimed at supporting marginalized students in STEM and present the challenges and opportunities to making progress towards equity, justice, and inclusion. Additionally, there will be a live performance by the local West African dance company KanKouran!

Beyond the Juneteenth event, there will also be a continuation of the annual Diversity Mentor-Mentee Event. This event will include a brief description of culturally aware mentoring and provide resources on how to support trainees from all backgrounds. Additionally, there will be time for mentors and mentees to meet and discuss their needs and questions. While planning the conference, it was decided to shorten this event to allow for additional time for individuals to participate in a LGBTQ+ networking session organized by Dr. Memet Kurt, Adjunct Professor at University of Washington. It is my hope that more affinity groups like this and the Women's Networking Event will provide an inclusive safe space for minoritized individuals to find support within the larger conference community. Finally, Diversity Travel Awards funded by the National Science Foundation will be offered again to help support in-person attendance of students from underrepresented groups. To prioritize assistance most equitably, these awards will be given to undergraduate and graduate students who have never attended SB³C previously and would not be able to attend without the support of these awards. In particular, we advertised the award to historically Black colleges and universities (HBCUs) near the conference venue to intentionally attract students that are traditionally outside of the SB³C community. In

order to ensure that they have a positive experience, we will also be paring them with personal mentors during the conference and connecting them with each other as a cohort. Through these efforts, we hope that we can establish new opportunities to make SB³C a more diverse, equitable, and inclusive scientific experience. I look forward to seeing you all there in June!

Spencer Szczesny
Diversity Chair

SB3C Juneteenth Celebration

Sunday, June 19, 2022

7:30-9:30 PM ET

On the evening of June 19, we will commemorate the national Juneteenth holiday with a brief overview of the end of slavery in the United States as well as a celebration of African American culture and achievement. The event is scheduled from 7:30-9:30 PM ET, and light refreshments and desserts will be provided.

The event will also include a talk by guest speaker Dr. Oliver Myers, Associate Dean of Inclusive Excellence for Undergraduate Studies, Clemson University, who was part of the inaugural graduating class (M1) of the renowned Meyerhoff Scholars Program at University of Maryland, Baltimore County. Dr. Myers will discuss the value of programs aimed at supporting marginalized students in STEM and present the challenges and opportunities to making progress towards equity, justice, and inclusion.

For more information visit: Juneteenth Celebration

Women's Networking Group at SB³C

The Women's Networking Group brings together women faculty and industry leaders at the SB³C (Summer Biomechanics, Bioengineering and Biotransport Conference) to strategically promote a diverse and inclusive environment within the division. This group has been meeting since 2007 with the purpose to provide mentoring, networking and communication for women involved in the biomechanics field to help further their careers. It also seeks to promote the careers of women by identifying those that are eligible and deserving of awards and fellow status within ASME as well as other professional societies.

In June 2021, the Women's Networking Group was named the 2021 recipient of the Johnson & Johnson Consumer Companies, Inc., Medal from ASME. The award recognizes outstanding contribution by the group toward developing and implementing practices, processes, and programs that value and strategically manage diversity and inclusiveness. The award was established by the ASME Board on Diversity and Outreach in 2004 through the generous contributions of individual ASME members and Johnson& Johnson Consumer Companies, Inc.

In February 2022, a mid-year webinar was hosted which featured Dr. Eno Ebong, discussing BLACK HISTORY AND MECHANOBIOLOGY HISTORY: THEIR CONVERGENCE AND "HIDDEN FIGURES". Dr. Ebong is an Associate Professor of Chemical Engineering, Bioengineering, and Biology at Northeastern University in Boston, MA. She has been a leader in the emerging field of endothelial glycocalyx mechanobiology and recognized nationally as one of the top 1,000 inspiring Black Scientists in America.

Editor's Note: ASME Journal of Biomechanical Engineering

C. Ross Ethier
Editor-in-Chief

The ASME Journal of Biomechanical Engineering saw another major editorial transition in 2022. Victor Barocas stepped down at the end of 2021 as the Editor-in-Chief after two full terms. Thao (Vicky) Nguyen was selected by the Bioengineering Division Executive Committee to fill Victor's role at JBME, joining Ross Ethier.

The Associate Editors of the journal continue to demonstrate a tremendous commitment to the community and to good science. The Editors-in-Chief would like to thank the AEs for their hard work and dedication. Katherine Zhang and John La Disa have been appointed to a second AE term, and JBME is in the process of appointing new AEs in the areas of gait biomechanics, bone biomechanics, and cell biomechanics and mechanobiology. Persons at Associate Professor or higher rank, or with equivalent industrial positions/experience, are encouraged to contact Vicky and Ross if they are interested in possibly becoming an Associate Editor for JBME.

Darryl Dickerson has been selected as the first Diversity Advocate for JBME. The Diversity Advocates are charged with promoting diversity, equity, and inclusivity at all levels of the Journal, including editors, authors, and readers. In his first year as the Diversity Advocate, Darryl has organized a workshop titled "Diversity and Inclusion in Academic Publishing" to be held at the 2022 SB^{3}C meeting in Cambridge, MD. He has also worked with the Editors-in-Chief to identify candidates for AEs from underrepresented groups in engineering. The journal is searching for a second Diversity Advocate. As with Associate Editor positions, persons interested in the Diversity Advocate position are encouraged to contact Vicky and Ross.

Vicky Nguyen
Editor-in-Chief

JBME is also pleased to announce the creation of the Social Media Director position. The Social Media Director will be an AE, who in addition to the traditional AE duties, will also work to publicize newly accepted articles and influential classic articles in JBME. The AE has been nominated and is currently going through the Bioengineering Division / ASME approval process.

