



# 2016 HONORS & AWARDS

ASME

2016 Honors & Awards



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# 2016 HONORS AND AWARDS

The recognition of the excellence of an engineer's work by his or her peers is one of the greatest rewards for accomplishment. By presenting these individuals with tokens of excellence, the Society brings the character and importance of the engineer's work to the attention of the public. Accordingly, it is one of the major purposes of the Society to recognize engineering excellence through the Honors and Awards Program and to provide the forum for their exposition.

Society Honors and Awards recognize a wide variety of accomplishments. Some awards are based on contributions to engineering literature; others recognize general achievements in the advancement of engineering. Some are awarded for outstanding accomplishments by a young engineer beginning a career, others for distinguished service throughout a lifetime. Still others recognize contributions by outstanding Student Members.

Honors and Awards are bestowed by authority of the Board of Governors, and certificates are signed by the President and Executive Director. The Honors and Awards Program is funded through the ASME Foundation by individual awards and endowment funds, not through member dues.

The pages that follow describe all Society Honors and Awards presented in 2016 and give information about the recipients. Many awards were presented at the Society's meetings and conferences throughout the year, and others will be presented during the 2016 International Mechanical Engineering Congress, November 11-17, in Phoenix, Arizona.

## ASME COMMITTEE ON HONORS\*

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# ASME Medal

J.N. REDDY

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

THE ASME MEDAL was established in 1920 and is awarded for eminently distinguished engineering achievement.

J.N. REDDY, Ph.D., distinguished professor, regents professor and holder of the Oscar S. Wyatt endowed chair, Texas A&M University, College Station, 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.*

A leader in the field of applied mechanics for more than four decades, Dr. Reddy is renowned for his pioneering research, and his outstanding contributions as an educator and author of textbooks.

Reddy has been a member of the faculty at Texas A&M University, College Station, since 1992. He is currently the Oscar S. Wyatt endowed chair professor, distinguished professor, and regents professor of mechanical engineering. Previously Reddy was a faculty member (and holder of the Clifton C. Garvin endowed professorship) in the department of engineering science and mechanics at Virginia Polytechnic Institute and State University, Blacksburg (1980-92); and at the School of Aerospace, Mechanical and Nuclear Engineering at The University of Oklahoma, Norman (1975-80). He has taught courses on a range of topics including solid mechanics, continuum mechanics, elasticity, variational methods, composite materials, finite elements and applied analysis.



Reddy's early research focused primarily on mathematics of finite elements, variational principles of mechanics, shear deformation and layerwise theories of laminated composite plates and shells, modeling of geological and geophysical phenomena, penalty finite elements for flows of viscous incompressible fluids, and least-squares finite element models of fluid flows. His pioneering work on the development of shear deformation theories (referred to in literature as the Reddy third-order plate theory) has had a major impact on engineering education and practice, and has led to new research developments and applications. His finite element models of shear deformation theories and penalty finite elements of fluid flows have been implemented into commercial finite element computer programs like ABAQUS, NISA and HyperXtrude.

In recent years Reddy's research has focused on nonlocal and nonclassical continuum mechanics problems and ordered constitutive theories in the theoretical mechanics of solids and fluids — problems involving couple stresses, surface stress effects, discrete fracture and flow, micropolar cohesive damage, and continuum plasticity of metals from considerations of nonequilibrium thermodynamics.

Reddy has authored/co-authored over 550 journal papers; and more than 20 well-received textbooks on the finite element method, plates and shells, and composite materials and structures. His textbooks are used worldwide and have had a lasting impact on countless students, engineers and researchers. Reddy has been recognized as a highly cited researcher by Thomson Reuters. He currently serves as editor-in-chief of three journals and as series editor for CRC Press books, and he serves on the editorial boards of 28 journals.

An ASME Fellow and Honorary Member, Reddy has served as editor-in-chief of *Applied Mechanics Reviews* (2007-12); associate editor of the *Journal of Applied Mechanics*

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## ASME Medal (cont.)

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(1992–99); faculty advisor of the Student Section at the University of Oklahoma (1976–79); vice chair of Membership (1976–77) and Executive Committee member (1976–80) for the Central Oklahoma Section; member (1981–93), vice chair (1993–95) and chair (1995–97) of the Applied Mechanics Division’s Committee on Computing in Applied Mechanics; and member of the ASME Committee on Composite Materials (1982–92). Reddy has organized numerous sessions/symposia at various ASME meetings and conferences as well as the International Mechanical Engineering Congress and Exposition. He received the Worcester Reed Warner Medal in 1992, the Charles Russ Richards Memorial Award in 1995 and Honorary Membership in 2011.

Reddy is a member of the National Academy of Engineering and a Foreign Fellow of the Indian National Academy of Engineering; and a Fellow of the Aeronautical Society of India, the American Academy of Mechanics, the American Institute of Aeronautics and

Astronautics, the American Society of Composites, the American Society of Civil Engineers (ASCE), the International Association for Computational Mechanics (IACM) and the United States Association for Computational Mechanics.

Among his extensive list of other honors, Reddy received the Society of Engineering Science’s William Prager Medal (2016), IACM’s O.C. Zienkiewicz Award (2014), ASCE’s Nathan M. Newmark Medal (1998) and Raymond D. Mindlin Medal (2014), and the Japan Society of Mechanical Engineers’ Computational Mechanics Award (2012); and he was inducted into the Oklahoma State University College of Engineering, Architecture and Technology’s Hall of Fame (2015).

Reddy received his bachelor’s degree in mechanical engineering from Osmania University (Hyderabad, India) in 1968. He earned his master’s degree in mechanical engineering from Oklahoma State University, Stillwater, in 1970; and his Ph.D. in engineering mechanics from The University of Alabama in Huntsville in 1974. He received honorary degrees from the Technical University of Lisbon, Portugal, in 2009; and Odlar Yurdu University (Baku, Azerbaijan) in 2011.

## Honorary Membership

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CRISTINA AMON

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

CRISTINA AMON, P.Eng., Sc.D., dean, Faculty of Applied Science and Engineering, and alumni chair professor, 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.*

Dr. Amon is an eminent scholar and researcher, a tireless champion for diversity in engineering, and an inspiring leader in academia and in the larger engineering community.

Amon became the 13th dean of the Faculty of Applied Science and Engineering, and alumni chair professor of bioengineering in the department of mechanical and industrial engineering at the University of Toronto in 2006. As dean, she provides leadership for the faculty’s academic, budgetary and planning processes. She is responsible for the visionary and strategic leadership of one of the world’s leading engineering schools, with more than 5,500 undergraduate, 2,250 graduate students, 250 faculty members and an annual operating budget of over \$280 million.

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## Honorary Membership (cont.)

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Prior to her appointment at the University of Toronto, Amon was the Raymond J. Lane distinguished professor (2001–06) and director of the Institute for Complex Engineered Systems (1999–2006) at Carnegie Mellon University, Pittsburgh. She joined Carnegie Mellon in 1988.

Amon's achievements in education cover the whole spectrum of integrating education, research and engineering practice. She is a pioneer in the development of computational fluid dynamics for formulating and solving thermal design problems subject to multidisciplinary competing constraints. Her research focuses on nanoscale thermal transport in semiconductors, energy systems and bioengineered devices.



Dedicated to outreach, Amon co-developed Engineering Your Future, the Society of Women Engineers (SWE) workshop for female and minority high school students; and Moving 4th into Engineering, an outreach program targeted toward fourth graders. She served as Pi Tau Sigma faculty advisor (1994–96) and as an American Society for Engineering Education (ASEE) campus representative (1993–97) at Carnegie Mellon. She is co-founder of Women In Non-traditional Graduate Studies and served as its first faculty adviser.

Amon has authored/co-authored more than 350 refereed articles and has delivered invited/keynote lectures worldwide. She currently serves on the advisory board of the *International Journal of Thermal Sciences* and the editorial board of *Heat and Mass Transfer*, and has held various positions on IEEE and ASME journals.

Active in executive boards and professional societies, Amon is an independent director of MKS Instruments, chair of the Research Committee of the National Council of Deans of Engineering and Applied Science in Canada, and founding chair of the Global Engineering Deans Council. She has served on external advisory boards for several universities, and foundations focused on science, engineering and technology around the world.

An ASME Fellow, Amon was associate editor of the *Journal of Heat Transfer* (2001–04). She was member (2009–15) and chair (2014–15) of the ASME Committee on Honors; chair of the Heat Transfer Division's (HTD) Membership Recognition Committee (1996–98); chair of HTD's K-3 Committee on Honors and Awards (2000–01); and chair of the K-16 Committee on Heat Transfer in Electronic Equipment (2000–03), a joint committee of the HTD and the Electrical and Electronic Packaging Division (EPPD). Amon was elected chair of the IEEE/ASME ITherm 2002 Intersociety Conference on Thermal and Thermomechanical Phenomena in Electronic Systems, and program chair of the 2005 ASME Summer Heat Transfer Conference; and she served as ASME's representative to the American Association for the Advancement of Science (AAAS). In 1999 the Pittsburgh Chapter named her Engineer of the Year. Amon received the Society's Gustus L. Larson Memorial Award in 2000 and Heat Transfer Memorial Award (General) in 2009; and EEPD's K16 Clock Award and Thermal Management Award in 2004, and inaugural Women in Engineering Award in 2008.

Amon was inducted into four academies: the National Academy of Engineering, the Canadian Academy of Engineering, the Spanish Royal Academy and the Royal Society of Canada. She is a Fellow of AAAS, ASEE, the Canadian Society of Mechanical Engineers (CSME), the Engineering Institute of Canada and IEEE; and a member of SWE, where she has served in various roles including Pittsburgh Chapter president (2004–05).

Among her many other honors and awards, Amon received SWE's highest honor, the Achievement Award (2011); CSME's Robert W Angus Medal (2014); and Canada's most prestigious engineering honor, Professional Engineers Ontario's Gold Medal (2015). She was recognized by *Hispanic Engineers and Information Technology* magazine as one of America's most influential Hispanics in technology and business (2005, 2011),

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## Honorary Membership (cont.)

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and by Women of Influence Inc. as one of Canada's 25 Most Influential Women (2012); and she was inducted into the Great Minds in STEM's Hall of Fame for Hispanic engineers and scientists (2012).

Amon received her mechanical engineering diploma from Simón Bolívar University (Caracas, Venezuela) in 1981. She earned her master's degree and her Sc.D. from the Massachusetts Institute of Technology, Cambridge, in 1985 and 1988, respectively. Amon is a licensed professional engineer in Ontario.

## Honorary Membership

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ASHWANI K. GUPTA

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

ASHWANI K. GUPTA, Ph.D., distinguished university professor, University of Maryland, College Park, 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.



Dr. Gupta has more than 40 years of experience in combustion engineering and is internationally recognized for his contributions to energy and environmental sustainability.

Gupta has been with the University of Maryland (UMD), College Park, since 1983. A professor of mechanical engineering since 1988, he was appointed distinguished university professor in 2008. He founded and is director of the Combustion Laboratory. His present responsibilities include teaching and research, and service to the community including research training of local high school students.

Prior to joining the faculty at UMD, Gupta was a member of the research staff in the Energy Laboratory and department of chemical engineering at the Massachusetts Institute of Technology, Cambridge (1977-82). Among earlier positions, he was a senior research associate and independent research worker in the chemical engineering and fuel technology department Sheffield University, U.K. (1973-76); and a research engineer at International Combustion Ltd., U.K. (1967-71).

Gupta has contributed to the fundamental understanding of high temperature air combustion called HiTAC, which is now used in many industrial furnaces for significant energy savings (~30 percent), pollution reduction (~50 percent), low noise (6dB) and improved quality of the product. He discovered colorless combustion and green color flame using hydrocarbon fuels without any additive. This is the first time in the history of fossil fuel combustion that flames can be colorless and provide uniform temperature distribution in the entire combustion zone to form a uniform thermal reactor. Gupta used elements of HiTAC for clean fuel reforming of wastes and low grade fuels. He successfully developed meso-scale combustors with sustained flames in dimensions smaller than quenching distances of flames (~1 or 2 millimeters in size) using gas and liquid fuels under fuel lean conditions. His current focus is on the development of near zero emission combustion with uniform thermal field under high intensity combustion conditions for stationary gas turbines.

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## *Honorary Membership (cont.)*

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Gupta has served as a consultant to the Japanese government on HiTAC technology development and deployment; has provided advice and guidance to U.S. government agencies and international organizations; and has collaborated with The Petroleum Institute (Abu Dhabi, United Arab Emirates) and several universities in Thailand.

In addition to providing research training for local high school students in his labs, Gupta has been teaching gifted high school students from more than 20 countries via e-learning through the APEC Mentoring Center for the Gifted in Science. The program, based at Kyungnam University in South Korea, provides advanced learning in the areas of energy, environment and engineering, and culminates in the publication of technical papers in the *APEC Youth Journal*, for which Gupta serves as editor-in-chief.

Gupta has authored/co-authored more than 700 technical papers in various journals and refereed symposia and conference proceedings, three books and 13 book chapters; and he has edited 12 books. He also serves in editorial capacities for a number of journals. Gupta has delivered over 100 plenary/keynote presentations at various organizations, institutions and international conferences since 1990. He holds three patents.

An ASME Fellow, Gupta serves as chair of the Power Division's Fuels and Combustion Technologies (FACT) Committee. He previously served as chair of the Fuels and Combustion Technology Division (1998-2000) and the Computers and Information in Engineering (CIE) Division (2002-03); and was a member of the CIE Executive Committee (1998-2003) and the Society's Fellow Selection Committee (1998-2008). Gupta received ASME's George Westinghouse Gold Medal in 1998, the James Harry Potter Gold Medal in 2003, the James N. Landis Medal in 2004, the Worcester Reed Warner Medal in 2008, the Holley Medal in 2010 and the Melville Medal in 2013. In 2011 he received the Percy W. Nicholls Award, a joint award from the ASME Power Division's FACT Committee and the American Institute of Mining, Metallurgical and Petroleum Engineers' Coal Division.

Gupta is a Fellow of the American Institute of Aeronautics and Astronautics (AIAA), SAE International and the Royal Aeronautical Society, U.K.

Among his other honors, Gupta received AIAA's Energy Systems Award (1990), Propellants and Combustion Award (1999) and Air Breathing Propulsion Award (2014); the UMD President Kirwan Research Award (2003) and the College of Engineering Research Award (2006); the American Society for Engineering Education's Ralph Coats Roe Award (2015); and Surindra Rajabhat University's Golden Elephant Award (2016). He continues to serve as chair of the Board of Boilers Rules, a position he was appointed to by the governor of Maryland in 2009.

Gupta earned his master's degree in combustion and high temperature gas dynamics from the University of Southampton, U.K., in 1970; and his Ph.D. in combustion from the University of Sheffield in 1973. He was awarded the higher doctoral degree, D.Sc., from the University of Sheffield and the University of Southampton in 1986 and 2013, respectively. He received honorary Ph.D. degrees from the University of Wisconsin, Milwaukee (2014); King Mongkut's University of Technology North Bangkok, bestowed by Her Royal Highness Princess Maha Chakri Sirindhorn of Thailand (2013); and Derby University, U.K. (2016).

# Honorary Membership

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SHIV G. KAPOOR

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

SHIV G. KAPOOR, Ph.D., Grayce Wicall Gauthier chair in mechanical science and engineering, 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.*



For nearly 40 years Dr. Kapoor has been making extraordinary and pioneering contributions to manufacturing engineering through his published scholarly literature, technical writing, research, teaching, and service in the engineering community.

Kapoor has been with the University of Illinois at Urbana-Champaign (UIUC) since 1979 and is currently Grayce Wicall Gauthier chair in mechanical science and engineering. Among his prior positions, he was director of the College of Engineering's manufacturing engineering education program (1989–2010) and UIUC's Manufacturing Research Center (1995–2012). He has maintained an active research and graduate education program in the areas of modeling of manufacturing systems and quality engineering.

Kapoor also served as director of the National Science Foundation's (NSF) Industry/University Cooperative Research Center for Machine Tool Systems Research (1993–2003). The center's research focused on agile/flexible machining and machine-tool systems, machine tool system planning and control, and machining process development and innovation. This led to advances in mechanistic machining process models that UIUC is renowned for. The modeling work, when implemented in software, is detailed enough to design machines and machined parts, and is used by researchers in academe and industry as well as by educational institutions in the training of manufacturing engineers.

His work on the micro/mesoscale manufacturing factory of the future has set a significant milestone in the micro and precision machine tool design arena. Kapoor, his colleagues and his students have been pioneers in understanding the physics of microcutting and developing models to predict the machining performance of microscale systems. Based on their success in designing micro-machine tools, two of his students started a company in 2005 that now employs more than two dozen engineers to design and build a variety of these tool products.

Kapoor has published more than 350 journal and conference papers, which are continually referenced by practitioners in academia and industry. He has authored/co-authored many book chapters; given numerous invited presentations, both academic and industrial; and given keynote/plenary addresses at major international conferences. He holds several patents.

An ASME Fellow, Kapoor joined the Society's Technical Committee on Publications and Communications in 2008 and has been serving as chair since 2011. The committee, working with fellow editors and publication staff, has added value, both financial and intellectual, to ASME's publication portfolio. Earlier Kapoor served as chair (1992–93) of the Manufacturing Engineering Division (MED), member-at-large on the Manufacturing Operating Board (1994–95) and vice president for the manufacturing technical group on ASME's Council on Engineering (1996–99). Kapoor's countless contributions include two changes that strengthened ASME's leadership position in manufacturing engineering. He developed and implemented the plan that changed the name of the

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## *Honorary Membership (cont.)*

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*Journal of Engineering for Industry* to its current title of *Journal of Manufacturing Science and Engineering*, which gave the publication a clear focus; and he served in the vital position of technical editor for 10 years (1991–2001). He also led the effort that changed the Division name from Production Engineering to Manufacturing Engineering, which resulted in an improved internal and external focus, and more visibility for ASME's nearly 100 years of manufacturing research and practice. Kapoor received the Society's Blackall Machine Tool and Gage Award in 1992, 1997 and 2008; Dedicated Service Award in 1999; and William T. Ennor Manufacturing Technology Award in 2003. He received the MED's Outstanding Service Award in 1998 and a Best Paper Award at the Manufacturing Science and Engineering Conference in 2013.

Kapoor is also a Fellow of the Society of Manufacturing Engineers; a senior member of the Institute of Industrial Engineers; a member of Alpha Pi Mu, the Industrial Engineering Honor Society; and a member of the IEEE Robotics and Automation Society's Advisory Committee.

Among his other honors, Kapoor received the North American Manufacturing Research Institution of SME's S.M. Wu Research Implementation Award (2010) and Outstanding Lifetime Service Award (2014), and SME's Gold Medal (2015); a Five-Year Effective Teaching Award (2010) from the University of Illinois' Mechanical Science and Engineering Alumni Board and a University of Illinois Award for Excellence in Graduate Student Mentoring (2011); and Best Paper awards at the International Institution for Micromanufacturing's International Conference on Micromanufacturing (2013, 2015).

Kapoor earned three degrees in mechanical engineering: his bachelor's degree from the Indian Institute of Technology, Varanasi (formerly know as IT-BHU) in 1969; his master's degree from the Indian Institute of Technology, Kanpur in 1971; and his Ph.D. from the University of Wisconsin–Madison in 1977.

## *Adaptive Structures and Material Systems Award*

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**RALPH C. SMITH**

*Conferred at the Conference on SMASIS,  
Stowe, Vt., September 2016*

THE ADAPTIVE STRUCTURES AND MATERIAL SYSTEMS AWARD recognizes significant contributions to the sciences and technologies associated with adaptive structures and/or material systems. The award honors a senior researcher for a lifetime of achievement and sustained impact in the field. Established by the Aerospace Division in 1993, it was elevated to a Society award in 2014.

RALPH C. SMITH, Ph.D., distinguished professor of mathematics, North Carolina State University, Raleigh, *for extraordinary contributions in the development of smart materials and adaptive structures through constitutive model development, modeling and nonlinear control, and uncertainty analysis; and for modeling research that has been validated across a broad range of smart materials.*

Dr. Smith earned his bachelor's degree in applied mathematics from Harvard University (Cambridge, Mass.) in 1983 and his Ph.D. in applied mathematics from Montana State University, Bozeman, in 1990. Following a three-year postdoctoral position at the Institute for Computer Applications in Science and Engineering at NASA Langley Research Center (Hampton, Va.), he was an assistant professor in the department of mathematics at Iowa State University, Ames.

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## *Adaptive Structures and Material Systems Award (cont.)*

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Smith joined the faculty at North Carolina State University, Raleigh, in 1998. He has served in a number of positions at NC State including associate director of the National Science Foundation-funded Statistical and Applied Mathematical Sciences Institute (2005–08) in Research Triangle Park, N.C. In 2014 he was named a distinguished professor of mathematics.

His research in the area of adaptive structures includes model development, numerical simulation, control design, sensitivity analysis and uncertainty quantification for structures utilizing ferroelectric, ferromagnetic and shape memory alloy compounds. Smith's research has yielded what has come to be known as the homogenized energy model for ferroic materials; the model's attributes include highly accurate prediction of rate-dependent minor and major-loop hysteresis, and

highly efficient computational methodologies, both of which are crucial for model-based nonlinear, real-time control of adaptive structures. His research efforts have been supported by various U.S. Department of Defense agencies, the U.S. Department of Energy, the National Science Foundation and the National Nuclear Security Administration; and he currently collaborates with researchers from a number of government laboratories. He has directed the research of 10 master's students, 14 Ph.D. students and eight postdoctoral researchers.

Smith has published nearly 80 journal articles, 45 refereed proceedings papers and 80 proceedings publications in the area of smart and adaptive materials, uncertainty quantification and control design. He has given more than 180 presentations on these topics, the large majority invited lectures. Smith is editor-in-chief of the Society for Industrial and Applied Mathematics' (SIAM) book series on "Advances in Design and Control"; and is on the editorial boards of the *Journal of Intelligent Material Systems and Structures* (SAGE Publications) and the *SIAM/ASA* (American Statistical Association) *Journal on Uncertainty Quantification*. He is co-author of the research monograph titled "Smart Material Structures: Modeling, Estimation and Control" (Wiley, 1996); and author of the books titled "Smart Material Systems: Model Development" (SIAM, 2005) and "Uncertainty Quantification: Theory, Implementation and Applications" (SIAM, 2014). Smith was chair of the 2003 and 2004 SPIE Smart Structures/NDE Conference on Modeling, Signal Processing and Control.

An ASME member, Smith served as technical chair of the 2014 Conference on Smart Materials, Adaptive Structures and Intelligent Systems (SMASIS) and general chair of the 2015 SMASIS. He received the Aerospace Division's Adaptive Structures and Material Systems Best Paper Award in Structural Dynamics and Control in 1995.

Smith is also a member of SIAM and IEEE.

His honors include a NC State Alumni Association's Outstanding Research Award (2015) and the Iowa State University Foundation Award for Early Achievement in Research (1997).

# Bergles-Rohsenow Young Investigator Award in Heat Transfer

PATRICK E. HOPKINS

*Conferral at the Heat Transfer Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE BERGLES-ROHSENOW YOUNG INVESTIGATOR AWARD IN HEAT TRANSFER, established in 2003, recognizes a young engineer who is committed to pursuing research in heat transfer and has demonstrated the potential to make significant contributions to this field.

PATRICK E. HOPKINS, Ph.D., associate professor, University of Virginia, Charlottesville, for significant heat transfer research that has produced experimental and analytical advancements in areas including thermal transport across interfaces, reduced thermal conductivity materials, electron-phonon coupling, and transport of electrons and phonons.

Educated at the University of Virginia (UVA), Charlottesville, Dr. Hopkins joined the UVA faculty in 2011 following a three-year Harry S. Truman postdoctoral fellowship at Sandia National Laboratories (Albuquerque, N.M.). He is currently an associate professor in the department of mechanical and aerospace engineering. His research interests are in energy transport, charge flow, laser-chemical processes and photonic interactions with condensed matter, soft materials, liquids, vapors and their interfaces.

Hopkins' group at UVA uses various optical thermometry-based experiments to measure the thermal conductivity, thermal boundary conductance, thermal accommodation, strain propagation and sound speed, and electron, phonon and vibrational scattering mechanisms in a wide array of bulk materials and nanosystems. His research has experimentally and computationally demonstrated the dependency of atomic masses, disorder and interfacial forces on thermal boundary conductance across interfaces; the role of nonequilibrium electronic states on electron-phonon coupling at interfaces; the influence of coherent phonon transport on thermal conductivity; the realization of fully dense materials with record-setting low thermal conductivities; and the ability to actively tune the phonon conductivity of materials with external electric fields, creating a thermal switch.

Hopkins has published 130 papers in refereed journals, and is an active reviewer for various journals including ASME's *Journal of Heat Transfer*.

An ASME member, Hopkins has served on various Heat Transfer Division committees. He is currently chair (2014–present) of K-8–Theory and Fundamental Research. Previously he served as secretary (2010–12) and vice chair (2012–14) of K-8; vice chair (2009–11) and chair (2011–14) of K-21–Education; and media editor (2012–15) and key group leader (2013–15) of the Executive Committee. Hopkins has also been actively involved in the Society's conferences, from organizing the first societywide student poster competition in heat transfer to reviewing papers, organizing tracks and chairing sessions.

Hopkins is also a member of the American Physical Society, the American Society for Engineering Education, the Materials Research Society, the American Ceramic Society as well as the Raven Society, the oldest honorary society at UVA; Sigma Xi, the Scientific Research Society; Tau Beta Pi, the Engineering Honorary Society; and Pi Tau Sigma, the International Mechanical Engineering Honor Society.

Among his other honors, Hopkins received a Presidential Early Career Award for Scientists and Engineers (2015), an Office of Naval Research Young Investigator Award



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## *Bergles-Rohsenow Young Investigator Award in Heat Transfer (cont.)*

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(2013) and an Air Force Office of Scientific Research Young Investigator Award (2013); the UVA School of Engineering and Applied Sciences' Outstanding Young Engineering Graduate Award (2008) and a UVA Award for Excellence in Scholarship in the Sciences and Engineering (2007); a NASA Group Achievement Award (2006); and graduate fellowships from the National Science Foundation (2005–08) and the Virginia Space Grant Consortium (2004–07).

Hopkins earned three degrees from UVA: a bachelor's degree in mechanical engineering and a bachelor's degree in physics in 2004, and his Ph.D. in mechanical and aerospace engineering in 2008.

## *Per Bruel Gold Medal for Noise Control and Acoustics*

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PATRICIA DAVIES

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE PER BRUEL GOLD MEDAL FOR NOISE CONTROL AND ACOUSTICS was established in 1987 in honor of Dr. Per Bruel, who pioneered the development of sophisticated noise and vibration measuring and processing equipment. The medal recognizes eminent achievement and extraordinary merit in the field of noise control and acoustics, including useful applications of the principles of noise control and acoustics to the art and science of mechanical engineering.

PATRICIA DAVIES, Ph.D., professor of mechanical engineering, and director, Ray W. Herrick Laboratories, Purdue University (West Lafayette, Ind.), *for exceptional leadership and educational mentorship in the field of noise control and acoustics; and for outstanding contributions to noise control engineering in the areas of signal processing, nonlinear dynamic modeling, product sound quality, and human response to noise and vibration.*



Dr. Davies has been with Purdue University (West Lafayette, Ind.) since 1987 and is currently a professor of mechanical engineering. In 2005 she became director of the Ray W. Herrick Laboratories, where 90 graduate students and 20 faculty focus on graduate student research with an emphasis on technology transfer. Davies also has a courtesy appointment in psychological sciences.

Her research on vibrations and acoustics includes signal processing, nonlinear system identification, sound perception and the impact of noise on people. A theme in her research is bridging the gap between experimental results and predictions from models based on the current understanding of human, mechanical and/or material behavior. Applications include effects of transportation noise (sleep disturbance, annoyance); heating, ventilation, air conditioning and refrigeration systems, and diesel engine noise; characterization of viscoelastic materials; and seat-occupant systems. Davies' efforts are sponsored by government agencies and industry.

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## *Per Bruel Gold Medal for Noise Control and Acoustics (cont.)*

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She is a founding member of a group of engineering and psychology professors at Purdue who conduct research on how people perceive and are affected by machines and engineered systems, and how to integrate that knowledge into engineered system design.

Davies was selected to serve on the National Academy of Engineering's Committee on Technology for a Quieter America (2007-09), which issued a detailed report on its findings (National Academies Press, 2010).

She is the author/co-author of nearly 40 refereed archival journal articles and 100 conference papers, and has written several book chapters. Davies has also given a number of keynote, plenary and distinguished lectures; chaired/co-chaired various international conferences and symposia; and served as co-editor for the *Journal of Sound and Vibration* (2006-08).

Davies has published in ASME journals, has reviewed papers for the *Journal of Vibration and Acoustics* and actively participates in many of the Society's conferences.

She is a Fellow of the Institute of Noise Control Engineering, where she served as president (2008-10); and a member of the Acoustical Society of America and SAE International.

Among her other honors, Davies received a Boeing Leadership Award (2005) from Purdue's College of Engineering.

Davies earned her bachelor's degree in mathematics from the University of Bristol, U.K., in 1977. She earned her master's degree and Ph.D. in sound and vibration from the Institute of Sound and Vibration Research at the University of Southampton, U.K., in 1980 and 1985, respectively.

## *Edwin F. Church Medal*

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**KAREN A. THOLE**

*Conferred at the Education Leadership Summit,  
Tampa, Fla., March 2016*

THE EDWIN F. CHURCH MEDAL, established in 1972, is awarded to an individual who has rendered eminent service in increasing the value, importance and attractiveness of mechanical engineering education.

KAREN A. THOLE, Ph.D., department head and professor, The Pennsylvania State University, University Park, *for the creation and development of the Engineering Ambassadors Network, an innovative program that provides undergraduate students with professional skills and, at the same time, serves as a highly effective mechanism for recruiting women and underrepresented minority students into engineering.*

Dr. Thole is a professor of mechanical engineering and head of the department of mechanical and nuclear engineering at The Pennsylvania State University, University Park. Prior to joining the faculty at Penn State in 2006, Thole held various positions at Virginia Polytechnic Institute and State University, Blacksburg (1999-2006). Earlier she was an assistant professor at the University of Wisconsin-Madison (1994-98) and a postdoctoral researcher at the Institute of Thermal Turbomachinery at the Karlsruhe Institute of Technology, Germany (1993-94).

Throughout her career Thole has worked to recruit and retain women and other underrepresented students in engineering. She initiated the Engineering Ambassadors Network, a collaboration of select engineering students at universities across the country that grew from a program started at Penn State in 2009. These ambassadors reach

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## *Edwin F. Church Medal (cont.)*

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out to high school students, both on and off campus, to describe the impacts of engineering through messages promoted by the National Academy of Engineering's book titled *Changing the Conversation: Messages for Improving Public Understanding of Engineering* (National Academies Press, 2008).

Thole has also made significant contributions to the field of gas turbine heat transfer as a researcher, educator and administrator. She founded the Steady Thermal Aero Research Turbine Laboratory at Penn State in 2011.

She is co-chair of the National Research Council's Low Carbon Aviation Committee and a member of the NASA Advisory Council's Aeronautics Committee.

Thole has published more than 200 peer-reviewed papers and has supervised over 60 graduate dissertations and theses. She holds three patents.

An ASME Fellow, Thole has served the Society in numerous capacities including leader (2014–15) of the Energy Conversion and Storage Segment, chair (2013–14) of the board of directors for the ASME International Gas Turbine Institute (IGTI), chair (2010–14) of the ASME Committee on Honors and chair (2012–13) of the ASME Department Head Executive Council. Thole also served on the ASME Center for Education board of directors (2010–14) and was a member of the Vision 2030 Committee (2008–11). She received IGTI Best Heat Transfer Paper awards in 2005, 2009 and 2013; ASME Distinguished Service awards in 2008 and 2015; and the Society's George Westinghouse Gold Medal in 2015.

Thole is a member of the American Society for Engineering Education, the American Institute for Aeronautics and Astronautics, and the Society of Women Engineers (SWE).

Among her honors, Thole was recognized by the White House as a Champion of Change in Science, Technology, Engineering and Math (2011); and she received Penn State's Rosemary Schraer Mentoring Award (2012) and Howard B. Palmer Faculty Mentoring Award (2015), and SWE's Distinguished Engineering Educator Award (2014).

Thole earned three degrees in mechanical engineering: her bachelor's and master's degrees from the University of Illinois at Urbana-Champaign in 1982 and 1984, respectively; and her Ph.D. from The University of Texas at Austin in 1992.

# Daniel C. Drucker Medal

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KYUNG-SUK KIM

*Conferral at the Applied Mechanics Dinner,  
2016 International Mechanical Engineering Congress and Exposition*

THE DANIEL C. DRUCKER MEDAL, established in 1997, is conferred in recognition of distinguished contributions to the field of applied mechanics and mechanical engineering through research, teaching and service to the community.

KYUNG-SUK KIM, Ph.D., professor, School of Engineering, Brown University (Providence, R.I.), for seminal contributions to the field of mechanics of materials through creative research that bridges experiments and mechanics theories to understand the motion and deformation of interfaces as well as the formation and assembly of nanostructures.

Dr. Kim received his bachelor's and master's degrees in mechanical engineering from Seoul National University, South Korea, in 1974 and 1976, respectively. After earning his Ph.D. in solid mechanics from Brown University (Providence, R.I.) in 1980, he joined the faculty at the University of Illinois at Urbana-Champaign. In 1989 Kim returned to Brown as a professor in the School of Engineering. Since 2014 he is also director of the Center for Advanced Materials Research.



Kim's interdisciplinary research interests are in the mechanics of small-scale material structures. He has made seminal contributions, both experimental and theoretical, to the understanding of the mechanical behavior of solids in a wide range of areas: friction, fracture, residual stress development and consequences, thin films, and micro/nanoscale deformation processes. Kim has invented numerous scientific instruments and analytical methods; and recently initiated ruga mechanics, a new thrust in applied mechanics research for understanding wrinkling and folding processes. His team's research was included in *Discover* magazine's 100 Top Stories of 2014 (#30—"New Math for Designer Wrinkles" by Shannon Palus; January/February 2015 issue).

As an educator, Kim has developed a number of innovative course materials, and has advised more than 35 Ph.D. students and postdoctoral research associates.

He has published more than 120 refereed journal articles, edited/co-edited three books and co-authored two book chapters. He has given numerous conference presentations and invited talks.

An ASME member, Kim is an associate editor of the *Journal of Applied Mechanics* (2015–18). Among his prior service, he was chair (1991–93) of the Applied Mechanics Division's Experimental Mechanics Committee and has served as session chair for various conferences. He received the Society's Melville Medal in 1981.

Kim is a member of the Society of Engineering Science (SES) and serves as its representative to the U.S. National Committee on Theoretical and Applied Mechanics (2016–19). He is also a member of the American Physical Society and the Materials Research Society.

His honors include the Engineering Science Medal (2012) from SES, the Kwanak Award (2012) from Seoul National University's Alumni Association, the Ho-Am Prize (2005) from the Ho-Am Foundation, and a Guggenheim fellowship (1996) from the John Simon Guggenheim Memorial Foundation.

# William T. Ennor Manufacturing Technology Award

YUSUF ALTINTAS

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE WILLIAM T. ENNOR MANUFACTURING TECHNOLOGY AWARD was established in 1990 by the ASME Manufacturing Engineering Division and the Alcoa Company to recognize an individual or team for developing or contributing significantly to an innovative manufacturing technology, the implementation of which has resulted in substantial economic or societal benefits.

YUSUF ALTINTAS, P.Eng., Ph.D., professor, The University of British Columbia, Vancouver, for the pioneering development of novel models and algorithms for predicting and controlling machining operations that resulted in substantial productivity increases, and for designing higher performance machine tools.



After working in the manufacturing industry for four years and completing his Ph.D. thesis, Dr. Altintas joined The University of British Columbia (UBC), Vancouver, in 1986 and founded the Manufacturing Automation Laboratory. Since 1994 he is the founding coordinator of the mechatronics engineering option at UBC. He holds the NSERC-P&WC (National Sciences and Engineering Research Council of Canada-Pratt & Whitney Canada) industrial research chair professorship; in this position since 2002, Altintas is developing the next generation of virtual high-performance machining technology. Since 2010 he has been directing the NSERC's Canadian Network for Research and Innovation in Machining Technology.

Altintas conducts research on metal cutting, machine tool vibrations, machine tool control and virtual machining. In particular, he has contributed to the mechanics and kinematics of milling; the chatter stability of milling, turning and drilling operations in frequency and time domain; the dynamics and control of high-speed feed drives; spindle dynamics; five-axis machine tool control; and simulation of part machining physics in a virtual environment. His machining process simulation and optimization algorithms are used worldwide in aerospace, machine tool, die and mold, and cutting tool industries. Altintas has trained more than 20 Ph.D. and 60 master's students.

His publications include more than 160 archival journal articles and 100 conference papers that have received over 17,850 citations (Google Scholar: h-index of 69 as of July 2016). He also authored the widely used textbook "Manufacturing Automation: Metal Cutting Mechanics, Machine Tool Vibrations, and CNC Design" (Cambridge University Press, 2000; second edition, 2012).

An ASME Fellow, Altintas has been a regular reviewer of ASME journal and conference submittals since 1987. He served as an associate editor of the *Journal of Manufacturing Science and Engineering* (1998–2002). In 2013 he received the Blackall Machine Tool and Gage Award.

Altintas is also a Fellow and the president (2016–17) of CIRP-The International Academy for Production Engineering; and a Fellow of the Society of Manufacturing Engineers (SME), the Canadian Academy of Engineering, the Royal Society of Canada, the International Society for Nanomanufacturing, and Engineers Canada.

Among his extensive list of honors, Altintas most recently received the Berlin Senate's Georg Schlesinger Production Engineering Award (2016), TÜBİTAK's (The Scientific and Technological Research Council of Turkey) Special Distinguished

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# *William T. Ennor*

## *Manufacturing Technology Award (cont.)*

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Scientist Award in Engineering and Science (2013), the NSERC Synergy Award for Innovation (Category 2: Large Companies) with P&WC (2012), SME's Albert M. Sargent Progress Award (2012), Engineers Canada's Gold Medal Award (2011) and UBC's Killam Teaching Prize in Engineering (2011).

Altintas earned his bachelor of engineering degree from Istanbul Technical University in 1975; his master's degree in mechanical engineering from the University of New Brunswick, Fredericton, in 1980; and his Ph.D. from McMaster University (Hamilton, Ontario) in 1987. He received honorary doctoral degrees from the Technical University of Stuttgart, Germany, and from Budapest University of Technology and Economics, Hungary, in 2009 and 2013, respectively. Altintas is a registered professional engineer in British Columbia.

## *Nancy DeLoye Fitzroy and Roland V. Fitzroy Medal*

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EVANGELOS TRIFON LASKARIS

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

THE NANCY DELOYE FITZROY AND ROLAND V. FITZROY MEDAL, established in 2011, recognizes pioneering contributions to the frontiers of engineering leading to a breakthrough(s) in existing technology or leading to new applications or new areas of engineering endeavor.

EVANGELOS TRIFON LASKARIS, Ph.D., chief engineer, GE Global Research Center (Niskayuna, N.Y.), *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.*

Through nearly five decades of dedicated research on superconducting magnets, Dr. Laskaris, with the support and efforts of colleagues, has been transforming groundbreaking scientific discoveries into engineering advancements in power generation and medical imaging.

Laskaris is chief engineer in diagnostics imaging and biomedical technologies at GE Global Research Center (Niskayuna, N.Y.). He joined GE Power Systems in 1967 and transferred to GE Global Research in 1973 to lead the research activities in applied superconductivity. His primary research efforts have focused on applications including large electrical machines from 20–100 MW, high-power density homopolar inductor alternators, and magnetic resonance imaging (MRI) magnets. Continued research in the area of superconducting power generation holds promise for improved efficiency and more compact designs.

Laskaris has been involved, virtually every step of the way, in developing or directing the development of the magnets at the heart of a succession of industry-leading products — from GE's first MRI system to a series of increasingly sophisticated ones,



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## *Nancy DeLoye Fitzroy and Roland V. Fitzroy Medal (cont.)*

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both open and closed, with higher and higher field strengths that are key to improved image quality. The open MRI systems have addressed the issue of claustrophobia and, more importantly, have permitted surgeons to have access to patients while they are being scanned in order to provide image-guided interventional procedures. Laskaris' technical accomplishments in this field are documented in more than 200 patents and over 60 refereed publications. His work has contributed to the success of GE's world-class MRI product line, with advanced superconducting magnets manufactured in factories around the U.S., leading to an installed base of over 10,000 magnets worldwide.

In recent years Laskaris has been leading the technology development of hermetically sealed low cryogen MRI magnets for 1.5T whole body and 3.0T head-only MRI scanners. His work is focused on advancing the technology of MRI magnets to enable their operation with a hermetically sealed charge of helium, like common refrigerators, so that they can be sited in underserved areas of the world where access to liquid cryogen is limited. The first prototype of this technology, a 3.0T head-only MRI scanner, has been operational at the Mayo Clinic (Rochester, Minn.) since March 2016.

Laskaris is a member of the National Academy of Engineering. His other honors include an IEEE Award for Continuing and Significant Contributions to the Field of Applied Superconductivity (2014); and induction into Rensselaer Polytechnic Institute's Hall of Fame (2015). Earlier he received three awards from GE Global Research: a Whitney Technical Achievement Award (1994), a Coolidge Fellowship Award (1998) and a Dushman Award (2002).

Laskaris earned his bachelor's degree in mechanical and electrical engineering from the National Technical University of Athens, Greece, in 1966. He earned his master's degree and Ph.D. in mechanical engineering from Rensselaer Polytechnic Institute (Troy, N.Y.) in 1971 and 1974, respectively.

## *Fluids Engineering Award*

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**PATRICK J. ROACHE**

*Conferred at the Fluids Engineering Division Summer Meeting,  
Washington, D.C., July 2016*

THE FLUIDS ENGINEERING AWARD was established by the ASME Fluids Engineering Division in 1968 and was presented as a division award until 1978, when it was elevated to a Society award. It is conferred upon an individual for outstanding contributions over a period of years to the engineering profession and, in particular, to the field of fluids engineering through research, practice and/or teaching.

PATRICK J. ROACHE, Ph.D., consultant, *for pioneering contributions including publishing books on computational fluid dynamics and on verification and validation, and developing the method of manufactured solutions and the grid convergence index.*

Dr. Roache's career spans nearly 50 years. Initially a research aerodynamicist (1967-73) at Sandia National Laboratories (Albuquerque, N.M.), he then spent two years as a senior scientist at Science Applications, Inc. (Albuquerque, N.M.). From 1975 to 1996 Roache was president of Ecodynamics Research Associates, Inc. (Albuquerque, N.M.). He has been an independent consultant since 1997. Throughout his career he has simultaneously held various academic positions.

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## *Fluids Engineering Award (cont.)*

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Roache specializes in computational fluid dynamics (CFD), particularly verification and validation (V&V). He is the author of groundbreaking books on these topics – “Computational Fluid Dynamics” (Hermosa Publishers, 1972), which was translated into Japanese, Russian and Chinese; and “Verification and Validation in Computational Science and Engineering” (Hermosa Publishers, 1998) – as well as subsequent updates. He co-authored a chapter, with Dr. Dominique Pelletier, for the “Handbook of Numerical Heat Transfer” (Wiley, second edition, 2006); wrote a chapter for the *Annual Review of Fluid Mechanics* (Annual Review, 1997); published more than 100 scientific papers; and has served on advisory editorial boards for several journals. Roache was heavily involved in the movement to establish journal publication standards for V&V.



His algorithm development contributions have included elliptic marching and semi-direct methods, domain decomposition, pseudospectral and multigrid methods, modified method of characteristics, and solution adaptive and variational grid generation. He and his staff at Ecodynamics were instrumental in performance assessments for the U.S. Department of Energy’s Waste Isolation Pilot Plant. With Dr. Stanly Steinberg, Roache contributed to symbolic manipulation use in CFD.

Roache’s pioneering development of the grid convergence index and the method of manufactured solutions provided widely accepted standards for code verification and solution verification, respectively. In “A Defense of Computational Physics” (self-published, 2012), he critiqued philosopher Karl Popper’s falsificationism—scientific theories cannot be proved, they can only be falsified—removing this impediment to practical model validation. Roache has been heavily involved in the V&V committees of ASME, the American Institute of Aeronautics and Astronautics (AIAA) and the American Society of Civil Engineers; and three V&V workshops held in Lisbon, Portugal (2004, 2006 and 2008).

An ASME Fellow, Roache has been a member of the V&V 20 Committee—Verification and Validation in Computational Fluid Dynamics and Heat Transfer since 2004. He previously served on the V&V 10 Committee—Verification and Validation in Computational Solid Mechanics (2000–06) and the V&V 30 Committee—Verification and Validation in Computational Simulation of Nuclear System Thermal Fluids Behavior (2010–12). Among other prior activities, he was the first associate editor for numerical methods for the *Journal of Fluids Engineering* (1985–88), a member of the CFD Technical Committee’s Subcommittee for Publication Standards (2001–04) and a member of the Fluids Engineering Division’s (FED’s) CFD Standards Committee (2004–07). He received FED’s Robert T. Knapp Award in 1994.

Roache is an Associate Fellow of AIAA; and a member of Sigma Xi, the Scientific Research Society.

His other honors include the R.T. Davis Memorial Lecture Award (1994) from the department of aerospace engineering and engineering mechanics at the University of Cincinnati and the Distinguished Alumnus Engineering Honor Award (1995) from the University of Notre Dame.

Roache earned three degrees from the University of Notre Dame, Indiana: his bachelor’s and master’s in aeronautical engineering in 1960 and 1962, respectively; and his Ph.D. in aerospace engineering in 1967.

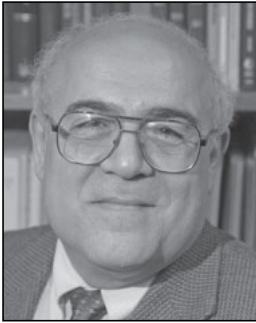
# Freeman Scholar Award

GOODARZ AHMADI

*Conferred at the Fluids Engineering Division Summer Meeting,  
Washington, D.C., July 2016*

THE FREEMAN SCHOLAR AWARD is given biennially in even-numbered years. Established in 1926, it is bestowed upon a person of wide experience in fluids engineering. The recipient is expected to review a coherent topic in his or her specialty, including a comprehensive statement of the state of the art, and suggest future research needs.

GOODARZ AHMADI, Ph.D., Clarkson distinguished professor and Robert R. Hill '48 professor of mechanical and aeronautical engineering, Clarkson University (Potsdam, N.Y.), for the paper titled "Particle Transport, Deposition and Removal - Environmental and Biological Applications."



Dr. Ahmadi has been a member of the faculty at Clarkson University (Potsdam, N.Y.) since 1982. In 2001 he was the first professor to be awarded the title of Clarkson distinguished professor. Since 2003 he is also the Robert R. Hill '48 professor of mechanical and aeronautical engineering. Among prior positions at Clarkson University, Ahmadi was chairman of the department of mechanical and aeronautical engineering (1991-94); interim vice provost for research, and associate dean of engineering for research and graduate studies (2004-05); and dean of the Coulter School of Engineering (2005-15).

Before joining Clarkson, Ahmadi was with Shiraz University, Iran (1970-81), where he advanced from assistant professor to full professor of mechanical engineering and, from 1979 to 1980, served as dean of the School of Engineering. In 1981 he was a visiting professor in the department of mechanical engineering at the University of Calgary (Alberta, Canada).

Ahmadi has published three books and nearly 600 papers in archival journals, and he has given more than 1,100 conference presentations and 150 invited presentations at various institutions. He holds four patents.

An ASME Fellow, Ahmadi has been an active participant at Society and Fluid Engineering Division (FED) conferences for the past 20 years, presenting more than 150 papers. He has also co-organized and chaired a number of FED conference sessions.

Ahmadi is the first Honorary Fellow of the Iranian Society of Mechanical Engineers. He is also a member of the American Society for Engineering Education, the American Association for Aerosol Research and InterPore.

His honors include Clarkson University's Lifetime Research Achievement Award (2015) and Phalanx' (Clarkson's highest honorary society) Commendable Leadership Award (2015) as well many instructional and advising awards; and an Omar Khayyam Plaque of Honor (2006) from Sharif University of Technology's Scientia Iranica.

Ahmadi earned his bachelor's degree in civil engineering from the University of Tehran, Iran, in 1965. He earned his master's degree in civil engineering and his Ph.D. in mechanical engineering from Purdue University (West Lafayette, Ind.) in 1968 and 1970, respectively.



# Y.C. Fung Young Investigator Award

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TRIANTAFYLLOS STYLIANOPOULOS

*Conferred at the Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, Md., June–July 2016*

THE Y.C. FUNG YOUNG INVESTIGATOR AWARD, established in 1985, recognizes a young investigator who is committed to pursuing research in bioengineering and has demonstrated significant potential to make substantial contributions to the field of bioengineering.