For 2022, JBME will be publishing 2 special issues. The SB^{3}C 2021 Student Paper and Society Medal Winner issue, with Guest Editor Ian Sigal, will be published in June 2022. Data-Driven Methods in Biomechanics, with Guest Editors Adrian Buganza Tepole, Jessica Zhang, and Hector Gomez, will be published in November 2022. Further, Guest Editors Edward Sander and Kyle P. Quinn are organizing a special issue in honor of Victor Barocas and Beth Winkelstein and their long service as Editors-in-Chief of JBME. That special issue is scheduled to be published in April 2023. JBME welcomes proposals for special issues and review articles on emerging topics and on computational and experimental methods in biomechanics and bioengineering. Persons interested in organizing a special issue are encouraged to contact Ross and Vicky.

C. Ross Ethier
Editor-in-Chief

Vicky Nguyen
Editor-in-Chief

https://asmedigitalcollection.asme.org/biomechanical

Editor's Note: Journal of Medical Devices

Rupak K. Banerjee
Co-Editor

The March 2022 Issue marked 16 full years of the Journal of Medical Devices (JMED). The JMED focuses on applied research aiming on development of new medical devices and their instrumentation and testing methodologies. This relatively newer journal reports publications on devices that improve diagnostic procedures, interventional methods, and therapeutic treatments. It provides special coverage of novel devices that allow innovative surgical strategies, methods of drug delivery, and futuristic devices that are intended to reduce the complexity, cost, or adverse results of health care. Significant biomechanical engineering content linked to devices across all dimensional scales, ranging from cells, tissues, organs to whole body, coupled with pre-clinical and clinical content is expected.

The JMED reports full-length original research articles, technical briefs, announcements, calls for papers, calendar of events, and letters to the Editor. The Design Innovation Paper category is encouraged for reporting about novel devices for which there may be less extensive clinical or engineering results. We continue to make JMED a premier medical device journal with the help of Associate Editors (AES) and the BED and DED. For the current year, we are delighted to report continued progress (see below) towards these goals, focusing on activities that is expected to further strengthen JMED.

In March of 2022, JMED successfully published the sixth Special Issue on COVID-19 Medical Devices: Prevention, Diagnosis, and Treatment for which we had nine publications, having research, technical briefs, and design innovation articles, several from established researchers. Since 2017, the JMED also successfully published multiple Special Issues on important cutting-edge technology: a) Medical Robotics and Human Interfaces; b) Medical Devices for Economically Disadvantaged People and Populations; c) 3D Printing of Medical Devices in September of 2019; d) Microscale Medical Devices in December of 2018; and e) Cardiovascular Device Development and Safety Assessment using Computational and/or Experimental Approaches in June of 2017. In March of 2023, we are in the process of publishing another Special Issue on Tissue Engineering and Regenerative Medicine Applications (TERM). Journal Impact Factor (JIF) and the Number of Citations.

William Durfee
Co-Editor

While the 5-year JMED journal impact factor (JIF) improved by 7%, the 1-year JIF decreased by 27%. In contrast, the comparison of JIF between current year (2020) and year 2018 (2 years before) still shows 8% increase. Therefore, the short-term reduction of JIF between current (2020) and previous (2019) year could possibly be attributed to pandemic situation. Additionally, the JMED is observing an increasing trend in the number of citations. Over the last year the citation increased by 14%, from 621 to 707. The increase in long-term JIF and number of citations is indicative of the fact that the JMED is heading in the right direction. The increasing trend of the long-term JIF and citations is reflective of addition of special issue, removal of DMD conference papers from the journal, and modification in the editorial review process that includes a priori review by Editors before assignment of manuscript to AEs or guest editors (GEs). Manuscripts, which do not meet JMED journal criteria are either returned to authors with suggested major changes for resubmission or are rejected using fast track process. This continued progress is a credit to our AEs, GEs, and reviewers.

In the last year, we have added three new Associate and two guest Editors with diverse backgrounds. This has helped to keep up with the increased submissions and reduced review time, while adding special issues and covering a broader scope of topics. We are grateful to all of our AEs and GEs for their service. The JMED is now accepting AE nominations. Please send your nominations to the Editors.

Rupak K. Banerjee, Ph.D., University of Cincinnati

William Durfee, Ph.D., University of Minnesota

ASME Fellows 2021-2022

Daryush Aidun (Clarkson University)

Arindam Banerjee (Lehigh University)

Jeffrey Bischoff (Zimmer Biomet)

Iman Borazjani (Texas A&M University)

Constantin Ciocanel (Northern Arizona University)

Brittany Coats (University of Utah)

Eduardo Divo (Embry-Riddle University)

Benjamin Fregly (Rice University)

Ali Gordon (University of Central Florida)

George Haller (Massachusetts Institute of Technology)

Nicole Hashemi (Iowa State University)

Jill Higginson (University of Delaware)

Tetsuya Iwasaki (University of California, Los Angeles)

Robert Jackson (Auburn University)

Katuso Kurabayashi (University of Michigan)

Spencer P Lake (Washington University)

[Fellow Nomination Application]

ASME Fellows 2021-2022

Elizabeth Loboa (Southern Methodist University)

Keefe Manning (Pennsylvania State University)

Roger Narayan (North Carolina State University)

Chunlei Liang (Clarkson University)

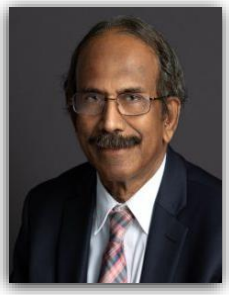
Xinyu Liu (University of Toronto)