TRIANTAFYLLOS STYLIANOPOULOS, Ph.D., assistant professor, University of Cyprus, Nicosia, *for outstanding research on the fluid and solid mechanics of tumors and on the design of novel drug delivery systems to enhance therapy; and for educating and mentoring students, and contributing to the profession through service activities.*

Dr. Stylianopoulos is an assistant professor of mechanical engineering and the head of the Cancer Biophysics Laboratory at the University of Cyprus, Nicosia. Prior to joining the university in 2010, he performed his postdoctoral training with Dr. Rakesh K. Jain at the department of radiation oncology at Harvard Medical School and Massachusetts General Hospital, Boston (2008–10).

Stylianopoulos has secured more than \$2.4 million in research funding, mainly from the European Commission, including a highly selective \$1.6 million starting grant from the European Research Council. His research focuses on the development of therapeutic strategies to re-engineer solid tumors in order to improve therapy, mathematical modeling of the fluid and solid mechanics of cancer, investigation of specific genes that are related to cancer metastasis in relation to tumor stiffness, and response of stromal cells to mechanical stimuli. Stylianopoulos currently supervises five senior scientists and postdoctoral fellows, five Ph.D. students and a master's student.

He has co-authored 50 peer-reviewed articles in the fields of biomechanics, drug delivery, cancer nanomedicine and tumor microenvironment; and has served as a reviewer for numerous scientific journals. He holds one patent.

An ASME member, Stylianopoulos is also a member of the Biomedical Engineering Society (BMES), the European Society of Biomechanics and the European Foundation for Clinical Nanomedicine (CLINAM).

His honors include a Young Investigator Award from the Research Promotion Foundation of Cyprus (2014) and a Most Cited Paper Award from BMES's *Annals of Biomedical Engineering* (2014).

Stylianopoulos earned a diploma in chemical engineering from the National Technical University of Athens, Greece, in 2003. Working with Dr. Victor H. Barocas, he earned his Ph.D. in chemical engineering from the University of Minnesota, Minneapolis, in 2008.



# Gas Turbine Award

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**ROBERT P. GREWE**  
**ROBERT J. MILLER**  
**HOWARD P. HODSON**

*Conferred at ASME Turbo Expo,  
Seoul, South Korea, June 2016*

THE GAS TURBINE AWARD was established in 1963 by the Gas Turbine Division, now the International Gas Turbine Institute (IGTI). The award recognizes outstanding contributions to the literature of combustion gas turbines or gas turbines thermally combined with nuclear or steam power plants.

ROBERT P. GREWE, Dr.-Ing., aerodynamic specialist, Siemens, Power and Gas Division (Muelheim an der Ruhr, Germany); ROBERT J. MILLER, D.Phil., professor of aerothermal technology, University of Cambridge, U.K.; and HOWARD P. HODSON, Ph.D., for the paper titled *“The Effect of Endwall Manufacturing Variations on Turbine Performance.”*



Dr. Grewe earned his diploma in aerospace, aeronautical and astronautical/space engineering from Technical University of Berlin in 2007. After more than two years as a development engineer in the department for compressor aerodynamics at Rolls-Royce Deutschland GmbH, Grewe began pursuing his doctoral degree at the University of Cambridge, U.K. His thesis was on the effect of endwall manufacturing variations on turbine performance.

Following submission of his thesis in December 2013, Grewe remained at the University of Cambridge as a postdoctoral research associate and worked on low pressure ratio fan stability predictions for high bypass ratio aero engines.

Since March 2015 Grewe has been an aerodynamic specialist at Siemens' Power and Gas Division (Muelheim an der Ruhr, Germany), where he focuses on aerodynamic methods.



Dr. Miller earned his master's degree and D.Phil. at St. Catherine's College, Oxford University, U.K., in 1993 and 1997, respectively. His D.Phil., supervised by Dr. Roger Ainsworth and sponsored by Rolls-Royce, was on the subject of transonic turbine blade row interaction. Miller continued his close collaboration with Rolls-Royce as a Spooner junior research fellow at New College, Oxford. He was subsequently appointed lecturer in turbomachinery (2001-09) and reader in energy technology (2009-13) at the University of Cambridge, U.K.; and to a fellowship at Gonville and Caius College, Cambridge (2002-present).

Miller is currently professor of aerothermal technology at the University of Cambridge and the director of the Rolls-Royce University Technology Centre at

Cambridge's Whittle Laboratory. His research covers a wide range of flows in aero engines, gas turbines, tidal turbines and domestic appliances. He works extensively with industry, presently undertaking collaborative research projects with Rolls-Royce, Mitsubishi, Siemens and Dyson.

A member of ASME IGTI's Turbomachinery Committee, Miller was vanguard chair of Unsteady Flows (2004) and served as review organizer and session chair (2004-11).

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## Gas Turbine Award (cont.)

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He received ASME's Gas Turbine Award in 2010, and Best Paper awards from IGIT's Heat Transfer Committee (2005) and Turbomachinery Committee (2007, 2008, 2010 and 2014).

Among his other honors, Miller received the Institution of Mechanical Engineers' Thomas Hawksley Gold Medal (2010) and an American Institute of Aeronautics and Astronautics' Air Breathing Propulsion Best Paper Award (2008).

After earning his bachelor's degree in engineering with first class honors in 1978 and his master's degree in 1981, Dr. Hodson continued his education at the University of Cambridge, U.K., and earned his Ph.D. in turbomachinery in 1983. He continued to work at Cambridge's Whittle Laboratory, where he became a professor of aerothermal technology in 2000 and director in 2005. Hodson retired from the position of chair of aerothermal technology in 2012.



His main interests have been in turbine aerodynamics and heat transfer. His research included studies of unsteady flow effects, laminar-turbulent transition in low pressure turbines, the impact of real geometric features on performance and the development of sensors for gas turbines; and extended from laboratory-scale to full-scale engines and often combined experimental and computational studies.

Hodson has published more than 100 journal papers and holds several patents.

An ASME Fellow, Hodson has served as vice chair (2003–05) and chair (2005–07) of ASME IGIT's Turbomachinery Committee and recently served on the board of IGIT (2011–15). He was technical program chair, review co-chair/chair and conference chair for Turbo Expo in 2009, 2012/2013 and 2014, respectively. He received ASME's Gas Turbine Award in 1984 and Melville Medal in 1998, and Best Paper awards from IGIT's Heat Transfer Committee (1995, 2007 and 2011) and Turbomachinery Committee (1998, 2003 and 2015).

Hodson is also a Fellow of the Royal Academy of Engineering.

## Kate Gleason Award

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HELEN LOUISE REED

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

THE KATE GLEASON AWARD, established in 2011, recognizes a female engineer who is a highly successful entrepreneur in a field of engineering or who has had a lifetime of achievement in the engineering profession. The award honors the legacy of Kate Gleason, the first woman to be welcomed into ASME as a full member.

HELEN LOUISE REED, P.E., Ph.D., professor, Texas A&M University, College Station, *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.*

Dr. Reed is widely regarded as an expert in hypersonics, energy efficient aircraft and small satellite design. She joined the Texas A&M University, College Station, faculty in 2004 and served as head of the department of aerospace engineering for four

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## Kate Gleason Award (cont.)

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years before returning to full-time teaching and research. Reed holds the titles of regents professor, presidential professor for teaching excellence, and holder of the Edward "Pete" Aldridge '60 professorship. She is also co-founder, board member and chief technology officer for Chandah Space Technologies (Sugar Land, Texas), a commercial-space company specializing in on-orbit inspection capabilities.

Prior to joining Texas A&M, Reed was with Arizona State University, Tempe (1985–2004). She also held positions at Tohoku University (Sendai, Japan); Stanford University, California; Sandia National Laboratories (Albuquerque, N.M.); and the NASA Langley Research Center (Hampton, Va.).

Reed has 39 years of experience in physics-based understanding of the receptivity, stability and transition of boundary layers, enabling for high-altitude long-endurance unmanned vehicles, transports, and hypersonic trans-atmospheric vehicles. As lead computationalist, she has teamed with experimentalists throughout her career to achieve closure between theory and experiment, mature drag-reducing technologies, and advance modeling for 3-D configurations. In parallel, over the past 23 years she has pioneered important contributions to engineering education through her small-satellite design/build/fly programs, first at Arizona State (ASUSat Lab) and then at Texas A&M (AggieSat Lab). Her programs are rigorous in project management and systems engineering, and her students must develop, design and build as much of the project as possible from scratch. Reed and her students have completed four major missions and teamed on two others, all launched. Of further note, her Three Corner Sat team was selected as the first winner of the University Nanosat Program, established in 1999 by the Air Force Research Laboratory and the Air Force Office of Scientific Research.

Reed has delivered many invited talks and lectures. She served as associate editor of the *Annual Review of Fluid Mechanics* (1986–2000), and she was the originator (in 1983) of the Gallery of Fluid Motions at annual meetings of the American Physical Society's (APS) Division of Fluid Dynamics.

An ASME Fellow, Reed was a member (1984–96) of the Applied Mechanics Division's (AMD) Fluid Mechanics Technical Committee and served as chair (1993–96). She was vice chair (1987–88) and chair (1989–93) of AMD's Junior Awards Committee; and was the Society's AMD liaison (1984–89) on the American Institute of Aeronautics and Astronautics' (AIAA) Technical Committee on Fluid Dynamics.

Reed is also a Fellow of AIAA and APS; and a member of the American Astronautical Society, the American Society for Engineering Education (ASEE) and the United States Geospatial Intelligence Foundation. Since 2013 Reed has been leading a sub-group for NATO's Technical Team (AVT ET 136) for Hypersonic Boundary Layer Transition Prediction, and serving as chair of the AIAA Transition Discussion Group. She has been a consultant to the Institute for Defense Analysis since 2014, and has been serving on the National Academies' Intelligence Science and Technology Experts Group since 2015. Previously she served on the National Academies' Aeronautics and Space Engineering Board (2011–15); and, from 1994 to 2001, she served on various NASA Headquarters Aeronautics Advisory committees, subcommittees, and task forces including the Federal Laboratory Review. She was the first woman member of the NATO/AGARD (Advisory Group for Aerospace Research and Development) Fluid Dynamics Panel (1995–97).

Among her other honors, Reed received the J. Leland "Lee" Atwood Award (2007) from AIAA and ASEE; an Applied Aerodynamics Best Paper award (2013) from AIAA; a Faculty Award for Women in Science and Engineering (1991) and a Presidential Young Investigator Award (1984–inaugural year) from the National Science Founda-

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## Kate Gleason Award (cont.)

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tion; and an Outstanding Achievement Award (1978) from the NASA Langley Research Center. She has received numerous awards for distinguished teaching at Arizona State and Texas A&M including being named a Minnie Stevens Piper Professor in the state of Texas (2014); and she was inducted into Virginia Tech's Academy of Engineering Excellence (2008).

Reed earned her bachelor's degree in mathematics from Goucher College, Baltimore, in 1977. She earned her master's degree and Ph.D. in engineering mechanics from Virginia Polytechnic Institute and State University, Blacksburg, in 1980 and 1981, respectively. Reed is a registered professional engineer in Texas.

## Melvin R. Green Codes and Standards Medal

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**BERNARD E. HRUBALA**

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

THE MELVIN R. GREEN CODES AND STANDARDS MEDAL recognizes outstanding contributions to the development, promulgation or management of documents, objects or devices used in ASME programs of technical codification, standardization and conformity assessment; or the acceptance of ASME codes and standards within the United States or internationally. This medal was established in 1976 as the Codes and Standards Medal and renamed in 1996 to honor the memory and extraordinary contributions of Melvin R. Green, an ardent supporter of industrial standards. He was an ASME Fellow and longtime employee of the Society.

BERNARD E. HRUBALA, global business development manager, pressure equipment certification, TÜV Rheinland AIA Services, LLC, Houston, *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.*

Mr. Hrubala has 39 years of extensive experience in the pressure equipment industry in areas including international conformity assessment, ASME codes and standards compliance, jurisdictional requirements, inspection and auditing. He is currently the global business development manager for pressure equipment certification at TÜV Rheinland AIA Services, LLC in Houston. He was recently manager, pressure equipment and plant technologies (2004-16) at TÜV Rheinland Industrial Solutions (Caledonia, Mich.). Hrubala has been with TÜV Rheinland – a world-renowned global provider of technical services for testing, inspection, certification, consultation and training to ensure safety, quality and economic efficiency – since 2002.

Previously Hrubala was managing director of alliance services (2000-02) for General Electric's Industrial Risk Insurers (Hartford, Conn.), where he was responsible for developing new services and managing relationships with alliance partners across GE. He spent 23 years (1977-2000) with The Hartford Steam Boiler Inspection and Insurance Company, (Hartford, Conn.), the oldest and largest ASME authorized inspection agency, where he initially was a boiler and



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## Melvin R. Green Codes and Standards Medal (cont.)

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pressure vessel inservice, claims and risk assessment inspector; and an authorized inspector performing third-party inspections for ASME authorized manufactures to ensure ASME code compliance. For nearly a decade he was responsible for delivering customer-focused, high-quality services for inspection and conformity assessment certification for codes and standards. Hrubala subsequently assumed the position of director of engineering consulting services, and was responsible for cross-operational activities and for identifying opportunities to combine resources to deliver seamless risk-based service solutions.

An ASME Fellow, Hrubala has made enormous contributions to Standards and Certification over the last 39 years. He has participated on a wide range of ASME committees – from Pressure Vessels for Human Occupancy, and Boiler and Pressure Vessel Code (BPVC) to Safety Codes and Standards, and Conformity Assessment. Over the last two decades, he has traveled around the globe with ASME staff and volunteer leaders to promote the Society’s Conformity Assessment programs and global acceptance of its codes and standards. Among his ASME leadership positions, Hrubala was vice president, Board on Conformity Assessment (1997–2000); vice president, Safety Codes and Standards (2000–03); senior vice president, Standards and Certification (2008–11); and governor (2012–15). He oversaw the implementation of several key initiatives including the realignment of the 95-year-old BPVC organization; the elimination of the codes and standards addenda subscription service, with a resultant two-year edition cycle for the BPVC; the use of a single mark for equipment under the conformity assessment program now that ASME codes and standards are accepted in more than 100 countries, thus replacing the 22 specific marks that had been an inherent feature since 1920; and the expansion of authorized inspection agency eligibility to better support the global growth of the Society’s Conformity Assessment programs.

Hrubala’s article titled “Codes to Live By” was published in the June 2009 issue of *Mechanical Engineering* magazine, which commemorated the 125th anniversary of ASME Codes and Standards. He gave a keynote presentation titled “ASME Boiler and Pressure Vessel Code System: Now and Beyond” at the 79th General Meeting (2010) of The National Board of Boiler and Pressure Vessel Inspectors, and another titled “ASME’s Impact on Global Safety” at the National Board’s 84th General Meeting (2015). Hrubala is currently assisting several state departments and jurisdictional authorities on proposed legislative changes so they are consistent with current procedures and practices under ASME Qualifications for Authorized Inspection (QAI-1-2016). He received a Dedicated Service Award from ASME in 2004.

Hrubala has been an active member of The National Board of Boiler and Pressure Vessel Inspectors since 1983. He is qualified as an ASME authorized nuclear inspector supervisor, and a European Union notified body inspector and auditor; and approved as a boiler, pressure vessel and nuclear inspector by the South African National Accreditation System, and as an inspector by Japan’s Ministry of Health, Labour and Welfare.

Hrubala earned his bachelor’s and master’s degrees in education from Eastern Kentucky University, Richmond, in 1974 and 1975, respectively.

# Heat Transfer Memorial Awards

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BRENT W. WEBB – SCIENCE  
RAJ M. MANGLIK – ART  
JAYATHI Y. MURTHY – GENERAL

*Conferral at the Heat Transfer Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE HEAT TRANSFER MEMORIAL AWARD was established in 1959 by the Heat Transfer Division. In 1974, it was elevated to a Society award recognizing outstanding contributions to the field of heat transfer through teaching, research, practice and design, or a combination of such activities.

## SCIENCE

BRENT W. WEBB, Ph.D., academic vice president and professor of mechanical engineering, Brigham Young University (Provo, Utah), *for outstanding research contributions in the field of gas radiation, jet impingement and microscale convection; for developing methods that have significantly affected the practice of gas radiation modeling; and for teaching the foundational principles of heat transfer to more than 2,100 students.*

Dr. Webb has been a member of the mechanical engineering faculty at Brigham Young University (Provo, Utah) since 1986 and was appointed professor in 1996. He has taught courses on thermodynamics, heat transfer, numerical methods in heat transfer and fluid flow, and advanced radiation heat transfer. Through these courses, more than 2,100 students learned the underlying principles that are fundamental to heat transfer.

Webb has spent nearly half of his career in university administration, serving as executive director of the Office of Research and Creative Activities (1996–99); as associate academic vice president for research and graduate studies (2005–11); and, since 2011, as academic vice president.

He has conducted research in free-surface liquid jet impingement heat transfer, microscale convection and radiation heat transfer. The spectral line weighted-sum-of-gray-gases (SLW) model developed in his laboratory for predicting radiation transfer in high-temperature gases has been widely adopted. He has been a research advisor for 30 master's and 12 Ph.D. students, and three post-doctoral fellows; and has been principal/co-principal investigator for over \$6 million in research activity.

Webb is the author/co-author of more than 220 technical papers (120 archival); and his work has been cited over 6,500 times (Google Scholar). He serves as associate technical editor of the *Journal of Quantitative Spectroscopy and Radiative Transfer*. He has also been active in the technical community, organizing a number of national and international conferences and symposia.

A Fellow of ASME, Webb has served on the editorial board of *Heat Transfer–Recent Contents* and as associate technical editor of the *Journal of Heat Transfer* (1994–97), and was a member of the K-16 Committee on Heat Transfer in Electronic Equipment (1990–98) and the K-6 Committee on Heat Transfer in Energy Systems (2004–14).

Webb is a member of the International Centre for Heat and Mass Transfer's Scientific Council, and has been active in the American Institute of Aeronautics and Astronautics, and The Combustion Institute.

Webb earned three degrees in mechanical engineering: his bachelor's and master's from Brigham Young University in 1981 and 1982, respectively; and his Ph.D. from Purdue University (West Lafayette, Ind.) in 1986. He was honored with an Outstanding Mechanical Engineer Award from Purdue's School of Mechanical Engineering in 2014.

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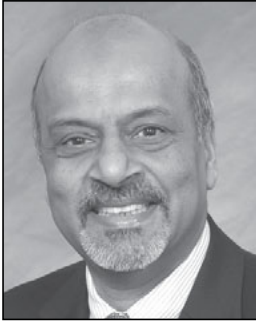


## Heat Transfer Memorial Awards (cont.)

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### ART

RAJ M. MANGLIK, Ph.D., professor of mechanical engineering, University of Cincinnati, for the pioneering and seminal advancement of the science and engineering of interfacial transport phenomena, boiling, thermal processing of non-Newtonian media, enhanced heat transfer and microscale compact heat exchangers, leading to transformative contributions to archival literature as well as engineering design practice.



Dr. Manglik joined the faculty at the University of Cincinnati in 1991 and is currently a professor of mechanical engineering and the director of the Thermal-Fluids and Thermal Processing Laboratory. He is internationally recognized for his seminal and transformative contributions in heat transfer, thermal processing and complex heat exchange systems. His achievements have had a lasting impact on advanced engineering science research, design optimization in emerging applications and the development of novel thermal devices. Manglik is a world-renowned specialist in enhanced heat transfer, nucleate boiling and bubble dynamics, interfacial phenomena and molecular transport in colloidal systems, non-Newtonian thermal processing and energy systems. He has obtained nearly

\$8.5 million in funding from various highly competitive sponsors.

Manglik has produced more than 250 publications including books, monographs, book chapters, archival papers and technical reports. He is the co-author of the classical and acclaimed textbook titled "Principles of Heat Transfer" (Cengage) as well as several other highly referenced texts and monographs. He serves as the editor-in-chief of the *Journal of Enhanced Heat Transfer* (was editor since 1994 inception). Previously he was technical editor of the "Heat Transfer and Fluid Flow Data Books" (Genium Publishing, continually updated) and a member of the editorial board for the *International Journal of Heat Exchangers*.

An ASME Fellow, Manglik serves on the Heat Transfer Division's (HTD) Executive Committee (2014–20). He previously served the HTD as chair of the K-10 Committee on Heat Transfer Equipment (2013–16), member of the K-2 Committee on Long-Range Planning (2011–15) and associate editor of the *Journal of Heat Transfer* (2003–06; 2006–09). Manglik was also ASME's chair for the 10th International ISHMT (Indian Society for Heat and Mass Transfer)–ASME Heat and Mass Transfer Conference (2011) and the HTD chair for the Summer Heat Transfer Conference/Fluids Engineering Division Summer Conference (2004); and he has served in various capacities over the years for the International Mechanical Engineering Congress and Exposition and the Summer Heat Transfer Conference. He received the Society's Melville Medal in 2006 and the HTD's 75th Anniversary Medal in 2013.

Manglik is a senior member of the American Institute of Chemical Engineers and a member of ASHRAE; Sigma Xi, the Scientific Research Society; and Tau Beta Pi, the Engineering Honor Society.

Among his many other honors, Manglik received the University of Cincinnati's Faculty Achievement Award (1995) and the College of Engineering's Professor of the Year award (1993) and Neil Wandmacher Teaching Award (2001); and the National Science Foundation CAREER Award (1995).

Manglik earned three degrees in mechanical engineering: his bachelor of technology from the Indian Institute of Technology, Madras in 1976; his master's from Iowa State University, Ames, in 1986; and his Ph.D. from Rensselaer Polytechnic Institute (Troy, N.Y.) in 1991.

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# Heat Transfer Memorial Awards (cont.)

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## GENERAL

JAYATHI Y. MURTHY, Ph.D., dean, Henry Samueli School of Engineering and Applied Science, University of California, Los Angeles, *for significant contributions to the development of advanced computational techniques for flow, heat and mass transfer across scales; and the translation of these techniques into software that has transformed industrial practice and enhanced the understanding of heat transfer in emerging technologies.*

Dr. Murthy became dean of the Henry Samueli School of Engineering and Applied Science at the University of California, Los Angeles on January 1, 2016.

Her prior experience includes positions in both industry and academia. She began her career at Arizona State University, Tempe (1984–88) before becoming one of the earliest employees (1988–98) at Fluent Inc, a leading vendor of commercial computational fluid dynamics software. At Fluent, she developed the unstructured solution-adaptive finite volume methods underlying Fluent, its flagship software; and Icepak, the electronics cooling software package. Murthy was a member of the faculty at Carnegie Mellon University, Pittsburgh (1998–2001) and Purdue University in West Lafayette, Ind. (2001–11); and, immediately prior to her current appointment, was chair of the mechanical engineering department at The University of Texas at Austin (2012–15). She also served as director of PRISM (2008–14), a large National Nuclear Security Administration-funded center dedicated to uncertainty quantification in microsystems.



Murthy's area of expertise is in computational fluid dynamics and heat transfer. Her recent research has addressed sub-micron thermal transport, multiscale multiphysics simulations of microelectromechanical systems and nanoelectromechanical systems, and uncertainty quantifications in these systems.

She has served on numerous national committees and panels on heat transfer, and has authored/co-authored more than 280 technical publications.

An ASME Fellow, Murthy serves on the Heat Transfer Division's (HTD) K-16 Committee on Heat Transfer in Electronic Equipment and K-20 Committee on Computational Heat Transfer. Previously she served as associate editor of the *Journal of Heat Transfer*; and she has chaired numerous technical sessions and tracks, and participated in numerous panels at the Summer Heat Transfer Conference, InterPACK (International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems) and the International Mechanical Engineering Congress and Exposition. In 2009 she received the Women in Engineering Award from the Electronic and Photonic Packaging Division (EPPD); and she received the K16 Clock Award from the K-16 Committee on Heat Transfer in Electronic Equipment, a joint committee of the HTD and EPPD, in 2012. She also received three Best Paper awards and a Best Poster Award.

Murthy is a member of the American Society for Engineering Education.

Her other honors include a National Science Talent Scholarship from the government of India (1974–79); a University of Minnesota Graduate School fellowship (1981) and Outstanding Teaching Award (1984); IBM Faculty Partnership awards (2003, 2004 and 2005); Purdue University's Acorn awards (2006–2011), Team Excellence Award (2009) and Hawkins Memorial Lecture award (2013); and a Distinguished Alumnus Award from the Indian Institute of Technology, Kanpur (2012).

Murthy earned three degrees in mechanical engineering: her bachelor of technology from the Indian Institute of Technology, Kanpur in 1979; her master's from Washington State University, Pullman, in 1981; and her Ph.D. in the area of numerical heat transfer from the University of Minnesota, Minneapolis, in 1984.

# Mayo D. Hersey Award

IZHAK ETSION

*Conferred at the STLE Tribology Frontiers Conference,  
Chicago, November 2016*

THE MAYO D. HERSEY AWARD, established in 1965, is bestowed for distinguished and continued contributions over a substantial period of time to the advancement of the science and engineering of tribology. Distinguished contributions may result from significant original research in one or more of the many scientific disciplines related to lubrication.

IZHAK ETSION, D.Sc., professor emeritus, Technion-Israel Institute of Technology, Haifa, *for distinguished contributions to the fields of tribology, contact mechanics and lubrication including the creation of groundbreaking elastic-plastic contact models and pioneering research on surface texturing for hydrodynamic lubrication.*



Dr. Etsion earned his bachelor's degree, master's degree and D.Sc. in aeronautical engineering from Technion-Israel Institute of Technology, Haifa, in 1964, 1971 and 1974, respectively. After receiving his doctoral degree he joined the faculty in Technion's department of mechanical engineering. Etsion has served in various capacities, from professor to Yeschayahu Winograd chair in fluid mechanics and heat transfer; has held a number of guest appointments; and has been head of the Shamban Tribology Laboratory since 1991. Since 2010 he is professor emeritus.

In the early years of his academic career Etsion's research focused on fluid mechanics aspects of tribology. He developed original solutions for gas bearings and made pioneering contributions in the area of mechanical seal dynamics. He then started to study solid mechanics aspects of tribology and made some breakthrough contributions in modeling contact, adhesion, and static friction of rough surfaces. In 1996 Etsion invented laser surface texturing, which is now recognized worldwide as a promising technology for energy conservation. He also made original contributions in micro/nano tribology and in biotribology. His current research focus is on modeling of coated rough surfaces with the aim of optimizing coating thickness for best tribological performance.

Etsion has supervised more than 50 graduate students as well as scientists from the former USSR that immigrated to Israel, and he has collaborated with scientists from many nations.

He is the author/co-author of more than 200 scientific archival publications (h-index of 41 as of July 2016) and the inventor/co-inventor on 15 patents.

An ASME Fellow, Etsion has served the Tribology Division as associate editor of the *Journal of Tribology* (1990-96), member (1994-2000) and secretary (1999-2000) of the Executive Committee, chair of the International Coordination Committee (1996-98), and member (2000-03) and chair (2002-03) of the Nomination and Oversight Committee. He received the Tribology Division's Innovative Research Award in 2005 and K.L. Johnson Best Paper Award in 2008.

Etsion is also a Fellow of the Society of Tribologists and Lubrication Engineers (STLE) and a member of the Israel Society for Tribology.

His honors include Technion's D.D. Ben-Aharon Research Prize (1984), H. Gutwirth Research Award (1989), Hershel Rich Technion Innovation Award (1999) and Sanford Kaplan Prize in Creative Management for 21st Century High Technology (2004); the Fluid Sealing Research Award (1991) from STLE's Seals Technical Committee; the Romanian Academy's Traian Vuia Prize (1998); and STLE's International Award (2005).

# Patrick J. Higgins Medal

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FRANK BAKOS

*Conferred at the ASME Y14 Standards Committee Meeting,  
Seattle, May 2016*

THE PATRICK J. HIGGINS MEDAL recognizes an individual who has contributed to the enhancement of standardization through contributions to the development and promotion of ASME codes and standards or Conformity Assessment programs. It was established in 2007 in remembrance of ASME's past vice president of the standardization department.

FRANK BAKOS, president, Frank Bakos Associates (Maryville, Tenn.), *for outstanding dedication and effectiveness in developing and promoting a broad range of standards spanning geometric dimensioning and tolerancing, and engineering specifications; and for consensus building leadership to align national and international standards development in these areas.*

Following graduation from a vocational high school's machine shop program, Mr. Bakos accepted an apprenticeship at Eastman Kodak Company (Rochester, N.Y.). Upon completion of the company's training program, he attended college and earned two degrees in education. Bakos worked briefly as a drafter and then spent four years as a machine shop instructor before returning to Eastman Kodak Company in 1981. Initially assigned to Kodak's machine shop, he subsequently transferred to the engineering division and became a geometric dimensioning and tolerancing (GD&T) specialist. In 1988 Bakos started his own consulting firm, Frank Bakos Associates (Maryville, Tenn.), where he serves as president.



An active member of ASME, Bakos has been a member of the Society's Y14.5 Subcommittee on Dimensioning and Tolerancing since 1983 and served as chair of the Y14.5.2 Subcommittee on Certification from 1989 to 2005. He was elected vice chair and chair of the Y14 Standards Committee—Engineering Product Definition and Related Documentation Practices in 1990 and 1993, respectively; and he served as chair of the committee for more than 20 years. Bakos also has served on Special Committee H213 on Harmonization of Dimensional and Geometrical Product Specifications and Verification (1998-2003; 2007–present). He received a Certificate of Acclamation for his Y14.5 efforts in 2009.

Bakos earned his bachelor's degree in industrial arts education from the State University of New York at Oswego in 1973. In 1978 he earned his master's degree in vocational education from the State University of New York at Buffalo. He is a certified senior-level GD&T professional.

# Soichiro Honda Medal

BAHRAM KHALIGHI

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE SOICHIRO HONDA MEDAL recognizes an individual for an outstanding achievement or a series of significant engineering contributions in developing improvements in the field of personal transportation. This medal was established in 1983 in recognition of Soichiro Honda's exemplary achievements in the field of personal transportation.

BAHRAM KHALIGHI, Ph.D., manager and technical fellow, General Motors Global Research & Development (Warren, Mich.), *for career efforts that have produced impactful innovations and inventions in the areas of automotive vehicle aerodynamics, thermal management, fluid flows, engine flows and combustion.*



Dr. Khalighi is a manager and technical fellow in the Vehicle Systems Research Laboratory at General Motors Global Research & Development (Warren, Mich.), where he is responsible for fundamental research and technology innovation. In his managerial role, Khalighi serves as principal strategist and project manager, directing professional researchers and international research collaborations focused on the development of impactful scientific innovations related to ground vehicles.

Since he joined GM in 1984, Khalighi has been conducting basic and applied research in the areas of vehicle aerodynamics, aero-acoustics, lithium-ion battery thermal management, passenger thermal comfort, engine flows, engine combustion, and the environmental impact of alternative refrigerants. He has also taught several thermal/fluids classes for the mechanical engineering departments at Lawrence Technological University (Southfield, Mich.) and Oakland University (Rochester, Mich.).

He has authored/co-authored more than 100 refereed journal articles and conference proceedings papers. Khalighi has been a member of the editorial board of the *International Journal of Aerodynamics* since 2010. Previously he was an associate editor for *Experimental Techniques* (2010–15) and the *Journal of Flow Visualization and Image Processing* (2003–06); a member of the editorial board for the *International Journal of Aerodynamics* (2010–16); and advisory editor for the *Journal of Visualization* (2005–08).

Khalighi currently holds 18 U.S. patents, with others pending, that cover various automotive-related technologies including vehicle aerodynamics, thermal management, and engine flow and combustion.

An ASME Fellow, Khalighi has served the Fluids Engineering Division (FED) as chair (2015) and treasurer (2011–16) of the Executive Committee; conference program chair for the 2014 FED Summer Meeting; and chair of the Fluid Measurement Technical Committee (1997–99). He was lead organizer for various symposiums and forums every year since 1990. For the Southeastern Michigan Section, Khalighi was newsletter editor and a member of the Executive Committee (1989–93).

His honors include the Society for Experimental Mechanics' D.R. Harting Award (2016), GM's Charles L. McCuen Special Achievement Award (2008), and SAE International's Forest R. McFarland Award (2006) and Excellence in Oral Presentation Award (1988).

Khalighi earned three degrees in mechanical engineering: his bachelor's degree from Sharif University of Technology (Tehran, Iran) in 1977; and his master's degree and Ph.D. from the University of Iowa, Iowa City, in 1980 and 1983, respectively.

# Internal Combustion Engine Award

TERRENCE F. ALGER II

*Conferred at the Internal Combustion Engine Fall Technical Conference,  
Greenville, S.C., October 2016*

THE INTERNAL COMBUSTION ENGINE AWARD, established in 1966, is given in recognition of eminent achievement or distinguished contribution over a substantial period of time, which may result from research, innovation or education in advancing the art of engineering in the field of internal combustion engines.

TERRENCE F. ALGER II, Ph.D., director, spark ignited engine research and development department, Engine, Emissions and Vehicle Research Division, Southwest Research Institute, San Antonio, *for exceptional technical and business leadership that has led to multiple innovations in internal combustion engine technologies and the transition of these innovations to production engines for significant real-world impact on vehicle fuel economy.*

Dr. Alger graduated from the U.S. Military Academy (West Point, N.Y.) as a distinguished cadet with a bachelor's degree in mechanical engineering in 1992 and was commissioned as a second lieutenant in the U.S. Army Corps of Engineers. During his five years in the Army, Alger served as a platoon leader and task force engineer for an airborne battalion combat team.

Following his Army service, Alger attended The University of Texas at Austin, where he earned a master's degree and his Ph.D. in mechanical engineering in 1999 and 2001, respectively. His master's thesis and doctoral dissertation focused on optical investigations in a gasoline direct injection engine to determine the effect of flow fields and other engine parameters on fuel/air mixing, emissions and performance. Following completion of his Ph.D., Alger worked at Ford Motor Company (Dearborn, Mich.), where he was involved in supporting numerous development projects using optical diagnostics.

Alger joined Southwest Research Institute, San Antonio, in 2003. Since 2014 he has been the director of spark ignited engine research and development in the Engine, Emissions and Vehicle Research Division. His focus is on improving engine efficiency and emissions through in-cylinder combustion processes and advanced engine technologies. He is co-inventor of the dual coil offset (DCO) ignition system and the dedicated exhaust gas recirculation (D-EGR) engine. In addition to developing more efficient gasoline engines, Alger's current research interests include ignition systems, abnormal combustion in gasoline engines, and boosting systems and fluids (fuels and lubricants) for advanced combustion concepts.

Alger holds 20 patents and has published more than 50 papers on topics covering engine efficiency and emissions.

He is a member of ASME and a Fellow of SAE International.

Alger's honors include the U.S. Military Academy's Brig. Gen. Clifton C. Carter Award for Excellence in Mechanical Engineering (1992); the Daughters of the American Revolution Medal (1992); National Science Foundation and National Defense Science and Engineering fellowships (1998); SAE's Myers Award for Outstanding Student Paper (2001), Lloyd L. Withrow Distinguished Speaker awards (2007, 2013), Forest R. McFarland Award (2011), Henry L. Horning Memorial Award (2012) and nine Outstanding Oral Presentation awards (2005–15); and *R&D Magazine's* R&D 100 awards for the DCO ignition system (2011) and D-EGR engine (2014).

In addition to his three degrees in mechanical engineering, Alger earned a master's degree in business administration from The University of Texas at San Antonio in 2008.



# Warner T. Koiter Medal

PEDRO PONTE-CASTAÑEDA

*Conferral at the Applied Mechanics Dinner,  
2016 International Mechanical Engineering Congress and Exposition*

THE WARNER T. KOITER MEDAL was established in 1996 to recognize distinguished contributions to the field of solid mechanics with special emphasis on the effective blending of theoretical and applied elements, and on a high degree of leadership in the international solid mechanics community.

The medal honors Dr. Warner T. Koiter, world-renowned authority in the field of solid mechanics, and it commemorates his vast contributions as research engineer and teacher.

PEDRO PONTE-CASTAÑEDA, Ph.D., professor and Raymond S. Markowitz faculty fellow, University of Pennsylvania, Philadelphia, *for distinguished contributions as a world leader in the development of theoretical tools, with practical importance, for the analysis of the nonlinear response of composite materials.*



Dr. Ponte-Castañeda has been a member of the faculty at the University of Pennsylvania, Philadelphia, since 1990. He is currently Raymond S. Markowitz faculty fellow and a professor in the department of mechanical engineering and applied mechanics, and a member of the graduate group in applied mathematics and computational science.

Prior to joining Penn, Ponte-Castañeda was assistant professor of mechanical engineering at the Johns Hopkins University, Baltimore (1987–90). Earlier, he was a research officer in the School of Mathematical Sciences at the University of Bath, U.K. (1986–87).

Ponte-Castañeda has held visiting positions at the CNRS's (National Center for Scientific Research) Laboratory of Mechanics and Acoustics in Marseilles, France (1993 and 2008); the Laboratory of Solid Mechanics at École Polytechnique in Paris (1994 and 2001); the department of applied mathematics and theoretical physics at the University of Cambridge, U.K. (1994); Corpus Christi College in the University of Cambridge (1994); and the Institute of Applied Mechanics at the University of Stuttgart, Germany (2014–15). He was a professor of mechanics at the École Polytechnique (2004–08; part time 2006–08).

His research is focused on the development of nonlinear homogenization methods and on their use to generate constitutive models for metal-matrix composites, porous materials, fissured media, reinforced and porous rubbers, polycrystalline ice and other geo-materials, magneto- and electro-active elastomers and suspensions of deformable particles in fluids, as well as on models for microstructure evolution and its effect on the macroscopic stability in these systems. He has been an advisor for more than 25 Ph.D. students and postdoctoral researchers, several of whom are now faculty members at universities around the world.

Ponte-Castañeda is currently associate editor of the *Journal of Mechanics and Physics of Solids*, the *Journal of Elasticity* and *Comptes Rendus Mécanique*. He has published more than 135 papers on the mechanics and physics of heterogeneous material systems in archival journals. In addition, he has written lecture notes (École Polytechnique) on heterogeneous materials and served as co-editor of a NATO Science Series volume on "Nonlinear Homogenization and its Applications to Composites, Polycrystals and Smart Materials" (Springer, 2004).

An ASME Fellow, Ponte-Castañeda has been a member of the Applied Mechanics Division's (AMD's) Technical Committee on Instability in Solids and Structures and Technical Committee on Mechanics of Soft Materials since 1993 and 2010, respectively.

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## Warner T. Koiter Medal (cont.)

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He received AMD's Special Achievement Award for Young Investigators in Applied Mechanics (now the Thomas J.R. Hughes Young Investigator Award) in 2000.

Ponte-Castañeda is a member of the Society for Industrial and Applied Mathematics; the Society of Engineering Science, where he served on the board of directors (1999–2006); and the European Mechanics Society.

His honors include the George H. Heilmeier Faculty Award for Excellence in Research from Penn's School of Engineering and Applied Science (2007) and a Humboldt Senior Research Award from the Alexander von Humboldt Foundation (2013).

Ponte-Castañeda earned bachelor's degrees in mathematics and mechanical engineering, both with highest honors, from Lehigh University (Bethlehem, Pa.) in 1982. He earned his master's degree in engineering sciences and his Ph.D. in applied mathematics from Harvard University (Cambridge, Mass.) in 1983 and 1986, respectively.

## Robert E. Koski Medal

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KIM A. STELSON

*Conferred at the Bath/ASME Symposium on Fluid Power and Motion Control,  
Bath, U.K., September 2016*

THE ROBERT E. KOSKI MEDAL recognizes an individual who has advanced the art and practice of fluid power motion and control through education and/or innovation. It was established in 2007 by the Fluid Power Systems and Technology Division to honor Mr. Koski's contributions to the field of design engineering and dynamic systems and control.

KIM A. STELSON, Sc.D., College of Science and Engineering distinguished professor, University of Minnesota, Minneapolis; and director, Center for Compact and Efficient Fluid Power, *for sustained and inspiring leadership of the Center for Compact and Efficient Fluid Power, the largest concentration of fluid power research in the United States, which is changing the way fluid power is researched, applied and taught.*

Dr. Stelson has been director of the National Science Foundation (NSF)-funded Center for Compact and Efficient Fluid Power, a network of fluid power research laboratories, academic faculty, and graduate and undergraduate students at several U.S. universities, since its inception in 2006. The center's vision is to make fluid power the technology of choice for power generation, transmission, storage, and motion control applications. Stelson is also College of Science and Engineering distinguished professor in the department of mechanical engineering at the University of Minnesota (U of M), Minneapolis, where he has been a member of the faculty since 1981.



His prior positions at U of M include director of the department of mechanical engineering's design and manufacturing division, and director of graduate studies for the master's in manufacturing systems program. He has been a visiting faculty member at the Hong Kong University of Science and Technology; the University of Auckland, New Zealand; and the University of Bath, U.K.

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## *Robert E. Koski Medal (cont.)*

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Stelson's fluid power research includes work on hydraulic hybrid vehicles and hydrostatic transmissions for wind power. His research has been published in more than 100 journal articles and conference proceedings papers. He holds two U.S. patents.

An ASME member, Stelson is general chair of the 2016 Dynamic Systems and Control Conference, being held in Minneapolis in October. He was co-chair of the 2013 and 2015 ASME/Bath Symposium on Fluid Power and Motion Control, and chair of the Program Committee for the 1996 Japan-U.S.A. Symposium on Flexible Automation. He served as associate technical editor (1992–2002) for the *Journal of Manufacturing Science and Engineering* (originally the *Journal of Engineering for Industry*). He was also associate editor for the *Journal of Dynamic Systems, Measurement and Control* (2003–11), which presented him with two Rudolf Kalman Best Paper awards (1997, 2005). Earlier he received a Young Engineer of the Year Award from ASME's Minnesota Chapter (1985).

Stelson is a Fellow of the American Association for the Advancement of Science and a member of Sigma Xi, the Scientific Research Society. He served on the North American Manufacturing Research Institution of SME's Scientific Advisory Committee.

His other honors include Stanford University's Frederick Emmons Terman Scholastic Award (1974), an NSF fellowship (1974–77), Outstanding Teacher awards from U of M's Institute of Technology (1983, 1986), an NSF Presidential Young Investigator Award (1985) and the American Society for Engineering Education's Dow Outstanding New Faculty Award (1987).

Stelson earned three degrees in mechanical engineering: his bachelor's from Stanford University, California, in 1974; and his master's and Sc.D. from the Massachusetts Institute of Technology, Cambridge, in 1977 and 1982, respectively.

## *Allan Kraus Thermal Management Medal*

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RAVI MAHAJAN

*Conferral at the Electronic and Photonic Packaging Division Reception,  
2016 International Mechanical Engineering Congress and Exposition*

THE ALLAN KRAUS THERMAL MANAGEMENT MEDAL, established in 2009, recognizes individuals who have demonstrated outstanding achievements in thermal management of electronic systems and their commitment to the field of thermal science and engineering.

RAVI MAHAJAN, Ph.D., senior principal engineer, Intel Corporation (Chandler, Ariz.), for outstanding leadership in establishing and delivering the cooling technology solutions roadmap for high-power microprocessors in mobile, desktop and server systems; and for developing effective university–industry collaborations to enable advanced experimental and analytical techniques in semiconductor thermal management.

Dr. Mahajan is a senior principal engineer in the path finding group, part of Intel Corporation's Assembly and Test Technology Development (Chandler, Ariz.). He is responsible for setting technology directions for micro-electronics packaging and assembly of silicon at future nodes as well as the technical direction for Intel- and consortia-funded research in semiconductor packaging. He is Intel's representative on the Semiconductor Research Corporation's (SRC) technical advisory board.

Mahajan's contributions include the development of analytical and experimental methods for thermal management, the creation of widely deployed thermal solution technologies for high-power density semiconductor devices, the setting of the direction of thermal research that has led to a number of innovative ideas in the field, and the

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## Allan Kraus Thermal Management Medal (cont.)

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role he has played in guiding the careers of many academic and industrial researchers. Mahajan holds several patents in the area of microelectronics packaging, most notably for the silicon bridge that has been foundational to Intel's EMIB (embedded multi-die interconnect bridge) technology and for some early ideas that led to high-performance, cost-effective cooling solutions for high-end microprocessors.

He currently serves on the industrial advisory board for material science and engineering at the University of Arizona, Tucson; and in the past has served on the external advisory board for PRISM (the National Nuclear Security Administration's Center for Prediction of Reliability, Integrity and Survivability of Microsystems) at Purdue University (West Lafayette, Ind.) as well as the industrial advisory board for mechanical engineering at the University of Maryland, College Park.

Mahajan has co-authored seminal publications that have been well cited, and has given more than a dozen keynote/invited talks. He is the lead founding editor for the *Intel Assembly and Test Technology Journal*, an internal publication that documents challenges and progress in assembly and packaging. He is co-editor for the Special Topics Section of *IEEE Transactions on Components, Packaging and Manufacturing Technology*.

An ASME Fellow, Mahajan is a reviewer for the *Journal of Electronic Packaging* and InterPACK, the flagship conference of the Society's Electronic and Photonic Packaging Division. As chair of the industrial advisory board to InterPACK, he assembled a coalition of senior industry and academia leaders as partners to direct the evolution on the conference; he is chair of the 2016 InterPACK Pathfinder Workshop, which is working toward this goal.

He is also a Fellow of IEEE. Among his other honors, Mahajan was named IEEE Engineer of the Year (2007); and he received SRC's Mahboob Khan Outstanding Industry Liaison Award (2015), SEMI-THERM's THERMI Award (2016) and numerous divisional recognitions from Intel Corporation.

Mahajan earned three degrees in mechanical engineering: his bachelor's from the University of Bombay (now the University of Mumbai), India, in 1985; his master's from the University of Houston in 1987; and his Ph.D. from Lehigh University (Bethlehem, Pa.) in 1992.



# Frank Kreith Energy Award

ALDO STEINFELD

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

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.

ALDO STEINFELD, Ph.D., professor, ETH Zurich, *for outstanding scholastic contributions to solar energy education through teaching and mentoring, scientific research, service as journal editor, and the supervision of more than 35 Ph.D. and 200 M.Sc. theses in the field of applied thermodynamics and solar engineering.*



Dr. Steinfeld is a professor in the department of mechanical and process engineering at ETH Zurich, where he holds the chair of renewable energy carriers. He served as the head of the Institute of Energy Technology (2005–07) and associate head of the department of mechanical and process engineering (2007–09).

His research program is aimed at the advancement of the thermal and chemical engineering sciences applied to renewable energy technologies. His research focus comprises high-temperature heat/mass transfer phenomena and multiphase reacting flows, with applications in solar power, fuels and materials production, decarbonization and redox processes, CO<sub>2</sub> capture and recycling, energy storage and sustainable energy systems. He has pioneered the development of solar ther-

mochemical reactor technologies for the production of clean transportation fuels using concentrated solar energy.

Steinfeld has supervised more than 35 Ph.D. and 200 M.Sc. theses in the field of applied thermodynamics and solar engineering. His students' honors, published journal articles, and positions in academia and industry demonstrate the high quality of Steinfeld's teaching and mentoring.

He has authored more than 300 papers in refereed journals, holds 28 patents, and was co-editor of the "Handbook of Hydrogen Energy" (CRC Press, 2014).

An ASME Fellow, Steinfeld was chair of the Solar Energy Division's (SED's) Solar Chemistry and Bioconversion Committee (2001–06) and served as editor of the *Journal of Solar Energy Engineering* (2005–09). He received the Society's Calvin W. Rice Lecture Award and Heat Transfer Memorial Award–Art in 2006 and 2013, respectively; and SED's John I. Yellott Award in 2008.

Steinfeld is an elected member of the Swiss Academy of Engineering Sciences; a member of the International Solar Energy Society (ISES), where he serves on the board of directors; a member of The Minerals, Metals and Materials Society; a founding member of the Swiss Hydrogen Association; and a senior member of the American Institute of Chemical Engineers.

Among his other honors, Steinfeld received an Advanced Grant (2012) from the European Research Council and the Farrington Daniels Award (2013) from ISES.

Steinfeld earned his bachelor's degree in aeronautical engineering from Technion-Israel Institute of Technology, Haifa, in 1983; his master's degree in mechanical engineering from Tel Aviv University, Israel, in 1986; and his Ph.D. in mechanical engineering from the University of Minnesota, Minneapolis, in 1989.

# *Bernard F. Langer*

## *Nuclear Codes and Standards Award*

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CHARLES BRUNY

*Conferred during Boiler Code Week,  
Washington, D.C., August 2016*

THE BERNARD F. LANGER NUCLEAR CODES AND STANDARDS AWARD was established in 1977 and is presented to an individual who has contributed to the nuclear power plant industry through the development and promotion of ASME nuclear codes and standards or the ASME Nuclear Certification Program.

CHARLES BRUNY, *for key contributions to various codes and standards efforts as an active ASME committee member for more than 40 years; and for providing component design and analysis expertise to Nuclear Codes and Standards colleagues.*

Mr. Bruny retired from Babcock & Wilcox Co. (Lynchburg, Va.) in 2006 after 40 years of service that included a two-year military leave early in his career, when he served as a lieutenant in the U.S. Army Corps of Engineers.