Carl Nelson (University of Nebraska)

Karen Ohland (Princeton University)

Heidi-lynn Ploeg (Queen's University at Kingston)

Christian Puttlitz (Colorado State University)



Devdas Shetty (University of the District of Columbia)

Nabil Simaan (Vanderbilt University)

Francesco Travascio (University of Miami)

Jonathan Vande Geest (Pittsburg University)

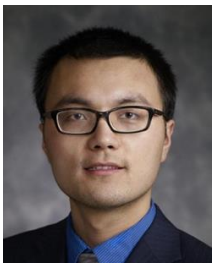
Pak Kin Wong (Pennsylvania State University)

Qingson Xu (University of Macau)

Fellow Nomination Application

ASME Bioengineering Division Awards

Y.C. Fung Early Career Award 2022



Zhenpeng "ZP" Qin

Associate Professor
University of Texas at Dallas

H.R. Lissner Medal 2022

Lori Setton

Professor
McKelvey School of Engineering

Van C. Mow Medal 2022

Robert L. Mauck

Professor
University of Pennsylvania

Robert M. Nerem Education and Mentorship Medal 2022

Michele Grimm

Maury L. Hull Professor
University of California, Davis

Savio L-Y. Woo Translational Biomechanics Medal 2021

Zong-Ming Li

Professor
Arizona College of Medicine

To earn more about the

List of Society Awards

CLICK HERE!

JOHNSON & JOHNSON CONSUMER COMPANIES, INC. MEDAL

THE ASME BIOENGINEERING DIVISION'S WOMEN'S NETWORKING GROUP

The Johnson & Johnson Consumer Companies, Inc. Medal recognizes outstanding contributions by an individual, company, government entity, school or other organization toward developing and implementing practices, processes and programs that value and strategically manage diversity and inclusiveness. The award was established by the Board on Diversity and Outreach in 2004 through the generous contributions of individual ASME members and Johnson & Johnson Consumer Companies, Inc.

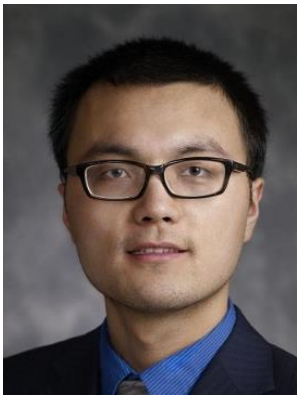
The ASME Bioengineering Division's Women's Networking Group is recognized for the development and implementation of a program to strategically improve gender diversity and inclusiveness within the division.

The division has supported the annual Summer Bioengineering Conference since 1993. Known as the Summer Biomechanics, Bioengineering and Biotransport Conference (SB^3C) since 2015, the conference provides a forum for bioengineering researchers and educators to present and discuss current trends; as well as a rich networking platform through features including workshops, poster sessions, a sponsor/exhibitor area, a career fair and paper competitions.

Recognizing the need for women to meet together as a group, former 2005 BED Summer Bioengineering Conference chair Jennifer Wayne and local arrangements chair Rita Patterson decided to host the first informal women's networking event in 2007 with 17 women in attendance. The goals were to enhance connections with one another; to increase the number of women receiving award nominations and earning the distinction of ASME Fellow; and to provide general mentoring. That initial gathering launched what became known as the Women's Networking Group.

Over the past 15 years, with various women playing key roles along the way, the ASME BED's Women's Networking Group has provided a forum for the dissemination of knowledge about award criteria and opportunities as well as an environment in which women at different professional levels can support each other. The number of women receiving ASME honors is increasing as is the visibility of female role models.

ASME Bioengineering Division Leadership Communication and Outreach



Zhenpeng "ZP" Qin
Communication & Outreach Specialist

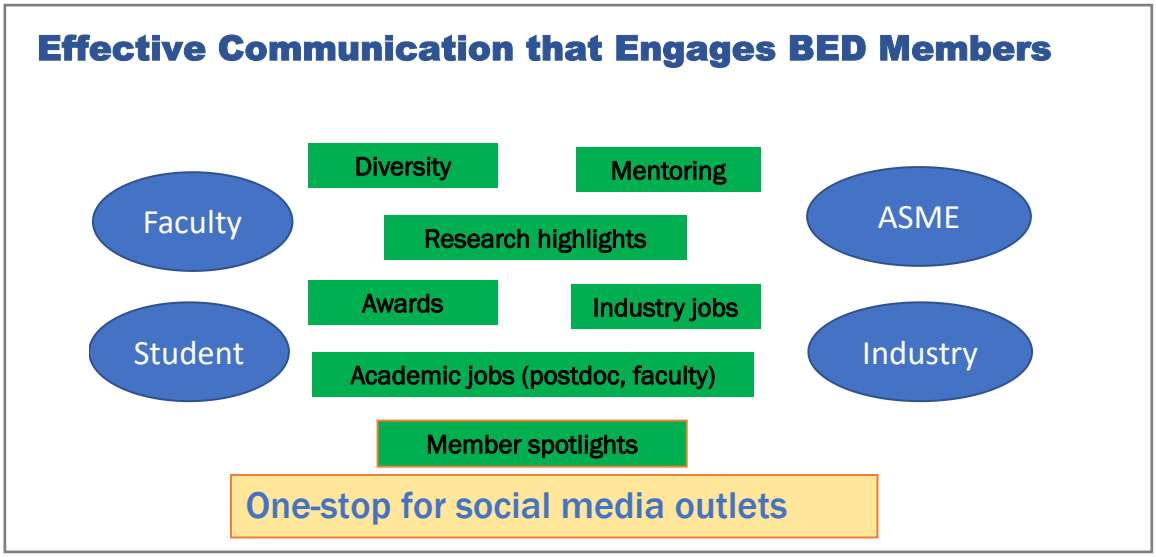
"Effective communication and outreach need integration of social media, mainstream new outlets, as well as local and university news outlets. I believe that the best communication strategy integrates these channels to maximize the impact. As not everyone is on Twitter or watching news on TV, integrating these strategies will reach the broadest audience. I will work with the executive board and leaders of the field (ASME Medal winners, TCOM chairs, journal editors, Bioengineering Division Executive Committee) to develop a vision for communication and outreach. I will build an effective communication and outreach team to implement the vision."