During his career Bruny held a variety of positions in engineering, project management and management. Major projects at Babcock & Wilcox included the design, fabrication and testing of components for nuclear steam supply systems for commercial utilities; the U.S. Department of Energy's Breeder Reactor Program; and various efforts for the U.S. Department of Defense. Bruny also participated in the evaluation of business opportunities in superconductivity and distributed power generation; led a team in the design of support systems for a proposed uranium enrichment facility; and managed a team responsible for the design, fabrication and testing of superconducting magnet systems for use at a national laboratory.

An ASME member, Bruny began serving on Boiler and Pressure Vessel (BPV) Code committees in 1974 as a member of the Task Force on Faulted Conditions; and, in 1976, he became a member of the Working Group on Vessels. Over the years he has been a member of the Subgroup on Component Design, a Special Working Group on Environmental Effects on Fatigue, the Subgroup on Design Methods, the Subcommittee on Design (BPV III), the BPV Committee on Construction of Nuclear Facility Components (III) and the BPV III Executive Committee. He served as secretary and chair of the Working Group on Vessels and as chair of the Subgroup on Design Methods. His recent efforts have focused on the evaluation and incorporation of methods to assess the effects of the light water reactor environment on fatigue, and on the consolidation and modernization of the rules for design by analysis in Section III of the BPV Code.

Bruny earned his bachelor's and master's degrees in civil engineering from the University of Akron, Ohio, in 1966 and 1972, respectively.



# *Gustus L. Larson Memorial Award*

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KENNETH T. CHRISTENSEN

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE GUSTUS L. LARSON MEMORIAL AWARD was established in 1974 and honors Gustus L. Larson, Fellow and founder of Pi Tau Sigma. It is awarded to the engineering graduate who has demonstrated outstanding achievement in mechanical engineering within 10 to 20 years following graduation.

KENNETH T. CHRISTENSEN, Ph.D., assistant dean of faculty development, and professor and collegiate chair in fluid mechanics, University of Notre Dame, Ind., *for outstanding achievements in mechanical engineering within 10 to 20 years following graduation.*



Dr. Christensen is a professor and the collegiate chair in fluid mechanics at the University of Notre Dame, Ind., with a joint appointment in the department of aerospace and mechanical engineering, and the department of civil and environmental engineering and earth sciences. He also serves as assistant dean of faculty development in the College of Engineering.

At Notre Dame, Christensen directs a research program that pursues experimental studies of turbulence, geophysical flows and microfluidics with significant practical importance in engineering applications. He is also a World Premier Institute principal investigator in the Carbon Dioxide Storage Division of the International Institute for Carbon-Neutral Energy Research (I2CNER) based at Kyushu University (Fukuoka, Japan).

Previously Christensen was a member of the faculty at the University of Illinois at Urbana-Champaign (2004–14), where he held positions including professor, Kritzer faculty scholar and associate head for undergraduate and mechanics programs in the department of mechanical science and engineering, with affiliate appointments in aerospace engineering and geology. Earlier he was an assistant professor (2002–04) at the University of New Mexico, Albuquerque.

Christensen has published more than 50 archival journal articles and 80 conference papers as well as seven book chapters. He serves on the editorial boards of *Experiments in Fluids* and *Measurement Science and Technology*. He will begin a five-year term as editor-in-chief of *Measurement Science and Technology* in January 2017.

An ASME Fellow, Christensen is also a Fellow of the American Physical Society, an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a member of the American Geophysical Union and the American Association for the Advancement of Science.

His honors include a Young Investigator Award (2006) from the Air Force Office of Scientific Research, a CAREER Award (2007) from the National Science Foundation, the François Frenkiel Award for Fluid Mechanics (2011) from the American Physical Society's Division of Fluid Dynamics, and the Dean's Award for Excellence in Research (2012) from the University of Illinois' College of Engineering.

Christensen earned his bachelor's degree in mechanical engineering from the University of New Mexico in 1995 and his master's degree in mechanical engineering from the California Institute of Technology, Pasadena, in 1996. He earned his Ph.D. in theoretical and applied mechanics from the University of Illinois at Urbana-Champaign in 2001.

# H.R. Lissner Medal

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ROGER C. HAUT

*Conferred at the Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, Md., June-July 2016*

THE H.R. LISSNER MEDAL was established in 1977 and is presented for outstanding accomplishments in the area of bioengineering.

ROGER C. HAUT, Ph.D., university distinguished professor, Michigan State University, East Lansing, *for long-term bioengineering contributions through the development and implementation of innovative methods of basic engineering science to the fields of impact trauma and orthopaedics.*

Dr. Haut is a university distinguished professor in the departments of radiology and mechanical engineering at Michigan State University (MSU), East Lansing. He is also director of the Orthopaedic Biomechanics Laboratories in the MSU College of Osteopathic Medicine. Haut, along with his students and colleagues, uses experimental and theoretical approaches to develop scientific explanations for the mechanisms of blunt force trauma to joints and the potential for development of posttraumatic osteoarthritis. While most of his career has been devoted to studies related to automobile and athletic injuries, more recent research has focused on forensics as related to pediatric cranial and long bone traumas.



Prior to joining the faculty at MSU in 1986, Haut was with GM Research Laboratories (Warren, Mich.). Initially a research engineer, he was later promoted to staff research scientist.

Haut has published over 150 peer-reviewed papers and more than 200 abstracts dealing with mechanics of the musculoskeletal system, with most related to injury mechanisms thereof. He currently serves on the editorial advisory board for the *Journal of Biomechanics* and as an associate editor of the *International Journal of Vehicle Safety*.

An ASME Fellow, Haut served on the Bioengineering Division's Industry Liaison Committee (1986-2000) and was an associate technical editor of the *Journal of Biomechanical Engineering* (1992-2000).

His honors include the American Orthopaedic Society for Sports Medicine's Cabaud Memorial Award (1989) and O'Donoghue Sports Injury Research Award (2000). He also earned an Innovation Award and a Research Excellence Award from the MSU College of Osteopathic Medicine, which led to his receipt of a Distinguished Faculty Award from MSU in 2003.

Haut earned three degrees from MSU: his bachelor's degree in mechanical engineering in 1967; and his master's degree and Ph.D. in engineering mechanics in 1968 and 1971, respectively.

# Machine Design Award

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SUNIL K. AGRAWAL

*Conferred at the International Design Engineering Technical Conferences,  
Charlotte, N.C., August 2016*

THE MACHINE DESIGN AWARD, established in 1958, recognizes eminent achievement or distinguished service in the field of machine design.

SUNIL K. AGRAWAL, Ph.D., professor of mechanical engineering, Columbia University, New York, *for seminal contributions to the field of machine design through the innovative design of robotic exoskeletons for gait retraining of stroke patients and of mobility-assist robots for the training of developmentally delayed infants and toddlers.*



Dr. Agrawal is currently a professor of mechanical engineering and director of the Robotics and Rehabilitation Laboratory at Columbia University, New York. Prior to joining the faculty at Columbia in 2013, Agrawal was a professor of mechanical engineering and director of the Mechanical Systems Laboratory and Rehabilitation Robotics Laboratory at the University of Delaware, Newark. From 1990 to 1996 he taught and conducted research at Ohio University, Athens. Among other prior positions, Agrawal was a distinguished visiting professor at Hanyang University (Seoul, South Korea) and a professor of robotics at the University of Ulster, U.K.

A pioneering researcher in intelligent machines, Agrawal has focused in recent years on how machines can help humans improve their everyday function. His seminal contributions include the design of innovative gait training robotic exoskeletons for stroke survivors, pediatric mobile robots for the training of developmentally delayed infants and toddlers, and vibration shoes for patients with Parkinson's disease. His lab has an active group of undergraduate, graduate and postdoctoral researchers; and research efforts have been supported by grants from the National Institutes of Health and the National Science Foundation (NSF).

Agrawal has published nearly 400 journal and conference papers, and he serves on editorial boards for societies including ASME and IEEE. He co-holds 13 patents.

A Fellow of ASME, Agrawal served as chair of the Design Engineering Division (2014–15). He received a Best Paper award at the 35th Mechanisms and Robotics Conference in 2011 and a Best Paper Honorable Mention at the 39th Mechanisms and Robotics Conference in 2015.

Agrawal is also a Fellow of the American Institute for Medical and Biological Engineering.

Among his other honors, Agrawal received an NSF Presidential Faculty Fellowship from the White House (1994), a Friedrich Wilhelm Bessel Research Award (2003) and a Humboldt Research Award for U.S. Senior Scientists (2007) from the Alexander von Humboldt Foundation, and a Best Student Paper award at the IEEE International Conference on Robotics and Automation (2012).

Agrawal earned three degrees in mechanical engineering: his bachelor of technology degree from the Indian Institute of Technology, Kanpur, in 1984; his master's degree from Ohio State University, Columbus, in 1985; and his Ph.D. from Stanford University, California, in 1990.

# Charles T. Main Student Leadership Awards

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HIND HAJJAR – GOLD  
EDUARDO GUEVARA – SILVER

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE CHARLES T. MAIN AWARD was established in 1919 to recognize, at the Societywide level, an undergraduate ASME student member whose leadership and service qualities have contributed, for a period of more than one year, to the programs and operations of a Student Section. In 1983, the award was expanded to include a second-place award.

## GOLD

HIND HAJJAR, research assistant, American University of Beirut, *for dedicated ASME efforts including service as vice chair of the Student Section at the American University of Beirut; and for assisting more than 20 university sections as student regional chair for Africa and the Middle East.*

Ms. Hajjar earned her bachelor's degree in mechanical engineering from the American University of Beirut (AUB) in May 2016. She is currently a part-time research assistant at AUB's Munib and Angela Masri Institute of Energy and Natural Resources. Under the leadership of Dr. Nesreen Ghaddar, she served as a mechanical engineering student representative on the institute's Steering Committee (May–September 2016) for the ASHRAE International Conference on Efficient Building Design: Materials and HVAC Equipment Technologies, which was held Sept. 22–23 in Beirut.

While pursuing her undergraduate degree, Hajjar was an intern at Khatib and Alami, where she worked as a site engineer performing on-site building inspections and as a design engineer on water treatment plant design (July–August 2014); and at General Electric–Power and Water (Beirut) in the power generation services–commercial gas turbine area (June–August 2015). At AUB she was a volunteer writer for Outlook, the university's official student newspaper; a secretarial assistant in the mechanical engineering department; an elected student representative for senior students at the faculty of engineering and architecture; and a research assistant with Dr. Issam Lakkis, working on reduced order modeling and simulation of the airways of the lungs, and species modeling.

An ASME member, Hajjar got involved in Society activities during her sophomore year at AUB. Initially a subcommittee member (2013–14), she subsequently served as secretary (2014–15) and vice chair (2015–16) of the Student Section. As student regional chair for Africa and the Middle East (2015–16), Hajjar improved the outreach and communication among more than 20 universities in the region; this facilitated the formation or reactivation of Student Sections and enabled the sharing of best practices. While vice chair of the Student Section, she helped organize the Middle East Student Professional Development Conference hosted by AUB in April 2016. One of the other major events she helped organize was the industrial tour, where she and a dedicated team led 72 Student Section members on excursions in four European cities in January 2016. Since May 2016 Hajjar has been serving on an ASME Task Force on increasing membership engagement for students and early career engineers.

Among her honors, Hajjar received an International College Alumni Association Scholarship Award (2012) and she made the AUB faculty of engineering and architecture dean's honor list (fall 2015, spring 2016).



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# Charles T. Main Student Leadership Awards (cont.)

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## SILVER

EDUARDO GUEVARA, CEO, Volition Co., Mexico City; manager, Operations and Logistics Division, SAK Shop.Arch.Kids, Mexico City, *for contributions to ASME including service as chair of the Student Section at the National and Autonomous University of Mexico, chair of the Student Section Enterprise Committee for Mexico, and event director for HPVC Mexico and Latin America.*



Mr. Guevara earned his bachelor's degree in mechanical engineering from the National and Autonomous University of Mexico (UNAM) in June 2016. An entrepreneur who enjoys the challenge of solving engineering problems, Guevara founded two companies while pursuing his education. The first company (January 2013–July 2014) specialized in adjusting automotive engines for car racing. When founded in January 2014, Guevara's second endeavor, Volition Co. in Mexico City, designed bicycles; the company quickly evolved and now designs and manufactures carbon fiber products.

In addition to his position as CEO of Volition Co., Guevara is manager of the Operations and Logistics Division of SAK Shop.Arch.Kids, Mexico City, which

sells and installs Italian furniture for kids.

Guevara has been an active member of ASME since 2012, when he served as chair of the Student Section at UNAM. He and his team diligently worked to make the section one of the most active in Mexico. He subsequently served as vice chair of the Student District Operating Board for District E–Mexico (2013–14); and as chair of the Student Regional Board–Region 4 and Mexican representative on ASME's Student Section Enterprise Committee (2014–15). In 2014 he served as host school coordinator for the inaugural Human Powered Vehicle Challenge (HPVC) in Mexico. His responsibilities included promoting the event, communicating with event participants (approximately 250 individuals from 23 universities) and coordinating volunteer efforts. In all of his roles, Guevara supported and encouraged students to achieve more at their universities, within ASME and throughout their communities.

Guevara is also a member of the Sociedad Mexicana de Ingeniería Mecánica.

Among his honors, Guevara earned first place (2007) in UNAM's High School Competition of Physics. In 2013 his gear modification for race cars made it into the first stage of competition for inclusion on TR35, an annual list of the world's top 35 innovators under the age of 35 that is published in the Massachusetts Institute of Technology's *MIT Technology Review*. Guevara's gear modification and rain electric generator made it to the second stage of Santander's competition for the Award for Business Innovation in 2013 and 2016, respectively.



# McDonald Mentoring Award

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LUCIANO CASTILLO

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE MCDONALD MENTORING AWARD, established in 2007, recognizes the outstanding mentoring of other professionals by an engineer in industry, government, education or private practice.

LUCIANO CASTILLO, Ph.D., Don-Kay-Clay Cash distinguished engineering chair in wind energy, Texas Tech University, Lubbock, for dedicated mentoring of under-represented students, including K-12, and faculty in STEM fields; and for initiating unique programs that have opened new opportunities for an inclusive population of students and faculty.

Dr. Castillo is the Don-Kay-Clay Cash distinguished engineering chair in wind energy at Texas Tech University (TTU), Lubbock. He joined the mechanical engineering department at TTU as a strategic cluster hire in 2011. In addition to the endowed chair position, Castillo was founding director of the National Wind Resource Center until 2014.

From 1999 to 2011 Castillo was a member of the faculty of the department of mechanical, aerospace and nuclear engineering at Rensselaer Polytechnic Institute (RPI) in Troy, N.Y.

His research in turbulence, using experimental techniques, direct numerical simulations and multiscale asymptotic analysis, has injected new ideas in turbulent boundary layers and the understanding of initial conditions on large scale turbulence, and wind energy.

During 2013 Castillo founded a Summer Research Institute on Renewable Energy & Medicine at TTU for underrepresented minority and female students in STEM (science, technology, engineering and mathematics) fields; and while at RPI he developed partnerships and programs funded by the National Science Foundation (NSF) to attract and mentor underrepresented Ph.D. students in STEM fields.

His other career efforts to increase the number of underrepresented students in STEM fields have included Visiting Scholar and Visiting Faculty programs; the NSF-funded Alliance for Graduate Education and the Professoriate: Central New York-Puerto Rico; and the K-12 Teachers Research Experience. He has directly mentored 350 underrepresented students. In addition, Castillo has worked to increase recruitment and retention of minorities in academic positions through mentoring and professional development opportunities. Ten of his former graduate students are in academic positions in the U.S.

Castillo has published more than 100 articles, co-edited four books, given nearly 40 lectures, and given nearly 70 invited lectures (U.S., Europe, Latin America and Australia). He has also delivered several keynote, distinguished and plenary lectures at major academic institutions and scientific organizations around the world. He holds several patents on energy and medicine.

An ASME Fellow, Castillo has served on committees and as conference session chair for the Fluids Engineering Division (FED). He received the Robert T. Knapp Award from the FED in 2002.

His honors include RPI's Martin Luther King Jr. Faculty Award (2002) and Trustee Faculty awards (2005, 2008); NASA faculty fellowships (2002, 2003); a Best Paper award from the *Journal of Renewable Energy* (2015); and a Best Paper Award from IEEE (2016).

Castillo earned his bachelor's degree and Ph.D. in mechanical engineering from the University at Buffalo-The State University of New York in 1990 and 1996, respectively.



# Melville Medal

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XIANBO LIU  
NICHOLAS VLAJIC  
XINHUA LONG  
GUANG MENG  
BALAKUMAR BALACHANDRAN

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE MELVILLE MEDAL was first awarded in 1927 and is the highest honor for the best original technical paper published in the ASME Transactions in the past two years.

XIANBO LIU, master's and Ph.D. candidate, Shanghai Jiao Tong University; NICHOLAS VLAJIC, Ph.D., staff scientist, National Institute of Standards and Technology (Gaithersburg, Md.); XINHUA LONG, Ph.D., associate professor, Shanghai Jiao Tong University; GUANG MENG, Ph.D., professor, Shanghai Jiao Tong University; and BALAKUMAR BALACHANDRAN, Ph.D., Minta Martin professor, University of Maryland, College Park, for the paper titled "State-Dependent Delay Influenced Drill-String Oscillations and Stability Analysis."



Mr. Liu earned his bachelor's degree in aerospace vehicle manufacturing engineering from Northwestern Polytechnical University (Xi'an, China) in 2008. He is currently a master's and Ph.D. candidate at Shanghai Jiao Tong University and expects to earn his degrees in mechanical engineering in November 2016.

Liu's research interests cover several areas of non-linear phenomena, time-delay effects, rotor dynamics, vibrations and control in mechanical systems. To date, his research has been sponsored by the National Basic Research Program of China-973 Program; the Natural Science Fund of China; the University of Maryland, College Park; and Shanghai Jiao Tong University. Recently he has been focusing on the complex dynamics of deep-hole drilling systems used for oil and gas exploration.

While pursuing his Ph.D., Liu has published approximately 10 research papers and submitted a patent application.

Liu has participated in ASME's 2012 International Mechanical Engineering Congress and Exposition; and 2013 International Design Engineering Technical Conferences, and Computers and Information in Engineering Conference.

He is a student fellow of the Chinese Mechanical Engineering Society.

His honors include First Prize (2006) at the National Aerocraft Model Championship from the Ministry of Science and Technology of the People's Republic of China and General Administration of Sport of China; First Prize (2007) at the National Zhou Peiyuan Mechanics Competition from the Chinese Society of Theoretical and Applied Mechanics; and First Prize at the RoboCup China Open (2007) from the Chinese Association of Automation (2007). He also earned national scholarships from the China Scholarship Council (2010) and the Ministry of Education of the People's Republic of China (2013, 2015).

Dr. Vljajic received his bachelor's degree in mechanical engineering from The Pennsylvania State University, University Park, in 2008; and his master's degree and Ph.D. in mechanical engineering from the University of Maryland, College Park, in 2013 and 2014, respectively. His research interests are in dynamics, vibrations and controls, with particular emphasis on applications in precision metrology.

Following a postdoctoral position in engineering mathematics at the University of Bristol, U.K., Vljajic received a National Research Council fellowship (2014) to pursue  
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## Melville Medal (cont.)

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research in the mass and force group in the Quantum Measurement Division at the National Institute of Standards and Technology (NIST) in Gaithersburg, Md. Currently he is working in the area of dynamic force metrology as a staff scientist at NIST.

An ASME member, Vlajic has participated in the 2011 and 2015 International Design Engineering Technical Conferences, and the 2012 International Mechanical Engineering Congress and Exposition (IMECE).

His honors include a Travel Award (2012) from the National Science Foundation to participate in its sponsored Student Poster Symposium at ASME's IMECE; an International Conference Student Support Award (2011) and Goldhaber Travel Grant (2011) from the University of Maryland Graduate School; and a Technogenesis fellowship in physics (2008) from the Stevens Institute of Technology (Hoboken, N.J.).



Dr. Long joined the faculty in the School of Mechanical Engineering at Shanghai Jiao Tong University in 2006 and is currently an associate professor.

His research interests include vibrations, nonlinear dynamics and control. His recent efforts have focused on the nonsmooth and delay effects on the vibrations of a mechanical system. Long has completed several projects, which have been supported by the National Science Foundation of China, and the Ministry of Science and Technology and the Ministry of Education of the People's Republic of China. He also has projects with industry partners such as Daikin, Honeywell and the United Technologies Research Center.

Long has authored/co-authored nearly 40 journal publications and contributed a chapter for a handbook for mechanical engineers. He serves as a reviewer for publications including the *Journal of Sound and Vibration*, the *Journal of Vibration and Control* and *Nonlinear Dynamics*.

An ASME member, Long serves as a reviewer for ASME journal and conference papers. Since 2005 he has attended several Society conferences and has published three papers in the *Journal of Vibration and Acoustics*.

Long earned his bachelor's degree in engineering mechanics from Wuhan University of Technology, China, in 1995; and his master's degree in engineering mechanics, vibration shock and noise control from Tsinghua University, Beijing, in 2000. In 2006 he earned his Ph.D. in mechanical engineering from the University of Maryland, College Park.



Dr. Meng is currently a chair professor in the School of Mechanical Engineering at Shanghai Jiao Tong University. His research interests include vibrations, rotor dynamics, smart materials, nonlinear dynamics and control.

Among his prior positions, Meng was a research assistant at Texas A&M University, College Station, in 1990; an Alexander von Humboldt fellow at the Technical University of Berlin from 1990 to 1992; and a research fellow at the University of New South Wales, Australia, in 1993.

He has authored/co-authored nearly 300 journal papers, and authored a book titled "Micro-Electromechanical System Dynamics" (Science Press, 2008). He has more than 3,400 citations on ResearchGate.

Since 1990 Meng has attended several ASME conferences, has published approximately 20 papers in the Society's journals and has served as a journal reviewer.

(continued)

## Melville Medal (cont.)

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Meng is now the vice president of the China Society for Vibration Engineering.

His honors include the Cheung Kong Chair Professor Award (1999) from the Ministry of Education of the People's Republic of China, and six science and technology prizes from the Ministry of Science and Technology and the Shanghai City Government of the People's Republic of China.

Meng earned three degrees from Northwestern Polytechnical University (Xi'an, China): his bachelor's degree in mechanics in 1981, his master's degree in mechanics in 1984 and his Ph.D. in vibration engineering in 1988.



Dr. Balachandran has been a member of the faculty at the University of Maryland, College Park, since 1993. He is currently a Minta Martin professor of engineering and a faculty member of the applied mathematics and scientific computation program. His research interests include nonlinear phenomena, dynamics and vibrations, and control.

He has authored/co-authored nearly 85 journal publications; co-authored two textbooks: "Applied Nonlinear Dynamics: Analytical, Computational, and Experimental Methods" (Wiley, 1995; second edition, 2006) and "Vibrations" (Thomson/Cengage, 2004; second edition, 2009); and co-edited a book titled "Delay Differential Equations: Recent Advances and New Directions" (Springer, 2009). He holds five patents

(four U.S.; one Japanese), three related to fiber optic sensors and two related to atomic force microscopy.

Balachandran is a contributing editor of the *International Journal of Non-Linear Mechanics*, serves on the editorial boards of the *International Journal of Dynamics and Control* and *Acta Mechanica Sinica*, and serves as an associate editor of *Nonlinear Theory and Its Applications*, IEICE.

An ASME Fellow, he has been a member of the Applied Mechanics Division's (AMD's) Executive Committee since 2014 and the technical editor of the *Journal of Computational and Nonlinear Dynamics* since January 2016. He served as chair of AMD's Technical Committee on Dynamics and Control of Structures and Systems (2005-07) and the Design Engineering Division's Technical Committee on Multibody Systems and Nonlinear Dynamics (2009-11).

He is also a Fellow of the American Institute of Aeronautics and Astronautics; a senior member of IEEE; and a member of the Acoustical Society of America, the American Academy of Mechanics and SPIE.

Balachandran earned his bachelor of technology degree in naval architecture from the Indian Institute of Technology, Madras in 1985. He earned his master's degree in aerospace engineering and his Ph.D. in engineering mechanics from Virginia Polytechnic Institute and State University, Blacksburg, in 1986 and 1990, respectively.

# M. Eugene Merchant

## Manufacturing Medal of ASME/SME

JYOTIRMOY MAZUMDER

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE M. EUGENE MERCHANT MANUFACTURING MEDAL was established in 1986 by ASME and SME to honor an exceptional individual who has had significant influence and responsibility for improving the productivity and efficiency of the manufacturing operation.