Zhenpeng "ZP" Qin
Associate Professor
University of Texas at Dallas
@ZhenpengQin on Twitter

Parisa Saboori
Communication & Outreach Specialist

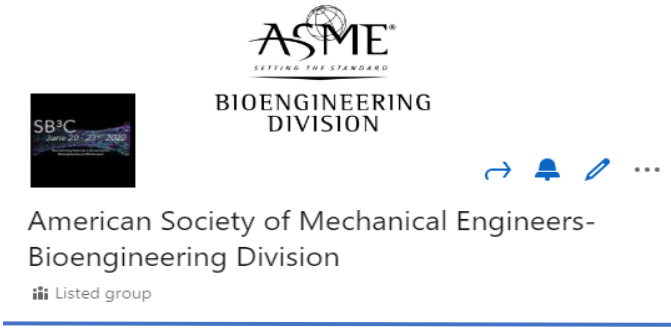
"As the Communications and Outreach Specialist in Bioengineering Division at ASME, I will improve its presence within ASME and bioengineering in general, by proving access to everyday information that bioengineers need to stay current with their profession. I believe that it should have an attractive and fresh presence by presenting materials that change on a regular basis, to encourage users to return to the various online locations, and thereby keep them engaged, while also providing solid information that is useful and often difficult to find elsewhere."

Parisa Saboori
Associate Chair and Associate Professor
Manhattan College
@SabooriParisa on Twitter



One-stop for social media outlets

LinkedIn



Twitter

American Society of Mechanical Engineers- Bioengineering Division

SB3C Women's Networking Group

@ASME_BED

@asmebedstudents

@SB3Corg

Black History Month and Women's History Month

Naomi Chesler
BED Past Chair

In 1926, the historian Carter G. Woodson created the precursor to Black History Month then calling for a week devoted to the history and contributions of Black Americans. A week became a month when Black educators and the Black United Students at Kent State University proposed it in February 1969. National recognition came a few years later when President Gerald Ford[1] established Black History Month in 1976, encouraging Americans to "seize the opportunity to honor the too-often neglected accomplishments of black Americans in every area of endeavor throughout our history."

In 1980, President Jimmy Carter issued a Presidential Proclamation[2] establishing March 2-8 as National Women's History Week. To commemorate women's contributions to the founding and building of our country, he wrote "From the first settlers who came to our shores, from the first American Indian families who befriended them, men and women have worked together to build this nation. Too often the women were unsung and sometimes their contributions went unnoticed. But the achievements, leadership, courage, strength, and love of the women who built American were as vital as that of the men whose names we know so well."

President Carter's statement overlooked the colonialism and imperialism that all but destroyed Native peoples' way of life and ignored the enormous economic, industrial, and institutional contributions of enslaved people. Unfortunately, raising up women and pursuing women's rights has often come at the expense of others minoritized populations and vice versa. It was this injustice that prompted Sojourner Truth's famous "Ain't I a woman?" speech at the 1851 Women's Rights Convention held in Akron, Ohio.[3]

In Biomedical Engineering, our past success in enrolling and graduating women undergraduates compared to other engineering disciplines,[4] has perhaps made us complacent to the need for strategic initiatives to recruit and retain the racially diverse student body that can become a racially diverse biomedical engineering workforce. Moreover, the success of some women in BME should not be interpreted as evidence that our courses, labs, and institutions are welcoming to all women and men who are Black, Indigenous, and People of Color (BIPOC). The data are clear that diverse teams are more effective at solving complex problems.[5] Therefore, to fulfill the promise of our discipline for improving human health through the application of engineering, we need to develop strategies and initiatives to recruit and retain a truly gender and racially diverse biomedical engineering workforce.

A diverse biomedical engineering workforce may also have more success eliminating or reducing race- and gender-based health and healthcare disparities. At the intersection of race- and gender-based health and healthcare disparities, Black women have higher rates of cardiovascular and musculoskeletal disease and disability than either white women or Black men. In my own research focus area of cardiovascular disease (CVD), Black women suffer from more CVD risk factors, develop CVD earlier, and have higher CVD mortality rates than White women.[6] Moreover, members of the LGBTQ+ community who are Black have higher CVD risk factors than those who are not.[7] This heavier burden and earlier onset of poor health outcomes observed in Black women are not fully explained by other sociodemographic factors (e.g., age, education).[8] Recent social ecology research has shown that structural racism, such as disadvantages in political participation, employment, and judicial treatment, is associated with increased risk of myocardial infarction in Black Americans but not White Americans.[9] Stereotype threat can lead to emotional stress and impaired decision making, which in turn contribute to hypertension and weight gain.[10] Individuals accepting negative stereotypes as true are associated with higher levels of alcohol consumption and obesity.[11] Even living as a person of color in a racist environment is positively associated with heart disease mortality as well as the

delivery of low birth weight newborns, which has lifelong consequences for cardiovascular health.[12]

Unfortunately, in many cases, medical technologies, such as new drugs, diagnostics, or devices, as well as the health information technology needed for these technologies, actually widen existing health disparities.[13] Medical devices and technologies can contribute to race-based disparities in four important ways. First, the medical devices used to diagnose CVD can introduce race-based errors. For example, when devices use optical methods without accounting for skin melanin content, such as many existing light-based pulse oximeters[14] and other wearable systems,[15] the fundamental measurement itself contains an artifact and can be in error. Second, bias in the software or in the data sets used to develop devices can introduce racial bias. Third, when clinicians apply unequal, race-based standards to the readouts from medical devices, errors in interpretation can occur.[16] And lastly, use considerations such as affordability and access are not embedded into the technology development process.