JYOTIRMOY MAZUMDER, Ph.D., Robert H. Lurie professor of engineering, University of Michigan, Ann Arbor, *for outstanding contributions to manufacturing operations, particularly productivity and quality improvements, as a creative inventor, foremost scholar and educator, prolific author, scientist and pioneering leader in quality assured manufacturing and closed-loop metallic additive manufacturing.*

Dr. Mazumder is the Robert H. Lurie professor of engineering in the department of mechanical engineering and materials science, and director of the Center for Laser Aided Intelligent Manufacturing at the University of Michigan, Ann Arbor.

Throughout his career, Mazumder has invented and implemented hardware and software to remove barriers to productivity and to ensure the quality of manufactured products. He has taken his research to market by commercializing direct metal deposition (DMD) technology through a start-up company called POM Group Inc. (Auburn Hills, Mich.), where he served as CEO until the company was sold in December 2012. DMD systems are now installed on four continents. Some of Mazumder's laser welding patents are licensed to Ford Motor Company. He recently developed in situ sensors for 3-D printing and welding that have the capability to detect defects, composition and phase transformation. This technology is being commercialized through a new start-up company called SenSigma LLC (Ann Arbor, Mich.).

Mazumder holds 20 U.S. patents. He has published more than 375 papers, and co-authored "Theory and Application of Laser Chemical Vapor Deposition" (Springer, 1995; reprint 2013) and "Laser Material Processing" (fourth edition, Springer, 2010). He also edited/co-edited 10 books on topics related to laser material processing and mechanical engineering. He was editor-in-chief of the *Journal of Laser Applications* until December 2009.

An ASME Fellow, Mazumder received the William T. Ennor Manufacturing Technology Award in 2006 and the Thomas A. Edison Patent Award in 2010.

Mazumder is also an elected member of the National Academy of Engineering; a Fellow of the American Society of Metals; a Fellow of the Laser Institute of America (LIA), where he served as president (2000); and a member of The Minerals, Metals and Materials Society.

His other honors include the University of Michigan's Distinguished University Innovator Award (2012), the American Welding Society's Adams Memorial Membership Award (2007), LIA's Schawlow Award (2003), the Society of Manufacturing Engineers' Manufacturing Engineer of the Year award (1986), and the University of Illinois at Urbana-Champaign's University Scholar (1985) and Xerox Senior Faculty Award (1987).

Mazumder received his bachelor's degree in metallurgical engineering from Calcutta University (now the Indian Institute of Engineering Science and Technology), India, in 1972. He earned his diploma and Ph.D. in process metallurgy from Imperial College, London, in 1978.



# Van C. Mow Medal

BETH A. WINKELSTEIN

*Conferred at the Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, Md., June-July 2016*

THE VAN C. MOW MEDAL was established by the Bioengineering Division in 2004. It is presented for demonstrated meritorious contributions to the field of bioengineering through research, education, professional development, leadership in the development of the profession, mentorship to young bioengineers, and for service to the bioengineering community.

BETH A. WINKELSTEIN, Ph.D., vice provost for education, and professor of bioengineering and neurosurgery, University of Pennsylvania, Philadelphia, *for scholarly contributions through research dedicated to elucidating the mechanisms of subfailure cervical spine injuries and the cellular events surrounding the etiology of chronic pain; and for dedication as an educator and mentor, and in service to the profession.*



After completing a postdoctoral fellowship at Dartmouth College (Hanover, N.H.), Dr. Winkelstein joined the faculty at the University of Pennsylvania, Philadelphia, in 2002. She is currently professor of bioengineering and neurosurgery; and vice provost for education, overseeing the academic portfolios of the four undergraduate schools and the 12 graduate and professional schools.

Her research focuses on elucidating the mechanisms of subfailure spine and joint injuries, and the cellular events surrounding the etiology of chronic pain. She takes a hierarchical approach to understand the underlying pathomechanisms at the joint, tissue and cellular levels. Her work is multidisciplinary, melding engineering and biology to bridge the gaps between basic neuroscience, tissue biomechanics and clinical application. In support of her research, Winkelstein has been awarded grants from the National Institutes of Health (NIH), the Centers for Disease Control and Prevention, the U.S. Department of Defense, the National Science Foundation (NSF), the U.S. Army, and private foundations and industry partners. In addition to mentoring 14 doctoral students in her own lab, she has overseen research for more than 75 fellows, and graduate and undergraduate researchers.

Winkelstein has published over 100 peer-reviewed manuscripts and edited a book titled "Orthopaedic Biomechanics" (CRC Press, 2012). She has also been a reviewer for more than 40 archival journals.

A Fellow of ASME, Winkelstein has been very active in the Bioengineering Division. Beginning in 2003 she has served in various capacities for the summer conference. She was a member of the Student Paper Competition and Education committees, and has been serving on the Solid Mechanics Technical Committee since 2006. A co-editor of the *Journal of Biomechanical Engineering* since 2012, Winkelstein has been working to reduce the publication's review time and to broaden the diversity of the associate editor board. She received the Society's Y.C. Fung Young Investigator Award in 2006.

Winkelstein is also a Fellow of the American Institute for Medical and Biological Engineering and the Biomedical Engineering Society; and a member of the Cervical Spine Research Society, the Society for Neuroscience, the Orthopaedic Research Society and the International Association for the Study of Pain.

Among her other honors, Winkelstein has been recognized with an NIH Research Career Development (K01) Award (2002–06), a Whitaker Foundation Young Investigator Research Award (2003–05) and an NSF CAREER Award (2006–11).

Winkelstein earned her bachelor's degree in bioengineering from the University of Pennsylvania in 1993 and her Ph.D. in biomedical engineering from Duke University (Durham, N.C.) in 1999.

# Nadai Medal

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YONGGANG HUANG

*Conferral at the Materials Division Reception,  
2016 International Mechanical Engineering Congress and Exposition*

THE NADAI MEDAL was established in 1975 to recognize significant contributions and outstanding achievements which broaden the field of materials engineering.

YONGGANG HUANG, Ph.D., Walter P. Murphy professor, Northwestern University (Evanston, Ill.), for fundamental and applied contributions to transient electronics and materials.

Dr. Huang joined the faculty at Northwestern University (Evanston, Ill.) in 2007. Initially the Joseph Cummings professor in the departments of mechanical engineering, and civil and environmental engineering, he has been the Walter P. Murphy professor since 2015.

Previously Huang was a member of the faculty at the University of Illinois at Urbana-Champaign (1998–2007), where he was promoted to full professor and held the positions of Grayce Wicall Gauthier professor and Shao Lee Soo professor. Earlier he was with Michigan Technological University, Houghton (1995–98) and the University of Arizona, Tucson (1991–95).

Huang is internationally recognized as a creative researcher in mechanics of materials. His recent research focuses on stretchable and curvilinear electronics for biomedical applications, transient electronics that can dissolve at a programmed rate/triggered time, and mechanics-driven deterministic 3-D assembly.

He has authored/co-authored nearly 500 journal papers including many published in Science and Nature between 2006 and 2016.

An ASME member, Huang serves on the Applied Mechanics Division's Executive Committee. As editor of the *Journal of Applied Mechanics*, he has streamlined the review/author revision/second review process, which has drastically increased journal article submissions. He received the Society's Gustus L. Larson Memorial Award in 2003, Melville Medal in 2004, Charles Russ Richards Memorial Award in 2010 and Daniel C. Drucker Medal in 2013.

Huang is a member of the Materials Research Society; and the Society of Engineering Sciences (SES), where he served as president (2014).

Among his honors, Huang received SES's Young Investigator Medal (2006), the *International Journal of Plasticity* Medal (2007) and a fellowship (2008) from the John Simon Guggenheim Memorial Foundation. He was named a Highly Cited Researcher in Engineering (2009) and in Materials Science (2014, 2015) by Thomson Reuters.

Huang received his bachelor's degree in mechanics from Peking University, Beijing, in 1984. He earned his master's degree and Ph.D. in engineering science from Harvard University (Cambridge, Mass.) in 1987 and 1990, respectively.



# Sia Nemat-Nasser Early Career Award

LIJIE GRACE ZHANG

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

THE SIA NEMAT-NASSER EARLY CAREER AWARD recognizes research excellence in experimental, computational or theoretical aspects of mechanics of materials by a young investigator within 10 years following receipt of their Ph.D. degree. Established by the Materials Division in 2008, it was elevated to a Society award in 2012.

LIJIE GRACE ZHANG, Ph.D., associate professor, The George Washington University, Washington, D.C., *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.*



Dr. Zhang is an associate professor in the department of mechanical engineering and aerospace engineering, the department of biomedical engineering and the department of medicine at The George Washington University (GW), Washington, D.C. She is also director of the Bioengineering Laboratory for Nanomedicine and Tissue Engineering. Zhang joined GW in 2010 after completing her postdoctoral training at Rice University, Houston, and Harvard Medical School, Boston.

In her research, Zhang applies a range of interdisciplinary technologies and advanced approaches in 3-D bioprinting, nanobiomaterials, tissue engineering, biomechanics and stem cells to design biologically inspired complex tissues such as neural, bone, cartilage, osteochondral, and vascular tissues.

Zhang has authored/co-authored three books, and over 80 peer-reviewed publications including journal papers, book chapters and conference proceedings papers; and she has presented her work at more than 200 conferences, and at universities and institutes. She holds four patents.

An ASME member, Zhang serves on the Bioengineering Division's Cellular and Tissue Engineering Committee. She has served in various capacities, including session chair, topic organizer/co-organizer and symposium chair, at the 2013, 2014 and 2015 International Mechanical Engineering Congress and Exposition.

Zhang is also a member of the American Association for Cancer Research, the American Institute of Chemical Engineers, the American Society for Nanomedicine, the American Association of Pharmaceutical Scientists, the American Chemical Society, the American Society for Bone and Mineral Research (ASBMR), the Biomedical Engineering Society (BMES), the IEEE Engineering in Medicine and Biology Society, the Materials Research Society, Sigma Xi—the Scientific Research Society, the Society for Biomaterials (SFB), the Society of Engineering Science, and the Tissue Engineering International and Regenerative Medicine Society.

Among her honors, Zhang received SFB's STAR awards (2007, 2009), Sigma Xi's Award for Excellent Research and High Potential for Further Contributions to Science (2009), the Joukowsky Family Foundation's Outstanding Dissertation Award (2009), an Early Career Award from the *International Journal of Nanomedicine* (2010), ASBMR's John Haddad Young Investigator Award (2011) and a Young Investigator Award (2011) at the ASBMR Forum on Aging and Skeletal Health, the Oak Ridge Associated Universities' Ralph E. Powe Junior Faculty Enhancement Award (2011), the National Institutes of Health Director's New Innovator Award (2014), and the GW School of Engineering and Applied Science's Faculty Recognition Award (2014) and Outstanding Young Researcher Award (2015). Zhang was named a 2015 CMBE Young Innovator by BMES's *Cellular and Molecular Bioengineering* journal.

Zhang earned her bachelor's degree in chemical engineering and her master's degree in applied chemistry from Tianjin University, China, in 2001 and 2004, respectively. She earned her Ph.D., with distinction, in biomedical engineering from Brown University (Providence, R.I.) in 2009.



# Burt L. Newkirk Award

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AARON GRECO

*Conferred at the STLE Tribology Frontiers Conference,  
Chicago, November 2016*

THE BURT L. NEWKIRK AWARD was established in 1976 and is presented to an individual who has made a notable contribution in tribology research or development, as evidenced by important tribology publications prior to his or her 40th birthday.

AARON GRECO, Ph.D., principal materials scientist, Argonne National Laboratory, Illinois, *for notable contributions to the field of tribology through scientific publications and presentations, leadership roles in professional societies, and as a technical ambassador for the field through roles in project management and science policy.*

Dr. Greco is a principal materials scientist in the Energy Systems Division at Argonne National Laboratory, Illinois. He currently leads projects that focus on improving the reliability of wind turbine drivetrains through advanced tribological testing and materials. His other research areas include surface engineering, nano-colloidal lubricant additives and contact failure investigation. Greco recently completed an assignment in the Wind and Water Power Technology Office at the U.S. Department of Energy's headquarters in Washington, D.C., where he provided technical management support.



Prior to joining Argonne in 2010, Greco was a science and technology policy fellow at The National Academies of Sciences, Engineering and Medicine in Washington, D.C., where he worked with the Board on Energy and Environmental Systems. His efforts included providing technical expertise on vehicle technology and drafting chapters that were included in the report titled *Assessment of Technologies for Improving Light-Duty Vehicle Fuel Economy*.

Greco has authored more than a dozen journal articles in the field of tribology and surface engineering. He has also disseminated his research findings through invited talks.

An ASME member, Greco serves on the Tribology Division's Executive Committee as Education chair. He received a Best Paper Award from the *Journal of Tribology* in 2014.

Greco is also a member of the Society of Tribologists and Lubrication Engineers (STLE). He is currently an associate editor of the *Tribology Transactions* journal and serves on the Conference Planning Committee for the Tribology Frontiers Conference. Previously he was a member of the Young Tribologist Committee (2008–11) and chaired several technical sessions.

Among his honors, Greco received STLE's Outstanding Conference Poster Award (2007) and a Best Paper Award (2011) from the Surface Engineering Committee; and a National Science Foundation IGERT (Integrative Graduate Education and Research Traineeship) Poster Challenge Award (2009).

Greco received his bachelor's degree in mechanical engineering from Iowa State University, Ames, in 2003; and his Ph.D. in mechanical engineering from Northwestern University (Evanston, Ill.) in 2009.

# Edward F. Obert Award

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SARA COSENTINO  
ADRIANO SCIACOVELLI  
VITTORIO VERDA

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE EDWARD F. OBERT AWARD was established in 1987 by the Advanced Energy Systems Division to recognize an outstanding paper on thermodynamics. It was elevated to a Society award in 1996.

SARA COSENTINO, Ph.D. student, Politecnico di Torino, Italy; ADRIANO SCIACOVELLI, Ph.D., research fellow, University of Birmingham, U.K.; and VITTORIO VERDA, Ph.D., professor, Politecnico di Torino, Italy, for the paper titled "Thermoeconomic Design of Borehole Thermal Energy Storage Systems."



Ms. Cosentino earned her master's degree in energy and nuclear engineering from Politecnico di Torino, Italy, in 2013. Her dissertation, titled Models for the Advanced Diagnosis of Thermal-Power Plant, was developed in collaboration with Ansaldo Energia S.p.A and focused on the development and application of thermoeconomic diagnosis techniques to thermal-power plants. Cosentino is currently pursuing a Ph.D. in energetics in Politecnico's energy department and gives lectures in a course on applied energy.

Her research covers different areas of thermodynamics including the thermoeconomic analysis and diagnosis of energy systems, the numerical design and analysis of small geothermal systems and thermal energy storage systems, and the thermofluid dynamic

modeling for tunnel ventilation. She collaborates on research projects funded by various industrial companies.

Cosentino has been a reviewer for the *International Journal of Thermodynamics*. She is co-author of two papers published in international journals, and six papers presented at international conferences including three at ASME conferences: the 2014 and 2015 International Mechanical Engineering Congress and Exposition, and the 2014 12th Biennial Conference on Engineering Systems Design and Analysis.



Dr. Sciacovelli is a research fellow at the Birmingham Centre for Energy Storage within the School of Chemical Engineering at the University of Birmingham, U.K. Previously he was a research associate (2010-14) at Politecnico di Torino, Italy.

His research focuses on the formulation of material for thermal energy storage and the design of thermal storage devices, and their optimal integration into energy systems. He closely collaborates with both academic partners - including Imperial College London; Virginia Polytechnic Institute and State University, Blacksburg; and the University of Melbourne, Australia - and industrial stakeholders.

Sciacovelli is the author/co-author of more than 60 papers published in peer-reviewed international journals and conference proceedings. He regularly serves as a reviewer for several ASME journals.

His contributions to the field of design and optimization of energy systems have been recognized with the Roland W. Lewis Award (2009) at the First International

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## *Edward F. Obert Award (cont.)*

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Conference on Computational Methods for Thermal Problems (Naples, Italy), and the Zienkiewicz fellowship (2014) for the Third International Conference on Computational Methods for Thermal Problems (Lake Bled, Slovenia).

Sciacovelli earned his master's degree in mechanical engineering and his Ph.D. in energy engineering from Politecnico di Torino in 2006 and 2010, respectively.

Dr. Verda is a professor in the energy department at Politecnico di Torino, Italy, where he teaches thermodynamics and heat transfer, advanced thermodynamics and energy conversion at the graduate level. He is also the coordinator for two European projects in the energy department's research group and coordinator for the department's Student Mobility Program.

His research covers a number of different areas of thermodynamics and heat transfer including thermoeconomic analysis and diagnosis of energy conversion systems, analysis and optimization of district heating networks, thermal energy storage systems and fuel cells, and multiscale modeling of fire events in tunnels, buildings and forests.

Verda has authored/co-authored more than 100 papers that have been published in international journals or presented at conferences, and two textbooks. He is associate editor of *Energy* and the *International Journal of Thermodynamics*.

An ASME member, Verda has served on the Advanced Energy Systems Division's Executive Committee and is now chair (2016–17). He is an associate editor of the *Journal of Electrochemical Energy Conversion and Storage*. In 2003 he was co-recipient of the Society's Edward F. Obert Award.

Verda earned his bachelor's and master's degrees in mechanical engineering from Politecnico di Torino in 1996. He earned his Ph.D. in energy engineering from Politecnico and the University of Zaragoza, Spain, in 2001. He is a professional engineer in Italy.



# Old Guard Early Career Award

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NATHANIEL TAYLOR

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE OLD GUARD EARLY CAREER AWARD was established in 1994 to help the young engineer bridge the gap between college and professional life. Its intent is to bring that individual closer to the activities of ASME by providing encouragement for graduating student members to upgrade to member and actively become involved in the work of the Society.

NATHANIEL TAYLOR, EIT, Ph.D., lecturer, Harvard John A. Paulson School of Engineering and Applied Sciences (Cambridge, Mass.), *for more than eight years of inspirational leadership within ASME that has had an impact on young engineers; and for extraordinary qualifications for a career in academia that will have a long-term impact on the profession.*



Dr. Taylor earned his bachelor's and master's degrees in mechanical engineering from Drexel University, Philadelphia, in 2010 and 2015, respectively. He earned his Ph.D. in mechanical engineering from Drexel in September 2016 after defending his dissertation on microsecond spark discharge as a source of compression and its application to Stirling cryogenic coolers. He is a lecturer in engineering sciences at the Harvard John A. Paulson School of Engineering and Applied Sciences (Cambridge, Mass.).

Taylor has been researching electric plasma applications for the last seven years. Supported by a Fulbright research fellowship from the United States Department of State, Taylor spent 10 months of 2013-14 in Seoul, South Korea, doing research on the treatment of skin cancer cells using an atmospheric pressure electric plasma jet.

During the 2015-16 academic year, Taylor was an instructor at Rowan University (Glassboro, N.J.). In addition to teaching freshman and sophomore engineering clinic courses, he served as faculty co-advisor of the ASME Student Section at Rowan. Prior to teaching at Rowan, he taught in various capacities at Drexel for five years.

An ASME member, Taylor has been active in the Society since his sophomore year. He served as Planning Committee chair for the Philadelphia Early Career Forum (2007-08), and treasurer (2008-09) and chair (2009-10) of Student Section at Drexel. He was a member of the Student and Early Career Development Sector Council (2012-14). He has been serving on the Philadelphia Section Executive Committee and on the Human Powered Vehicle Challenge (HPVC) Committee since 2010. Since 2014 he has been head judge for HPVC-India, and as of 2016 he is chair of the HPVC Committee. Taylor received the Charles T. Main Student Leadership Award (Gold) in 2010, second place honors in the 2011 Arthur L. Williston paper competition, and the Academic Advisor of the Year Award from the Philadelphia Section in 2016.

Among his other honors, Taylor received a grant (2011) from the Pennsylvania Space Grant Consortium and freshman design teaching fellowships (2012, 2014) from Drexel University's College of Engineering.

# Rufus Oldenburger Medal

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JEAN-JACQUES SLOTINE

*Conferred at the Dynamic Systems and Control Conference,  
Minneapolis, October 2016*

THE RUFUS OLDENBURGER MEDAL was established in 1968 and is given in recognition of significant contributions and outstanding achievements in the field of automatic control through any of the following: education, research, development, innovation and service to the field and profession.

JEAN-JACQUES SLOTINE, Ph.D., professor, mechanical engineering and information sciences, and brain and cognitive sciences, Massachusetts Institute of Technology, Cambridge, for *significant contributions to control theory of nonlinear systems and robotics through seminal work on sliding mode control, adaptive nonlinear control and contraction analysis, which have influenced engineers and scientists worldwide.*

After receiving his aerospace engineer degree from École Nationale Supérieure de l'Aéronautique et de l'Espace (Toulouse, France) in 1981, Dr. Slotine came to the U.S. and earned his Ph.D. in estimation and control from the Massachusetts Institute of Technology (MIT), Cambridge, in 1983. He joined the MIT faculty following one year with AT&T Bell Laboratories (Holmdel, N.J.), where he worked in the computer research department.

At MIT, Slotine is currently professor of mechanical engineering and information sciences, professor of brain and cognitive sciences, and director of the Non-linear Systems Laboratory. He teaches and conducts research in the areas of dynamic systems, robotics, control theory, computational neuroscience and systems biology. Research in his laboratory has focused on the development of rigorous, yet practical, tools for nonlinear systems analysis and control; and has provided key advances and experimental demonstrations in the contexts of sliding control, adaptive nonlinear control, adaptive robotics, telepresence, machine learning and contraction analysis of nonlinear systems.

Slotine has held invited professor positions at Collège de France, Paris; École Polytechnique (Palaiseau, France); École Normale Supérieure, Paris; University of Rome, La Sapienza; and ETH Zurich. He was a member of the French National Science Council (1997–2002), the scientific advisory board to the prime minister; and the advisory board (2007–10) for Singapore Immunology Network (SigN), a research institute under Singapore's Agency for Science, Technology and Research (A\*STAR). He is currently a member of the scientific advisory board for the Italian Institute of Technology, Genoa.

One of the most cited researchers in both systems science and robotics, Slotine has published more than 80 peer-reviewed archival journal papers and over 100 conference papers. He co-authored two popular graduate textbooks: "Robot Analysis and Control" with Dr. Haruhiko Asada (John Wiley and Sons, 1986) and "Applied Nonlinear Control" with Dr. Weiping Li (Prentice Hall, 1991). Slotine holds five U.S. and two German patents.



# Outstanding Student Section Advisor Award

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KOK-KEUNG LO

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE OUTSTANDING STUDENT SECTION ADVISOR AWARD, established in 1990 as the Faculty Advisor Award, is awarded to an ASME member who is a current or former Student Section advisor whose leadership and service qualities have contributed, for at least three years, to the programs and operations of a Student Section of the Society.

KOK-KEUNG LO, CEng, R.P.E., expert witness (self-employed), *for more than 10 years of outstanding service as advisor for the ASME Student Section at The Hong Kong Polytechnic University, inspiring students through dedicated leadership and endless encouragement.*



Following an early career in industry and 40 years of dedicated service in academia, Mr. Lo continues to promote the engineering profession and apply his knowledge as one of the most sought-after expert witnesses in Hong Kong.

After completing four years of engine apprentice training at Tai Koo Dockyard and Engineering Co. Ltd., Lo became a sea-going marine engineer with the Indo China Steam Navigation Company. At the same time, he studied mechanical engineering at Hong Kong Technical College. After earning his higher diploma in 1972, he was an assistant engineer at China Light and Power Company.

In 1975 Lo joined the faculty at The Hong Kong Polytechnic University (PolyU), previously Hong Kong Technical College, as an associate lecturer and taught various engineering subjects through 1999. In 2000 he was transferred to an engineering post. As technical support group leader in the mechanical engineering department, Lo was responsible for experimental rigs design and build for research students and professors. From 2005 until his retirement from PolyU in August 2015, he was also responsible for technical management and support for the department's 18 laboratories.

Since 1994 Lo also has been serving as an expert witness in the Hong Kong courts of law, providing expert witness testimony and evidence related to accidents and mechanical engineering defects. Of late, he has been an expert witness in traffic accident cases.

An ASME member, Lo was active in promoting the Society among PolyU departments since the launch of the Student Section in 1999. He assumed the Student Section advisor position in 2002, and contributed significantly and consistently in that position until his 2015 retirement. During his 13 years of service, Lo's passion, dedication, and commitment to the students and the profession brought forth many achievements. Under his guidance, the Student Section Executive Committee was able to organize many voluntary activities related to mechanical engineering (e.g. technical visits, technical talks, car maintenance workshop). Lo encouraged engineering students to participate in the annual ASME Student Design Competition and supported their efforts. Under his leadership, the PolyU team won 12 times in Region XIII/ District G competitions; and a team earned second place in 2008 and third place in 2012 in the final competition at the International Mechanical Engineering Congress and Exposition. The team members all started their careers as mechanical engineers after graduation.

Among Lo's initiatives to serve PolyU student members was the Young Inventor Competition, an annual event to arouse secondary school students' interest in engineering. The competition, which began in 2000, is now jointly organized with the

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## Outstanding Student Section Advisor Award (cont.)

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Mechanical, Marine, Architecture and Chemical Division of the Hong Kong Institution of Engineers; and the Institution of Mechanical Engineers, Hong Kong. In 2015 more than 40 teams competed; and Lo, as honorable technical advisor since its inception, continues to sow the seed for engineering as a career choice. As an educational fundraiser, Lo delivered a short course on car maintenance to the general public; all net revenue was donated to the PolyU Student Section to fund special projects proposed by members. Lo also gave well-attended talks to members and the general public on forensic engineering, demonstrating how to use engineering knowledge to solve problems.

Lo is a Fellow of the Institution of Mechanical Engineers and the Institute of Marine Engineering, Science and Technology; and a member of the Hong Kong Institution of Engineers and SAE International. He is a chartered engineer and a registered professional engineer in Hong Kong. Lo holds two U.S. patents and has eight patents (one U.S. and seven Hong Kong) pending.

## Performance Test Codes Medal

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MATTHEW J. DOOLEY

*Conferred during Performance Test Code Committee Week,  
Charlotte, N.C., June 2016*

THE PERFORMANCE TEST CODES MEDAL, established in 1981, is awarded to an individual or individuals who have made outstanding contributions to the development and promotion of ASME Performance Test Codes, including the Supplements on Instruments and Apparatus.

MATTHEW J. DOOLEY, CEM, P.E., consultant, Horizon Engineering, LLC (Granby, Conn.), for significant contributions to performance test codes, particularly for the testing of overall power plant performance; and for exceptional efforts in the area of steam generator performance testing.

An independent consultant with Horizon Engineering, LLC (Granby, Conn.), Mr. Dooley has nearly 40 years of experience in the power generation industry. Throughout his career he has been active in the testing, analysis and optimization of a variety of power generation equipment. For the last 26 years Dooley has been involved in the evaluation, optimization and improvement of various industrial energy cycles with a focus on increasing efficiency and reducing emissions.

Dooley's Connecticut-based career began in 1977 at Combustion Engineering. Initially a test engineer, he was subsequently promoted to manager of performance testing. Combustion Engineering was acquired by ABB and in 1992 he moved to a senior consultant position. Alstom Power acquired ABB in 2000 and Dooley moved into the position of manager of energy assessment and thermal performance; and then, until late 2015, he was an executive consultant. In May 2016 Dooley retired from the position of executive consultant at GE Power.

He has published more than a dozen papers and holds two patents.



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## *Performance Test Codes Medal (cont.)*

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A member of ASME, Dooley has been active in the development of the Society's codes and standards through service on various committees including the Performance Test Codes (PTCs) Standards Committee. He has been a member of PTC 4–Fired Steam Generators, PTC 4.4–Gas Turbine Heat Recovery Steam Generators (chair, 1990–2000) and PTC 46–Overall Plant Performance Test (vice chair, 1998–2008) since 1985, 1990 and 1994, respectively. He was a liaison for PTC 22–Gas Turbines, and he served on the RAP Standard Committee on Power Plant Reliability, Availability and Performance. For the past several years Dooley has coordinated PTC paper sessions for the ASME Power Conference. He was honored as Engineer of the Year by the Hartford (Conn.) Section in 2009.

Dooley is also a member of the Association of Energy Engineers (AEE) and was recognized as the Region I Energy Efficiency Engineer of the Year in 2013.

He earned his bachelor's degree in mechanical engineering from Clarkson University (Potsdam, N.Y.) in 1977. Dooley is a registered professional engineer in New York and Connecticut; and, through AEE, is a certified energy manager.

## *Marshall B. Peterson Award*

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**HARMANDEEP S. KHARE**

*Conferred at the STLE Tribology Frontiers Conference,  
Chicago, November 2016*

THE MARSHALL B. PETERSON AWARD, established in 1997, is given to a young engineer in recognition of an early-career achievement and for promising research within the field of tribology.

HARMANDEEP S. KHARE, Ph.D., manager of research projects, University of Pennsylvania, Philadelphia, for fundamental, multiscale, in situ research on the tribology of solid and liquid lubricants including interfacial tribofilm formation, nanoparticle additive anti-wear behavior and instrument development; and for active engagement in the engineering community including organizing research symposia, providing research mentoring and through public outreach.



Dr. Khare earned his bachelor's degree in mechanical engineering from Panjab University (Chandigarh, India) in 2008. In 2014 he earned his Ph.D. in mechanical engineering from the University of Delaware, Newark. His doctoral research focused on friction and wear mechanisms in solid lubricants such as molybdenum disulfide and polymer nanocomposites, for which he also designed and fabricated custom instrumentation for high-temperature and in situ tribometry.

After obtaining his Ph.D., Khare joined the Carpick Nanotribology Group at the University of Pennsylvania, Philadelphia, as a postdoctoral research associate. His research at Penn has focused on exploring functional mechanisms of lubricated nanoscale contacts using novel in situ atomic force microscopy. In addition to his research, Khare has volunteered his time to teach an undergraduate course, mentor numerous undergraduate researchers, lead tribology and STEM (science, technology, engineering and mathematics) outreach events, and steer the organization of several symposia and seminars. He currently serves as manager of research projects in the lab of Dr. Robert W. Carpick.

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## *Marshall B. Peterson Award (cont.)*

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Khare's published research has been cited nearly 150 times, and he has given about 30 oral and poster talks at symposia and international conferences. His current work on nanoparticle additives has yielded four provisional patent applications.

An ASME member, he is also a member of the Society of Tribologists and Lubrication Engineers (STLE) and the Materials Research Society.

His honors include STLE's Best Poster Award (2012), Young Tribologist Award (2013), Scholarship Award from the Philadelphia Section (2013) and Early Career Researcher Award (2015); the University of Delaware's Graduate Fellowship (2012) and Professional Development Award (2012, 2014), and department of mechanical engineering Graduate Achievement Award (2013); Poster awards from the ASME/STLE International Joint Tribology Conference (2011) and the Gordon Research Seminar on Tribology (2014, 2016); and a Graduate Scholarship Award (2014) from the National Association for Surface Finishing.

## *Pi Tau Sigma Gold Medal*

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DAVID L. HENANN

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE PI TAU SIGMA GOLD MEDAL was established in 1938 by Pi Tau Sigma in coordination with ASME to recognize outstanding achievements by a young engineering graduate in mechanical engineering within 10 years following receipt of the baccalaureate degree.

DAVID L. HENANN, Ph.D., assistant professor of engineering, Brown University (Providence, R.I.), *for outstanding achievements in mechanical engineering within 10 years of graduation.*

Dr. Henann received his bachelor's degree in mechanical engineering from the State University of New York at Binghamton in 2006, followed by his master's degree and Ph.D. in mechanical engineering from the Massachusetts Institute of Technology (MIT), Cambridge, in 2008 and 2011, respectively. After postdoctoral appointments at MIT and Harvard University (Cambridge, Mass.), Henann joined the faculty at Brown University (Providence, R.I.) in 2013 as an assistant professor of engineering in solid mechanics.

His research interests are in the area of theoretical and computational solid mechanics, particularly the formulation of new continuum-level constitutive theories for describing material behavior. A complementary research interest is the quantitative modeling of material behavior through finite-element-based numerical simulation. Over the last 10 years Henann's research has focused on the modeling of amorphous materials such as metallic glasses, granular materials and polymeric elastomers; and addressing issues of large deformations, material time-dependence, size effects and multi-physics coupling. He currently leads a group of four Ph.D. students investigating coupled size-segregation and flow in dense, bidisperse granular systems; electrically-tunable metamaterials through dielectric elastomers; and modeling the time-dependent, large-deformation mechanics of foam rubbers.



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## *Pi Tau Sigma Gold Medal (cont.)*

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Henann's work has been published in leading journals on mechanics, materials and physics as well as top scientific journals, such as *Physical Review Letters* and the *Proceedings of the National Academy of Sciences*.

Henann has been a member of the ASME Applied Mechanics Division's (AMD's) Mechanics of Soft Materials Technical Committee since 2012. He co-organized the Symposium on Amorphous Solids: Modeling, Computation and Experiment at the 2012 International Mechanical Engineering Congress and Exposition (IMECE) and the Drucker Medalist Symposium at the 2014 IMECE. He received AMD's Haythornthwaite Research Initiation Grant in 2014.

He is a member of the Society of Engineering Sciences and the American Physical Society.

Henann's honors include the Richard B. Salomon Faculty Research Award (2015) from Brown University, the School of Engineering Dedicated Faculty Award from the students of Brown University Tau Beta Pi (2016) and a CAREER Award (2016) from the National Science Foundation.

## *James Harry Potter Gold Medal*

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**DEREK BRADLEY**

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE JAMES HARRY POTTER GOLD MEDAL was established in 1980 in recognition of eminent achievement or distinguished service in the appreciation of the science of thermodynamics and its applications in mechanical engineering.

DEREK BRADLEY, Ph.D., research professor, University of Leeds, U.K., *for outstanding contributions to the fundamental and applied developments on lean combustion and thermodynamic performance, which has resulted in improved design of engines and power plants; and for lifelong dedication to the education of students.*



Dr. Bradley earned his bachelor's degree and Ph.D. in mechanical engineering from the University of Leeds, U.K., in 1947 and 1949, respectively. He worked in various industrial positions before returning to Leeds in 1955. After serving as a lecturer, senior lecturer and reader, Bradley was appointed professor in 1978. He has been a research professor in the School of Mechanical Engineering since 1992.

Among his early industrial experience, Bradley worked for Metropolitan-Vickers (Manchester, U.K.) on steam and gas turbine design and manufacturing and for Imperial Chemical Industries' Dyestuffs Division (Manchester, U.K.) on the design and operation of a chemical plant.

At the University of Leeds, Bradley's interests have covered thermodynamics, nuclear engineering, fluid mechanics and computational fluid mechanics. As a specialist in the field of combustion, he has contributed to the fundamental understanding of flame structure, flammability limits, laminar and turbulent flame propagation, electrical properties of flames, air pollution, fire and explosion hazards, auto-ignition, detonation, and the particular problems of combustion in reciprocating engines, gas turbines and coal-burning plants. Industrial

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## James Harry Potter Gold Medal (cont.)

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collaborators have included Jaguar, the Rover Group, Daimler Benz, Hyundai, Lucas, Volkswagen, Shell, Rolls-Royce, Smiths Industries and Siemens.

In the area of fire and explosion hazards, Bradley was a consultant to British Gas on the Canvey Island Liquid Natural Gas Terminal, a collaborator with the UK Atomic Energy Authority on nuclear plant hydrogen explosions related to the Three Mile Island reactor incident, and a consultant to Airbus UK on the Concorde fire. He advised QinetiQ on the Kinloss Nimrod aircraft fire and loss and was a member of the Buncefield (oil storage terminal) Major Incident Investigation Board's Explosion Mechanism Advisory Group. Most recently he was a consultant to Shell Global Solutions in the general area of combustion.

A former editor (1986–2000) of *Combustion and Flame*, Bradley has served as a member of the editorial boards of the *Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences*; *Combustion Science and Technology*; *Progress in Energy and Combustion Science*; *Archivum Combustionis*; *Combustion, Explosion and Shock Waves*; and *Oxidation Communications*.

Bradley is a Fellow of the Royal Society, the Royal Academy of Engineering, the Institution of Mechanical Engineers and the Institute of Physics. He is a former chairman of the Committee of the Combustion Institute British Section and a former director of The Combustion Institute. He has served on a number of committees of the Royal Society and is a former committee member of the Institute of Physics' Combustion Physics Group.

Among his other honors, Bradley received The Combustion Institute's Alfred C. Egerton Medal (1992), Sugden awards (1987, 1994 and 2009) from the British Section and the Boris Gelfand Medal (2014) from the Russian Section; the Huw Edwards Prize (2007) from the Institute of Physics; and a number of Best Paper awards.

## Prime Movers Committee Award

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WEIZHONG FENG

*Conferred at the Power and Energy Conference and Exhibition,  
Charlotte, N.C., June 2016*

THE PRIME MOVERS COMMITTEE AWARD, established in 1954, recognizes outstanding contributions to the literature of thermal electric station practice or equipment which are available through public presentation and publication.

WEIZHONG FENG, general manager, Shanghai Waigaoqiao No. 3 Power Generation Co., Ltd., Shanghai, for the paper titled "Developing Green, Highly Efficient Coal-Fired Power Technologies."

Mr. Feng is the general manager of Shanghai Waigaoqiao No. 3 Power Generation Co., Ltd. in Shanghai. Previously he served as deputy chief engineer, chief engineer and deputy general manager, and was in charge of the engineering and construction of Shanghai Waigaoqiao Phase I, 4x300MW subcritical units; Shanghai Waigaoqiao Phase II, 2x900MW supercritical units; and Shanghai Waigaoqiao Phase III, 2x1000MW ultra-supercritical units.

Feng has made a large numbers of technological innovations since he took charge of the construction of the Shanghai Waigaoqiao Phase III project and set a



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## *Prime Movers Committee Award (cont.)*

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new benchmark for the world's coal-fired power generation industry. Therefore, in October 2014 the plant was certificated as the only national coal-fired power demonstration base of energy saving and emission reduction in China by China's National Energy Administration; and in 2015 the plant was recognized by *POWER* magazine as a Top Plant award winner in the coal-fired category.

Concurrently Feng serves as general manager of Shanghai Shenergy Energy Technology Co., Ltd. He is also an adjunct professor at Shanghai University of Electric Power; North China Electric Power University, Beijing; and Southeast University (Nanjing, China).

Feng holds 42 patents and has published 45 academic studies. At present his research interests are ultra-supercritical power generation technology, and energy saving and emission reduction technology.

He participated in the ASME 2015 Power Conference, making three presentations and publishing the paper titled "Developing Green, Highly Efficient Coal-Fired Power Technologies" (PowerEnergy 2015-49551). He is a keynote speaker at the ASME 2016 Power Conference.

Feng is a vice chairman of the China Energy Society, a member of the Chinese Society of Power Engineering's Boiler Committee, a member of the Chinese Society for Electrical Engineering's Turbine Committee and vice president of the Shanghai Society for Electrical Engineering's Automation Committee.

Among his honors, Feng won the second prize of the National Science and Technology Progress Award (2011) and the Ho Leung Ho Lee Foundation Prize for Scientific and Technological Innovation (2013).

## *Dixy Lee Ray Award*

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**JERALD L. SCHNOOR**

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE DIXY LEE RAY AWARD, established in 1998, recognizes significant achievements and contributions in the broad field of environmental protection. It honors not only those who have contributed to the enhancement of environmental engineering, but also those who have contributed to disciplines outside environmental engineering where accomplishments have indirectly impacted environmental protection.

JERALD L. SCHNOOR, P.E., Ph.D., Allen S. Henry chair professor in engineering, The University of Iowa, Iowa City, *for groundbreaking research on phytoremediation that led to the cost-effective degradation of organic chemicals in the environment; for research and practice leading to more sustainable water supplies; and for modeling the effects of acid precipitation that contributed to the passage of the Clean Air Act of 1990.*

Dr. Schnoor joined the College of Engineering faculty at The University of Iowa, Iowa City, in 1977 and is currently the Allen S. Henry chair professor in engineering. He teaches undergraduate mechanical, chemical and civil engineering students about advanced systems for the sustainable use of energy, water, materials and land. He co-founded the university's Center for Global and Regional Environmental Research in 1990 and serves as co-director.

Schnoor has devoted his career to understanding environmental processes and utilizing that knowledge to protect the environment. He has testified several times before Congress on environmental protection including the importance of passing the 1990 Clean Air Act. He was elected to the National Academy of Engineering in 1999

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## Dixy Lee Ray Award (cont.)

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for his pioneering work using mathematical models in science policy decisions. Schnoor chaired the Board of Scientific Counselors for the U.S. Environmental Protection Agency's Office of Research and Development (2000–04) and served on the agency's Science Advisory Board (2000–08). He also served on the National Advisory Environmental Health Sciences Council for the National Institute of Environmental Health Science (2007–11).

His models of water quality and his research using plants in phytoremediation were foundational to the field of environmental engineering and led to fundamental advances in molecular biology and microbiology. Recently, his expertise in water sustainability and climate change has resulted in a number of distinguished lectureships and appointments.

Schnoor has published more than 200 research articles in archival journals; edited six books; and authored the book titled "Environmental Modeling–Fate and Transport of Pollutants in Water, Air and Soil" (Wiley, 1996), which is used in engineering classes globally. He served as the editor-in-chief of *Environmental Science and Technology* (2003–14).

Schnoor is a member of ASME, the American Society of Civil Engineers (ASCE), the American Institute of Chemical Engineers, the American Water Works Association, the Water Environmental Federation and the Association of Environmental Engineering and Science Professors (AEESP). He is also a member of Tau Beta Pi, the Engineering Honor Society; Omega Chi Epsilon, the Chemical Engineering Honor Society; and Chi Epsilon, the Civil Engineering Honor Society.

His extensive list of honors includes ASCE's Simon W. Freese Award (2010), the National Water Research Institute's Athalie Richardson Irvine Clarke Prize (2010), an Einstein distinguished professorship (2013) from the Chinese Academy of Sciences and the Perry L. McCarty/AEESP Founders' Award (2015).

Schnoor earned his bachelor's degree in chemical engineering from Iowa State University, Ames, in 1972. He earned his master's degree in environmental health engineering and his Ph.D. in civil engineering from The University of Texas at Austin in 1974 and 1975, respectively. Schnoor is a registered professional engineer in Iowa.



# Charles Russ Richards Memorial Award

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KENNETH E. GOODSON

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE CHARLES RUSS RICHARDS MEMORIAL AWARD, established in 1944, was named in honor of a founder of Pi Tau Sigma. It is given to an engineering graduate who has demonstrated outstanding achievements in mechanical engineering for 20 years or more following graduation.

KENNETH E. GOODSON, Ph.D., Davies family provostial professor and Robert Bosch chairman of the mechanical engineering department, Stanford University, California, for outstanding achievements in mechanical engineering for 20 years or more following graduation.



Dr. Goodson joined the faculty at Stanford University, California, in 1994. He is currently the Robert Bosch chairman of the mechanical engineering department and the Davies family provostial professor.

Goodson is a heat transfer specialist with interests ranging from electronics cooling to waste heat harvesting. His lab pioneered phonon free path measurements using silicon nanolayers and has highly cited papers on conduction physics and metrology, novel conduction materials and microfluidic heat sinks. Current projects are extending the extreme heat flux limits for power electronics and exploring thermoelectric-powered silicon sensors for buildings. Nearly half of Goodson's 40 Ph.D. alumni are tenure-track professors at schools including the Massachusetts Institute of Technology

(MIT), Cambridge; the University of California, Berkeley; and Stanford. Goodson co-founded Cooligy, Inc. (Mountain View, Calif.), which developed heat sinks for the Apple G5; Cooligy was acquired by Emerson in 2006.

He has authored/co-authored nearly 200 archival journal articles and more than 300 refereed conference papers, nine book chapter and two books. He holds 34 U.S. patents.

An ASME Fellow, Goodson has been a member of the Heat Transfer Division's K-8 Committee on Theory and Fundamental Research and K-16 Committee on Heat Transfer in Electronic Equipment since 1994. Previously Goodson served as an associate editor of the *Journal of Heat Transfer* (2008–12). He received the Allan Kraus Thermal Management Medal in 2010 and the Heat Transfer Memorial Award–Science in 2014.

Goodson is also a Fellow of the American Association for the Advancement of Science, the American Physical Society and the IEEE.

His other honors include the American Institute of Chemical Engineers' Donald Q. Kern Heat Transfer Award (2015); SEMI-THERM's THERMI Award (2013); the Semiconductor Research Corporation's Technical Excellence Award (2014); and named lectureships at MIT, Purdue University and the University of Illinois at Urbana-Champaign (2015).

Goodson earned four degrees at MIT: bachelor's degrees in mechanical engineering and in humanities in 1989; and his master's degree and Ph.D. in mechanical engineering in 1991 and 1993, respectively.

# Ralph Coats Roe Medal

JAMES J. DUDERSTADT

*Conferral at the Honors Assembly,  
2016 International Mechanical Engineering Congress and Exposition*

THE RALPH COATS ROE MEDAL, established in 1972, recognizes an outstanding contribution toward a better public understanding and appreciation of the engineer's worth to contemporary society.

JAMES J. DUDERSTADT, Ph.D., president emeritus and university professor of science and engineering, University of Michigan, Ann Arbor, *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.*

Throughout his career Dr. Duderstadt has made substantial contributions to the engineering profession and society through research, teaching, public policy, and service activities. He is currently president emeritus and university professor of science and engineering at the University of Michigan (U-M), Ann Arbor, where he teaches in the Science, Technology and Public Policy program; and directs the Millennium Project, a research center that explores the impact of over-the-horizon technologies on society.

Duderstadt joined the faculty in the department of nuclear engineering at U-M in 1968 following an Atomic Energy Commission postdoctoral fellowship at the California Institute of Technology, Pasadena. He rose through the ranks, becoming a full professor in 1975, dean of the College of Engineering in 1981, and provost and vice president for academic affairs in 1986. He was elected president of U-M in 1988 and served in that role until 1996. Under his leadership, many new programs were initiated, a modern engineering campus was created, and research expenditures increased through fostered university-industry-government collaborations. Duderstadt led the effort to make U-M a leader in the area of underrepresented minority and women students and faculty with the launch of the Michigan Mandate and the Michigan Agenda for Women campaigns.

His teaching and research interests have spanned a wide range of subjects in science, mathematics and engineering including nuclear fission reactors, thermonuclear fusion, high-powered lasers, computer simulation, information technology, and policy development in areas such as energy, education and science. He has published extensively in these areas, including over 30 books and 200 technical publications.

Duderstadt has served on or chaired numerous public and private boards including the National Science Board; various committees of the National Academies including the Executive Council of the National Academy of Engineering and the Committee on Science, Engineering and Public Policy; the National Commission on the Future of Higher Education; the Nuclear Energy Advisory Committee of the U.S. Department of Energy (DOE); and business organizations such as the Big Ten Athletic Conference, the University of Michigan Hospitals, Unisys and CMS Energy.

He currently serves as chair of the Policy and Global Affairs Division of the National Academies, co-director of the Glien Colloquium (Switzerland), nonresident Senior Fellow of the Brookings Institution, and director of the board of directors of the DOE CASL (Consortium for Advanced Simulation of Light Water Reactors) Nuclear Energy Innovation Hub. He also serves on several major national boards and study commissions in areas such as federal science policy, higher education, information technology, energy sciences and national security; and as a member of the advisory boards of several colleges and universities.



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## *Ralph Coats Roe Medal (cont.)*

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Duderstadt has been elected to numerous societies including the National Academy of Engineering, the American Academy of Arts and Science, The Phi Beta Kappa Society, and Tau Beta Pi, the Engineering Honor Society.

Among his other honors, Duderstadt received the American Nuclear Society's Arthur Holly Compton Award in Education (1985); DOE's Ernest Orlando Lawrence Award (1986) for excellence in nuclear research; the National Medal of Technology and Innovation (1991) bestowed by President George H.W. Bush for excellence in the development and implementation of strategies for engineering education, and for successes in bringing women and minorities into the nation's technological workforce; and the National Science Board's Vannevar Bush Award (2015) for lifelong leadership in science and higher education.

Duderstadt received his bachelor's degree in engineering, summa cum laude, from Yale University (New Haven, Conn.) in 1964. He earned his master's degree in engineering science and his Ph.D. in engineering science and physics from the California Institute of Technology in 1965 and 1967, respectively. Duderstadt has received numerous honorary degrees.

## *Safety Codes and Standards Medal*

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**MICHAEL MILLS**

*Conferred at the P30 Committee Meeting,  
Dallas, October 2016*

THE SAFETY CODES AND STANDARDS MEDAL was established in 1986 to recognize contributions to the enhancement of public safety through the development and promotion of ASME safety codes and standards or through ASME safety accreditation activity.

MICHAEL MILLS, ARM, CRIS, CSP, technical director for construction and energy, Liberty Mutual Insurance, Boston, *for dedication to the enhancement of public safety in the load handling industry; and for leadership in improving load handling practices, and in the establishment of the P30 Committee and the development of the Planning for Load Handling Activities Standard.*



Mr. Mills graduated from Chaminade University of Honolulu with a bachelor's degree in computer science in 1981. After serving as an officer in the U.S. Navy (1982–86), he joined Liberty Mutual Insurance, Boston, in 1987.