Therefore, in honor of both Women's History Month and Black History Month, I encourage members of our ASME Bioengineering Division community to (1) develop strategic initiatives to recruit and retain a truly diverse student body, (2) assess our classrooms, labs, and institutions for inclusive and welcoming practices, and (3) turn our research attention to engineering solutions to health and healthcare disparities with particular focus on the needs and promise of Black women.

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[1]https://www.fordlibrarymuseum.gov/library/speeches/760074.htm

[2]https://nationalwomenshistoryalliance.org/womens-history-month/first-presidential-message-1980/

[3] https://sojournertruthmemorial.org/sojourner-truth/her-words/

[4] Chesler, Barabino, Bhatia and Richards-Kortum. "The pipeline still leaks and more than you think: a status report on gender diversity in biomedical engineering" Annals of Biomedical Engineering, 2010

[5]Hong and Page. "Groups of diverse problem solvers can outperform groups of high-ability problem solvers" Proceedings of the National Academy of Sciences, 2004

[6] Benjamin et al. "Heart Disease and Stroke Statistics—2018 Update: A Report From the American Heart Association," Circulation, 2018

[7] Caceres et al. "A Systematic Review of Cardiovascular Disease in Sexual Minorities," American Journal of Public Health, 2017

[8] Tang et al. "Incidence of AD in African-Americans, Caribbean Hispanics, and Caucasians in northern Manhattan," Neurology, 2001

[9] Lukachko et al. "Structural racism and myocardial infarction in the United States," Social Science & Medicine, 2014

[10] Aronson et al. "Unhealthy interactions: the role of stereotype threat in health disparities," American Journal of Public Health, 2013, PMID: 23153125; Spencer et al. "Stereotype Threat," Annual Review of Psychology, 2016; Williams et al. "Racism and Health II: A Needed Research Agenda for Effective Interventions," American Behavioral Scientist, 2013

[11] Williams et al. "Discrimination and Racial Disparities in Health: Evidence and Needed Research," Journal of Behavioral Medicine, 2009

[12] Leitner et al. "Blacks' Death Rate Due to Circulatory Diseases Is Positively Related to Whites' Explicit Racial Bias," Psychological Science, 2016; Chae et al. "Area racism and birth outcomes among Blacks in the United States," Social Science & Medicine, 2018

[13] Arcaya et al. "Emerging Trends Could Exacerbate Health Inequities In The United States," Health Affairs, 2017

[14] Sjoding et al. "Racial Bias in Pulse Oximetry Measurement," New England Journal of Medicine, 2020

[15] Shcherbina et al. "Accuracy in wrist-worn, sensor-based measurements of heart rate and energy expenditure in a diverse cohort," Journal of Personalized Medicine, 2017; Fallow et al. "Influence of skin type and wavelength on light wave reflectance," Journal of Clinical Monitoring and Computing, 2013

[16] Baugh, et al. "Reconsidering the Utility of Race-Specific Lung Function Prediction Equations" American Journal of Respiratory and Critical Care Medicine, 2021

Life and Limb

Using human centered design to identify opportunities for reducing inequities in perinatal care

Bionicli by Life and Limb – An Upper Limb Prosthesis Project

Extreme disparities in access, experience, and outcomes highlight the need to transform how pregnancy care is designed and delivered in the United States, especially for low-income individuals and people of color.

Title: Bionicli - Upper Limb Prosthesis with Adaptive Grasp and Pinch.

Motivation: This project is an extension of the MS thesis work of Nishant Agarwal when presented to a group of prosthetists and orthopedic surgeons in Mumbai in 2018, received overwhelmingly positive feedback. After the demand and market analysis, they were further intrigued to turn the prototype into a product that is planned to be launched in the third quarter of the year [2022-23] after the regulatory clinical validation.

Targeted Problems: One of the predominant problems in using a prosthetic hand in many cases is the need to undergo medical surgery to attach the prosthetic device to the body. In the proposed product, this need is eliminated by using myo-sensors which are non-invasive. The arm and design of the fingers are such that they will allow water resistance and thus enhance the lifecycle of the prosthesis. Further problems are summarized below.

Available prosthetic hand introduces body fatigue and isn't comfortable wearing considering the poor fit and design of the prosthetic socket.

Available sockets bring sweat and are heavy.

High-end versions of the hand available/imported to India aren't affordable by more than 47% of the reported trans-radial amputees.

The hand lacks enough strength to hold objects and requires frequent charging.

Frequent visits to the hospital/clinics and errors in measuring the size of the residual stump.

Product Information: BIONICLI is a functional 3-d printed myoelectric prosthetic hand for people with upper limb amputation. It can achieve more than 20 grip patterns, is light in weight (weighs less than 450g), water-resistant, user-customized (matching the anatomy of the other hand), has more battery life, IOT enabled mechanism and requires minimal training and visits to Clinics. On top of it, various color and design options are also provided. It can mimic the rotatory motion of the forearm as well as both the motions of the wrist (extension/flexion and radial/ulnar deviations) allowing the users to do additional activities of daily living. The wrist joint also allows the user to charge the device only when the palm is removed from the hand which is in compliance with the safety regulations. All the electronics are placed inside the palm making the forearm hollow, therefore, allowing different stump sizes to be accommodated.

Team: We are engineers belonging to diverse backgrounds:

S.No	Name	Designation	Highest Qualification	Specialization
1.	Nishant Agarwal	CEO/Director	MS [Research]	Mechanical Engineering
2.	Prachi Kharb	COO/Director	PG Diploma	Data Science
3.	Sachin Chauhan	Finance Lead	M.Tech	Material Science
4.	Divya Jyoti Pandey	Electronics Embedded Engineer	Diploma	Electronics Engineering
5.	Mayank Verma	Research Analyst	Pursuing PhD	Aerospace Engineering
6.	Madhav Londhe	Technical Head	Pursuing PhD	Mechanical Engineering
7.	Shivi Agarwal	Business Head	B.Tech	Mechanical Engineering

We also have the following mentors/ advisors:

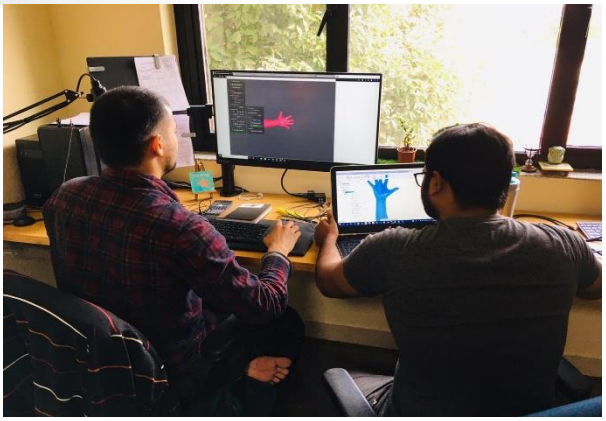
Dr. Sanjiv Verma (Ex-MD/CEO, Baxter India Pvt. Ltd.)

Dr. Mahesh Choudhary (Orthopedic Surgeon and Rehabilitation Specialist, AIIPMR Mumbai)

Dr. Lukesh Bhuyar (Prosthetist and Orthotist, AIIPMR Mumbai)

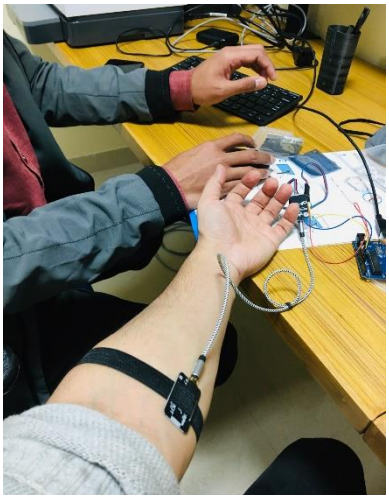
Nishant Agarwal (CEO/Director)
Prachi Kharb (COO/Director)

Life and Limb taking 3D Scan of the Patient

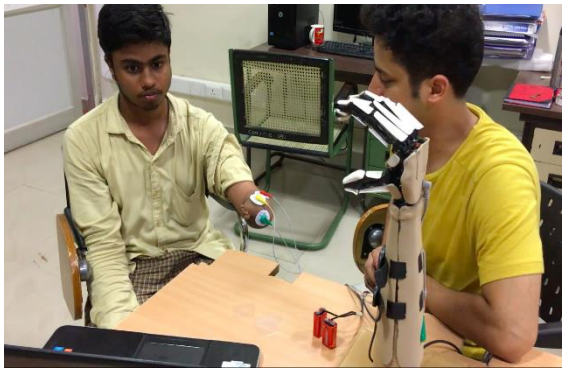


Team working on BIONICLI Renders

Team working on EMG Sensors for BIONICLI



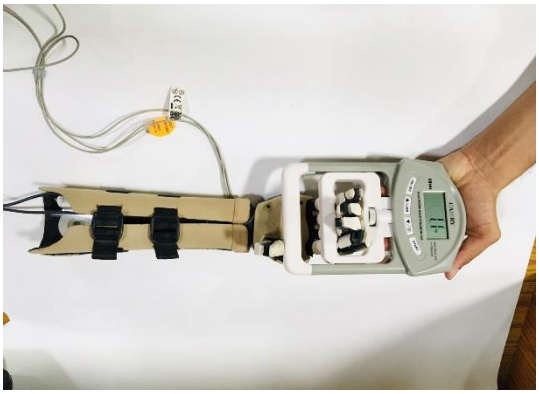
Testing Life and Limb's in-house made EMG Sensors



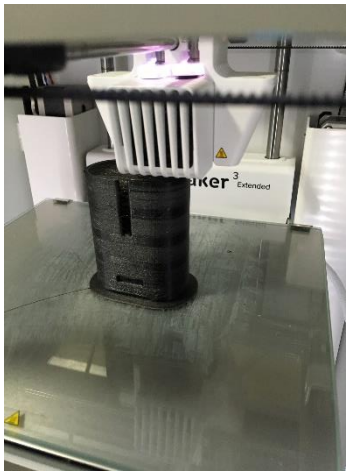
BIONICLI – First Version Testing with Patient

Final Look of BIONICLI's First Version

Presenting BIONICLI's First Version to Prosthetists



BIONICLI's First Version Weighs 1.1 Kg



3-D Printing of Hand

Bionic Hand (Matching the Anatomy)

Life and Limb Presenting at Dubai Expo 2020

Life and Limb's Workshop

ASME BED Executive Committee - Call for Nominations

We are soliciting nominations for three elected positions to serve on the ASME Bioengineering Division Executive Committee.

Open positions include:

"Secretary-Elect" (2022-2023). The Secretary-Elect serves one year as part of a four-year total term on the "Chair cycle" with subsequent years serving as the Secretary (2023-2024), Chair (2024-2025), and Past Chair (2025-2026).

"Member-at-Large: Member Affairs" position (3-year term: 2022-2025)

"Member-at-Large" position (3-year term: 2022-2025)

Self-nominations are encouraged. To be eligible for nomination, the candidate must be a current Professional Member of ASME. In addition, eligible candidates must have the Bioengineering Division listed as their primary division within ASME. Full descriptions and service obligations for all Executive Committee positions are posted on the ASME Bioengineering Division webpage.

For each nomination, please include the candidate's record of involvement in ASME (e.g., committee membership/chairing), other leadership roles, and a vision statement (200-word limit for vision statement, no limit for list). **The deadline for nominations is June 15th, 2022, 5pm EST.** Please send materials to Dr. Naomi Chesler, BED Past Chair.

Election details: All Professional ASME members with the Bioengineering Division listed as their primary division will receive a secure, ranked-choice ballot from our online election platform (Election Runner). Voting will be open from June 19th to 21st. Election results will be announced at the SB3C 2022 Conference Banquet on June 22nd, while also shared via email to all ASME Bioengineering Division Professional Members.

Questions? Please reach out to Dr. Shannon Stott.

ASME BED Executive Committee Positions

Chairperson. The Chairperson will have served as Secretary prior to succeeding to the Chair and will serve for one year. Following their term as Chairperson, they will hold the position of Past-Chairperson. As chair of the Executive Committee, the chairperson will oversee committee operations, run regular meetings, and interface with ASME, the ASME Foundation, and ASME Journal Editors and Technical Committee Chairs. The Chairperson will serve as chair of the Executive Committee. Currently held by: Dr. Alison Marsden ('21-'22); voting member.

Secretary. The Secretary will have served as Secretary-elect for one year prior to taking office and will serve for one year. The Secretary will become Chairperson during the year following tenure as Secretary. The Secretary will set the schedule and keep the minutes of the Executive Committee meetings and will be the corresponding secretary for the Division. They will also maintain Division records. Currently held by: Dr. Shannon Stott ('21-'22); voting member.

Secretary-elect. The secretary-elect will serve as a voting member prior to becoming Secretary and will serve for one year. The Secretary-elect will be responsible for compiling a list of Division officers and committee members and updating committee operating manuals. Currently held by: Dr. Alisa Morss Clyne ('21-'22); voting member.

Past Chairperson. The Past Chairperson will have served as Chairperson the previous year and will serve for one year. The Past Chairperson will interface with ASME, the ASME Foundation, and oversee the election of new Executive Committee members. The Past Chairperson provides historical context for the Executive Committee, while also holding an understanding of operating procedures. Currently held by: Dr. Naomi Chesler ('21-'22); voting member.

Member-in Charge of Member Affairs. The Member-in-Charge of Member Affairs will serve for three years and will be in charge of: developing membership by recruiting new members; promoting diversity of our members; identifying member needs and interests; encouraging nominations for new ASME Fellows. The Member-in-Charge of Member Affairs will be responsible for communicating these activities to the Executive Committee. The Member-in-charge of Member affairs will work with Members-at-Large to stimulate interest in bioengineering within the student chapters of ASME and on developing tutorials and workshops in methods of engineering research and practice of use to the membership. Currently held by: Dr. Spencer Lake ('19- '22); voting member.

Treasurer. The Treasurer will serve as a voting member and will serve for three years. The Treasurer will monitor the finances of the Division; recommend methods to maintain or improve the financial position of the Division; initiate means by which funds may be raised for the support of the Division; report to the Executive Committee regularly on the financial position and activities of the Division; and communicate with ASME on all budget-related items, including budget projections. Currently held by: Dr. Rafael Davalos ('20-23); voting member.

Member-in-Charge of Student Affairs. The Member-in-Charge of Student Affairs will serve as a voting member and will serve for three years. The Member-in-Charge of Student Affairs will: promote student membership; conduct outreach to local ASME student chapters; and encourage mentorship of student members. The Member-in-Charge of Student Affairs will also serve as an advisor to the Student Leadership Committee. The Member-in-Charge of Student Affairs will be responsible for communicating these activities to the Executive Committee. Currently held by: Dr. Rouzbeh Amini ('20-'23); voting member.

Members at Large. Each Member-at-Large will be a voting member and will serve for three years. The Members-at-Large will fulfill responsibilities not falling under the purview of other members of the Executive Committee, such as leading new initiatives. Currently held by: Dr. Christine Scotti ('19-22), Mr. Robert Hauck ('19-'23), Dr. Craig Goergen ('21-'24), and Dr. Josue Sznitman ('21-'24); voting members.

Communication and Outreach Specialist(s). Each Communication and Outreach Specialist will be a non-voting member and will serve for two years. They will fulfill responsibilities related to communication of the Division materials and announcements through social media platforms and electronic communications. This will include the generation of the annual newsletter. Currently held by: Dr. Parisa Saboori ('21-23) and Dr. Zhenpeng Qin ('21-'23). Our student specialist is Mr. Zach Davis ('22-'23); non-voting members.

Chair of the Student Leadership Committee. The Chair of the Student Leadership Committee is a non-voting member and is elected by ASME Bioengineering Division Students through their own electoral process and serves for one annual term. This member will provide updates on student activities, promote student membership, and advocate for student needs. Currently held by: Mr. Bipin Tiwari ('21-'22); non-voting member.

Be sure to 'Opt-In' for emails from the Bioengineering Division

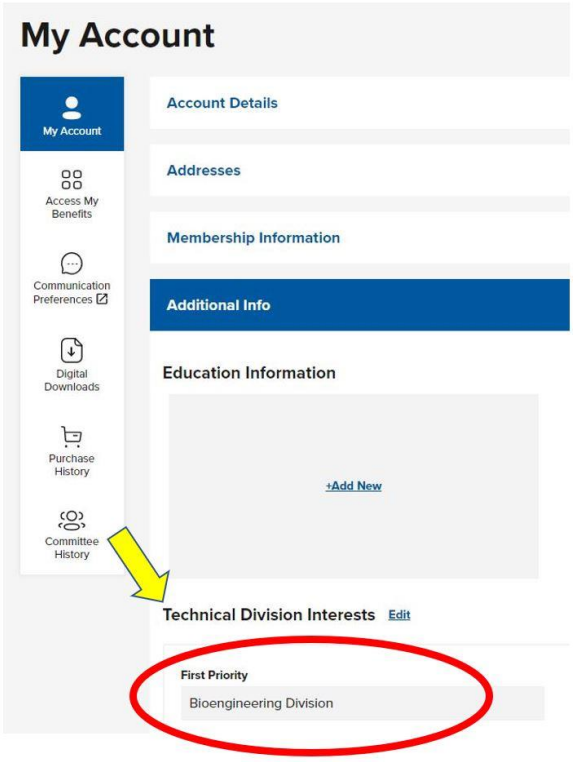
Log into your member account at ASME.org.

Under My Account -> Additional Information -> Technical Division Interests -> First Priority: Bioengineering Division

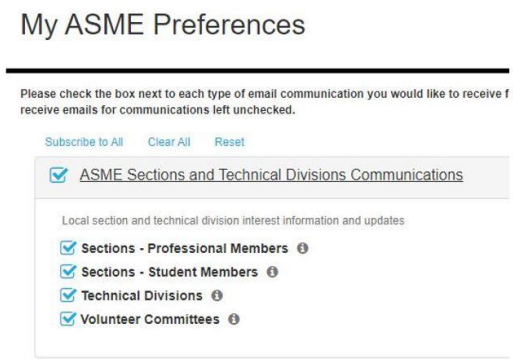
In addition, please be sure that you have selected to 'opt in' for emails from the Division. This is done through My Account -> Communication Preferences -> "ASME Sections and Technical Divisions Communications". You will need to save your selections, while also confirming through email.

We will be sending communications regarding the upcoming ASME Bioengineering Executive Committee elections via the ASME portal. As such, we want to make sure all members receive this info. While we will also share information here and on twitter, secure ballots will be sent using the ASME portal.

Select "Bioengineering Division" as your First Priority



Opt-in for emails from the Technical Divisions



ASME Bioengineering Division ROSTER 2022-2023

EXECUTIVE COMMITTEE

Chair
Alison Marsden

Past Chair
Naomi Chesler

Secretary
Shannon Stott

Secretary-Elect
Alisa Clyne

Treasurer
Rafael Davalos

Member
Spencer P. Lake

Bob Hauck

Christine Scotti

Communications & Outreach
Parisa Saboori
Zhenpeng Qin

Staff Contact
April Tone

Student Relations
Rouzbeh Amini

TECHNICAL COMMITTEE CHAIRS

Biotransport

Bumsoo Han
Sihong Wang

Design and Rehabilitation

Mike Moreno
Anita Singh

Education
Stephanie George

Victor Lai

Fluid Mechanics
John LaDisa

Alejandro Roldan-Alzate

Tissue and Cellular Engineering
Grace O'Connell
David Corr

Solid Mechanics
Kristin Myers

Industry
Suresh M.L. Raghavan
Ethan Kung

Honors & Awards
Michele Grimm

BIOENGINEERING DIVISION JOURNAL EDITORS

Journal of Biomechanical Engineering Editors

Vicky Nguyen
C. Ross Ethier

Journal of Medical Devices Co-Editors

Rupak Banerjee
William K Durfee

AWARDS COMMITTEE CHAIRS

Lissner Award Committee Chair
Michele Grimm

Mow Award Committee Chair
Dawn Elliott

Woo Award Committee Chair
Barry Lieber

Fung Early Career Award Committee Chair
Grace O'Connell

Nerem Award Committee Chair
Sara E. Wilson

BIOENGINEERING DIVISION REPRESENTATIVES

U.S. National Committee on Biomechanics Representative
David A. Vorp

SB³C CONFERENCE ORGANIZERS

SB³C Conference Chair
Alisa Morse Clyne

SB³C Program Chair
Matthew Fisher

SB³C Information Chair
Jessica Oakes

SB³C Publications Chair
Anita Singh

SB³C Local Arrangements and Finance Chair
Lakiesha Williams

SB³C Exhibits Chair
Will Richardson

SB³C Diversity Chair
Spencer Szczesny

SB³C Student Paper Competition Chair
Joao S. Soares

SB³C Media Chair
Zhenpeng Qin

Bioengineering Division Women's Networking Group

Rita M. Patterson

Jennifer Wayne, Co-Chair

Newsletter Editors: Parisa Saboori and Zhenpeng Qin

We acknowledge contributions from ASME Bioengineering Division Executive Committee members (Alison Marsden), SB³C chair, committee chairs and co-chairs. Special thanks to April Tone for proof-reading the newsletter and providing ASME resources, Matthew Taibi and Zachary Davis for editing assistance.