During his time in Liberty Mutual's risk control services department, Mills has consulted strategically with several top U.S. contractors; has played a leadership role in setting risk selection standards for Liberty Mutual's construction business; and has collaborated with policyholders to help them reduce their risk through effective preplanning, and analysis of their processes and risk management procedures.

Currently, as technical director for construction and energy, Mills is responsible for overseeing technical quality of the risk control services provided to customers in the construction and energy sectors nationwide. He coaches, mentors and trains Liberty Mutual's risk control services consultants in safety and risk management. He also develops resources

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## *Safety Codes and Standards Medal (cont.)*

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for policyholders, and consults with key internal stakeholders and clients on critical industry trends and initiatives.

Since 1993, through the Board of Certified Safety Professionals, Mills has been a certified safety professional in comprehensive practice. He also earned his associate in risk management designation from The Risk Management Society and his construction risk and insurance specialist certification from the International Risk Management Institute.

A member of ASME, Mills has been active on various standards committees since 2000. Initially an alternate on B30–Safety Standards Committee for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings, he became a full member of the committee in 2013. Mills was instrumental in the establishment of the P30 Standards Committee–Planning for the Use of Cranes, Derricks, Hoists, Cableways, Aerial Devices and Lifting Accessories. In May 2016 he was elected chair of P30.1–Planning for Load Handling Activities; he had been serving as vice chair since 2010. Mills helped establish B30.27–Material Placement Systems and served on the committee through publication of the first edition of the standard in 2005. He has been an active member of B30.1–Jacks, Industrial Rollers, Air Casters, and Hydraulic Gantries since 2005; B30.7–Winches since 2006; and B30.26–Rigging Hardware since 2000.

Mills is also a member of the American Society of Safety Engineers.

## *R. Tom Sawyer Award*

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**NICHOLAS CUMPSTY**

*Conferred at ASME Turbo Expo,  
Seoul, South Korea, June 2016*

THE R. TOM SAWYER AWARD, established in 1972, is bestowed upon an individual who has made important contributions toward the advancement of the gas turbine industry, as well as the ASME International Gas Turbine Institute (IGTI), over a substantial period of time.

*NICHOLAS CUMPSTY, Ph.D., emeritus professor, Imperial College London, for outstanding contributions to the gas turbine industry through compressor aerodynamics research and university laboratory leadership, the publication of exemplary texts for students and practicing engineers, technological advancements for a major gas turbine manufacturer, and unceasing efforts to achieve technical excellence within IGTI and the ASME journals.*

Dr. Cumpsty earned his bachelor's degree in mechanical engineering from Imperial College London in 1964 and his Ph.D. from the University of Cambridge, U.K., in 1967. Following a research fellowship at Peterhouse, Cambridge, he joined Rolls-Royce Ltd. near Derby in 1969 and was part of a group that made strides in understanding noise produced by fans interacting with ambient turbulence.

In 1972 Cumpsty returned to the University of Cambridge, where he worked mostly with compressors in what became the Whittle Laboratory. He and his students, many who are now technology leaders in the gas turbine industry, worked on topics including stall and surge, loss mechanisms in compressors, tip clearance flows, spanwise mixing, three-dimensional enwall flows and leading edge flows.



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## *R. Tom Sawyer Award (cont.)*

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While at the University of Cambridge, Cumpsty had close links to Rolls-Royce and served on its advisory board. He also was an academic visitor at the California Institute of Technology, Pasadena (1978-79); a visiting professor (1989-90) and Jerome C. Hunsaker visiting professor (1991-92) at the Massachusetts Institute of Technology (MIT), Cambridge; and director of the Whittle Laboratory (1990-99).

In 2000 Cumpsty left the University of Cambridge and rejoined Rolls-Royce in Derby where, as chief technologist, he contributed to all areas of the business. He retired from Rolls-Royce in 2005 and became a professor at Imperial College London. Cumpsty has been emeritus professor since 2008. In addition to continuing to contribute to research at Imperial College London and the Whittle Laboratory, Cumpsty works with the Osney Thermo-Fluids Laboratory at the University of Oxford, U.K., and the Gas Turbine Laboratory at MIT.

His publications include two books: “Compressor Aerodynamics” (Longman, 1989; Krieger, 2004) and “Jet Propulsion: A Simple Guide to the Aerodynamic and Thermodynamic Design and Performance of Jet Engines” (Cambridge University Press, 1997; second edition, 2003; third edition with Andrew Heyes, 2015).

An ASME Fellow, Cumpsty served as associate editor of the *Journal of Fluids Engineering* (1992-93) and the *Journal of Turbomachinery* (1993-95; 2004-14). From 1995 to 1997 he was chair of the ASME IGTI Turbomachinery Committee. He received the Society’s Gas Turbine Award in 1977 and 1986, and ASME IGTI’s Turbomachinery Best Paper Award in 2004 and Aircraft Engine Technology Award in 2008. He was named an IGTI Gas Turbine Scholar in 2009.

Cumpsty is also a Fellow of the Royal Academy of Engineering and the American Institute of Aeronautics and Astronautics. His other honors include the Institution of Mechanical Engineers’ George Stephenson Research Prize (1978).

## *Milton C. Shaw Manufacturing Research Medal*

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STEVEN Y. LIANG

*Conferred at the Manufacturing Science and Engineering Conference,  
Blacksburg, Va., June/July 2016*

THE MILTON C. SHAW MANUFACTURING RESEARCH MEDAL, established in 2009, recognizes significant fundamental contributions to the science and technology of manufacturing processes.

STEVEN Y. LIANG, Ph.D., Morris M. Bryan Jr. professor of advanced manufacturing systems, Georgia Institute of Technology, Atlanta, *for significant contributions to manufacturing science and technology through studies on physics-based analysis and modeling of machining and grinding processes.*

Dr. Liang joined the faculty at the Georgia Institute of Technology, Atlanta, in 1990 as an assistant professor. He subsequently held positions including Woodruff faculty fellow (1997-2002) and director of the manufacturing education program (2000-08). Since 2005 he is the Morris M. Bryan Jr. professor of advanced manufacturing systems.

Liang is renowned for his studies on physics-based analysis and modeling of machining and grinding processes. His contributions have been attributed to his persistent pursuit of analytical reasoning and physical understanding of complicated machining processes. While many researchers in the field rely primarily on experimental observations, Liang’s research paradigms, driven by physical principles and constitutive mechanics, have presented an unusual and yet important pathway to both scientific insights and practical applications that have had an impact on efficiency and

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## *Milton C. Shaw*

### *Manufacturing Research Medal (cont.)*

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competitiveness. With funding from government agencies, national labs and various industries, Liang has maintained a very active research program.

His research, with the involvement of a large number of academic advisees, has led to the publication of more than 400 archival articles including 86 papers and two books in just the last three years alone; and many of his undergraduate and graduate students have gone on to assume important and visible positions in industry and at peer institutions.

Liang's efforts to support the manufacturing research community have also included hosting the North American Manufacturing Research Conference, the International Symposium on Flexible Automation and ASME's Manufacturing Science and Engineering Conference at Georgia Tech.

An ASME Fellow, Liang has served in various positions on the Manufacturing Engineering Division's (MED's) Executive Committee (2001–06), including as chair. He received the Society's Blackall Machine Tool and Gage Award in 2005, and MED's Best Organizer of Symposium and Sessions Award in 1999 and Dedicated Service Award in 2014.

Liang is a member of SME and past president (2006–07) of the North American Manufacturing Research Institution of SME. He is also a member of the American Society for Engineering Education.

His honors include the Robert B. Douglas Outstanding Young Manufacturing Engineer Award (1991) from SME, the Ralph R. Teetor Educational Award (1995) from SAE International and Best Paper awards from the International Forum on Systems and Mechatronics (2013 and 2014).

Liang earned three degrees in mechanical engineering: his bachelor's degree from the National Cheng-Kung University, Taiwan, in 1980; his master's degree from Michigan State University, East Lansing, in 1984; and his Ph.D. from the University of California, Berkeley in 1987.



# Ben C. Sparks Medal

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ALLEN H. HOFFMAN

*Conferred at the Education Leadership Summit,  
Newport Beach, Calif., March 2016*

THE BEN C. SPARKS MEDAL, established in 1990, recognizes eminent service by an individual or collaborative team in promoting innovative, authentic, practice-based, engineering design/build experiences in undergraduate mechanical engineering or mechanical engineering technology education.

ALLEN H. HOFFMAN, P.E., Ph.D., professor of mechanical engineering, Worcester Polytechnic Institute, Massachusetts, *for long-term leadership in the development and implementation of the WPI Plan, an undergraduate project-based, experiential design education curriculum; and for numerous publications that describe the methods and outcomes of student projects that solve real-world problems.*



Dr. Hoffman has been a member of the faculty at Worcester Polytechnic Institute (WPI), Massachusetts, since 1970. A professor of mechanical engineering since 1983, he currently serves as group leader of the design faculty within the mechanical engineering department.

Hoffman has made seminal contributions to the WPI Plan, the university's groundbreaking undergraduate curriculum. He has been responsible for the development of a number of project-based design courses, and has developed and implemented improved methods for forming student design teams that are based upon an industrial entrepreneurial model. In 1999 Hoffman co-founded WPI's Assistive Technology Resource Center. The center solicits projects from agencies that provide services to persons with disabilities; these

projects are used as class projects throughout the undergraduate curriculum, as well as for senior design projects and graduate student research.

Hoffman and his students' efforts in the area of assistive devices and technology have resulted in more than 30 journal and conference publications, and two U.S. patents.

An ASME Fellow, Hoffman is a member of the Worcester, Mass., Section. Previously he served as faculty advisor of the Society's Student Section at WPI (1972-80).

Hoffman is a member of the American Society for Engineering Education, RESNA (the Rehabilitation Engineering and Assistive Technology Society of North America) and the American Congress of Rehabilitation Medicine. He has served on grant review panels for both the National Institutes of Health and the National Institute on Disability and Rehabilitation Research.

He was co-recipient of the Kappa Delta Elizabeth W. Lanier Award (1988) from the American Academy of Orthopaedic Surgeons. Hoffman's WPI honors include Board of Trustees' awards for Outstanding Teaching (1980) and Outstanding Research and Creative Scholarship (1989), and the Denise Nicoletti Trustees' Award for Service to Community (2006); and he was co-recipient, with two of his students, of the inaugural Kalenian Award (2006) for entrepreneurship.

Hoffman earned his bachelor's and master's degrees in mechanical engineering from WPI in 1963 and 1967, respectively. In 1970 he earned his Ph.D. in mechanical engineering from the University of Colorado, Boulder. He is a registered professional engineer in the commonwealth of Massachusetts.

# *Ruth and Joel Spira Outstanding Design Educator Award*

KATHRYN W. JABLOKOW

*Conferred at the International Design Engineering Technical Conferences,  
Charlotte, N.C., August 2016*

THE RUTH AND JOEL SPIRA OUTSTANDING DESIGN EDUCATOR AWARD was established as a division award in 1998. The award was elevated to a Society award in 2001 to recognize a person who exemplifies the best in furthering engineering design education through vision, interactions with students and industry, scholarship and impact on the next generation of engineers; and a person whose action serves as a role model for other educators to emulate.

KATHRYN W. JABLOKOW, Ph.D., associate professor of mechanical engineering and engineering design, The Pennsylvania State University, Malvern, *for significant and sustained contributions to design education and innovation research, design education in residence and online programs, and the development of a new multidisciplinary engineering design degree program.*

Dr. Jablokow joined the faculty at The Pennsylvania State University, University Park, in 1990 after spending a year as a National Science Foundation (NSF)-NATO postdoctoral fellow at RWTH Aachen, Germany. She is currently an associate professor of mechanical engineering and engineering design at Penn State's Great Valley School of Graduate Professional Studies in Malvern.

Jablokow helped develop Penn State's product realization and engineering leadership development minors, and also served as associate director of the Leonhard Center for the Enhancement of Engineering Education. She is the creator of four graduate-level engineering courses, focused on problem-solving, creativity and innovation, that have been integrated into both resident and online Penn State degree programs in systems engineering and engineering management. She is one of three Penn State engineering faculty members who designed, developed and teach a massive open online course on creativity, innovation and change, which has attracted over 250,000 learners since 2013. Jablokow played a key role in developing the multidisciplinary engineering design option of Penn State's undergraduate general engineering degree, which she now directs. Her groundbreaking research on cognition-based design, ideation flexibility and engineering innovativeness is supported by multiple grants from the NSF.

An ASME Fellow, Jablokow served as public relations officer for the Central Pennsylvania Section (1995) and ABET evaluator for mechanical engineering programs (2000-08). She was a member of the Technology and Society (T&S) Division's General and Executive committees (2004-08) and chair of the Emerging Technology and Society Program Committee (2004-08); and, subsequently, she served as chair of the T&S Division (2009-11). She co-chaired the track on globalization of engineering for the 2012 International Mechanical Engineering Congress and Exposition.

Jablokow is a senior member of IEEE; a member of the American Society for Engineering Education (ASEE), where she serves as a director of the Educational Research and Methods Division; and a member of the Steering Committee of the North American Chapter of the Design Society. She is also a member of Sigma Xi, the Scientific Research Society; and Phi Kappa Phi, the honor society for all academic disciplines.

Her honors include an Engineering Teaching Excellence Award (1994) from the W.M. Keck Foundation; an Outstanding Teaching Award (1994) from the Penn State Engineering Society; Teaching Excellence (2001, 2013) and Research Excellence (2009)

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# Ruth and Joel Spira Outstanding Design Educator Award (cont.)

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awards, and the Arthur L. Glenn Award for Faculty Innovation (2010) from Penn State Great Valley; and Best Paper awards from ASEE's Engineering Management (2002) and Design Engineering Education (2015) divisions, and ASEE Professional Interest Council II (2015).

Jablakow earned her bachelor's degree, master's degree and Ph.D. in electrical engineering from The Ohio State University, Columbus, in 1983, 1985 and 1989, respectively.

## Spirit of St. Louis Medal

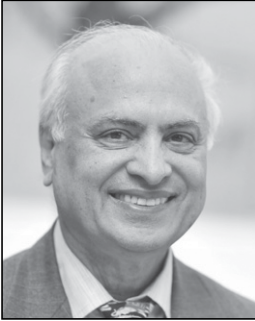
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INDERJIT CHOPRA

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE SPIRIT OF ST. LOUIS MEDAL was established in 1929 by Philip D. Ball, ASME members and citizens of St. Louis. It is awarded for meritorious service in the advancement of aeronautics and astronautics.

INDERJIT CHOPRA, Sc.D., distinguished university professor, University of Maryland, College Park, *for seminal contributions to rotorcraft aeromechanics that led to the development of smart rotor systems with active flaps capable of vibration reduction; for the development of innovative micro aerial vehicles; and for leadership in rotorcraft education and the innovative design of human powered helicopters.*



Dr. Chopra earned his bachelor's degree in aeronautical engineering from Punjab Engineering College (Chandigarh, India) in 1965 and his master's degree in aeronautical engineering from the Indian Institute of Science, Bangalore, in 1968. He began doctoral studies at the Massachusetts Institute of Technology (MIT), Cambridge, in 1974 and worked on dynamic analysis of wind turbines. After earning his Sc.D. degree in aeronautics and astronautics from MIT in 1977, Chopra joined the NASA Ames/Stanford University Joint Institute of Aeronautics and Acoustics (Stanford, Calif.), where he worked for four and a half years on the development of aeroelastic analysis and the testing of advanced helicopter rotor systems in full-scale wind tunnels.

In 1981 Chopra became a faculty member in the department of aerospace engineering at the University of Maryland, College Park, where he was promoted to full professor in 1986, served as department chairman (1988-90, 2009-10) and was the Minta-Martin research professor (1996-2000). He is currently the Alfred Gessow professor in aerospace engineering, distinguished university professor and director of the Alfred Gessow Rotorcraft Center.

Chopra has been working on various fundamental problems related to aeromechanics of helicopters including aeroelastic stability, active vibration control, composite blades, rotor head health monitoring, aeroelastic optimization, smart structures, micro air vehicles and comprehensive aeromechanics analyses.

His direct graduate advising has resulted in 50 Ph.D. and 91 master's degrees, and his students now hold key positions in the rotorcraft industry, in academia and at

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## *Spirit of St. Louis Medal (cont.)*

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federal labs. His students' performance in the American Helicopter Society's (AHS) Graduate Student Design Competition (first place 14 times in 17 participations; world record of 97.1 seconds with student-built human powered helicopters) demonstrates Chopra's leadership in rotorcraft education.

He has been a member of the Army Science Board (1997-2002), and the NASA (National Research Council) Aeronautics and Space Engineering Board (2007-12) and Research and Technology Roundtable Board (2011-15).

Chopra is author/co-author of more than 200 archival journal papers and 370 conference proceedings papers, and co-author of a book titled "Smart Structures Theory" (Cambridge University Press, 2014).

An ASME Fellow, Chopra has been a member of the Aerospace Division's Adaptive Structures and Materials Technical Committee since 1993, and served as vice chair (1996-98) and chair (1998-2000). He previously served on the division's Executive Committee (2000-04; chair 2002-03). Chopra has been serving on the Congressional Aviation Committee and the Guggenheim Award Selection Committee since 2002 and 2003, respectively. He received the Aerospace Division's Adaptive Structures and Material Systems Prize in 2001.

Chopra is an Honorary Fellow of the AHS, and a Fellow of the American Institute for Aeronautics and Astronautics (AIAA) and the Aero Society of India.

Among his other honors, Chopra received the University of Maryland's Presidential Award for Outstanding Service (1995) and A.J. Clark School of Engineering's Faculty Outstanding Research Award (2002); AIAA's Structures, Structural Dynamics and Materials Award (2002); AHS's Grover E. Bell Award (2002), Alexander Klemin Award (2009) and Igor Sikorsky International Trophy (2012); SPIE's Smart Structures and Materials Lifetime Achievement Award (2004); the Indian Institute of Science Centenary Distinguished Alumni Award (2008); and the American Helicopter Museum and Education Center's Achievement Award (2011).

## *J. Hall Taylor Medal*

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JON E. BATEY

*Conferred during Boiler Code Week,  
St. Louis, November 2016*

THE J. HALL TAYLOR MEDAL was established in 1965 by the ASME Codes and Standards Board as a gift from Taylor Forge and Pipe Works to commemorate the pioneering work of J. Hall Taylor in the standardization of industrial products and safety codes for their usage. It is awarded for distinguished service or eminent achievement in the codes and standards area pertaining to the broad fields of piping and pressure vessels sponsored by ASME.

JON E. BATEY, *for distinguished leadership and professionalism in the technical advancement of ASME codes and standards for nondestructive examination and postconstruction of pressure components; and for dedication to engineering and public safety as evidenced by committed service on ASME standards development committees.*

Mr. Batey began his career as a nondestructive examination (NDE) technician with Union Carbide Corporation at the Oak Ridge National Laboratory (ORNL), Tennessee, in 1977. In 1984, when Union Carbide ended its contract to manage the lab for the U.S. Department of Energy, Batey became an employee of Martin Marietta. At ORNL he worked on several fusion energy projects and provided inservice inspection services for five research nuclear reactors.

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## J. Hall Taylor Medal (cont.)

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Batey returned to Union Carbide in early 1988 as corporate NDE specialist and was responsible for developing procedures, and training and certifying NDE personnel. When Union Carbide merged with The Dow Chemical Company in 2001, he was assigned to the Maintenance Technical Services group at Freeport, Texas, as the site's NDE specialist. In 2007 he was appointed Dow's global inspection leader. In this position until his retirement in September 2016, Batey was responsible for third-party inspections performed for Dow at supplier fabrication shops.

Concurrent with his career with Union Carbide and Dow, Batey spent 26 years as a reservist in the U.S. Navy Seabees, retiring as a master chief petty officer in August 2013.

An ASME Fellow, Batey has served on code committees since 1979. He has been vice chair of the Boiler and Pressure Vessel (BPV) V Working Group on Acoustic Emissions and Working Group on Guided Wave Ultrasonic Testing since 2012. Prior leadership positions include vice chair (1998–2002) and chair (2002–14) of the BPV Standards Committee on Nondestructive Examination (V); chair of the BPV V Subgroup on Volumetric Examination (1997–2002); and vice chair (2013–16) of the Pressure Technology Post Construction Committee (PCC), and chair of its Executive Committee (2013–16) and the PCC Inspection Planning Subgroup (2010–13).

Batey is a member of Sigma Pi Sigma, the Physics Honor Society.

He earned his bachelor's degree in physics, with honors, from Southwest Texas State University, San Marcos, in 1977. Batey received ASNT (American Society for Nondestructive Testing) Level III certifications in radiographic, ultrasonic, liquid penetrant, magnetic particle, leak and visual testing.

## Robert Henry Thurston Lecture Award

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ROMESH C. BATRA

*Conferral at the Thurston Lecture,  
2016 International Mechanical Engineering Congress and Exposition*

THE ROBERT HENRY THURSTON LECTURE AWARD was established in 1925 in honor of ASME's first president. It provides an opportunity for a leader in pure and/or applied science or engineering to present to the Society a lecture that encourages stimulating thinking on a subject of broad interest to engineers. The Robert Henry Thurston Lecture Award was elevated to a Society award in 2000.

ROMESH C. BATRA, Ph.D., Clifton C. Garvin professor, Virginia Polytechnic Institute and State University, Blacksburg, *for outstanding contributions to the understanding of the physics of adiabatic shear banding phenomenon including proposing shear band initiation criterion, thermomechanical material models and shear band width definition, and delineating the effects of material parameters on its acceleration and deceleration.*

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.

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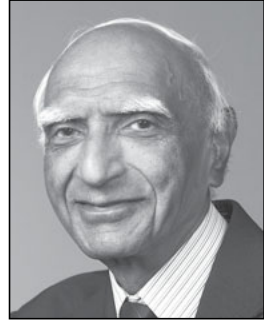


## Robert Henry Thurston Lecture Award (cont.)

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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 adiabatic 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.

An ASME Fellow, Batra organized and co-chaired the 2002 U.S. National Congress of Theoretical and Applied Mechanics (sponsored by ASME and other professional societies) and the 1999 Mechanics and Materials Conference. He was associate technical editor for the *Journal of Engineering Materials and Technology* (1996–2000) and chair of the Applied Mechanics Division's (AMD) Elasticity Committee (1995–2000). Batra has been a member of the AMD–Materials Division Joint Committee on Constitutive Equations since 1995. He was recognized with Honorary Membership in 2015.

Batra is also a Fellow of the U.S. Association of Computational Mechanics; the Society of Engineering Sciences (SES), where he served as vice president (1995) and president (1996); the American Society for Engineering Education; and the American Academy of Mechanics.

Among his extensive list of honors, Batra was elected to Johns Hopkins University's Society of Scholars (1993); and he received the Alexander von Humboldt Foundation's Award for Senior Scientists (1992), the International Society of Computational Engineering Science's Eric Reissner Medal (2000), SES's Engineering Science Medal (2009), the Lee Hsun Research Award (2009) from the Chinese Academy of Sciences' Institute of Metals Research, the Hind Rattan (Jewel of India) Award (2016) from the Non-Residents of India Welfare Society, and numerous faculty and alumni awards.

Batra earned his bachelor's degree in mechanical engineering from Thapar University (Patiala, India) in 1968; his master's degree in mechanical engineering from the University of Waterloo, Ontario, in 1969; and his Ph.D. in mechanics and materials science from Johns Hopkins University, Baltimore, in 1972. Batra received a D.Sc. honoris causa from Thapar University in 2006; he is one of only three honored with this degree since the university was founded in 1956.

# Timoshenko Medal

RAY OGDEN

*Conferral at the Applied Mechanics Dinner,  
2016 International Mechanical Engineering Congress and Exposition*

THE TIMOSHENKO MEDAL was established in 1957 and is conferred in recognition of distinguished contributions to the field of applied mechanics. Instituted by the Applied Mechanics Division, it honors Stephen P. Timoshenko, world-renowned authority in the field, and it commemorates his contributions as author and teacher.

RAY OGDEN, Ph.D., George Sinclair professor of mathematics, University of Glasgow, U.K., *for distinguished work that transformed the research area of nonlinear elasticity into a well-established discipline; and for stimulating the work of a large number of practitioners in the multiphysical behavior of materials and modeling in biomechanics.*



Dr. Ogden is the George Sinclair professor of mathematics at the University of Glasgow, U.K. He has held this position since 1984 with the exception of two years (2010–12) as sixth century chair in solid mechanics at the University of Aberdeen, U.K. From 1986 to 1994 he served as head of Glasgow’s department of mathematics.

Previously Ogden was a professor of mathematics at Brunel University London (1981–84); and earlier was lecturer/reader in mathematics at the University of Bath, U.K. (1972–80) and a Science Research Council research fellow (1970–72) at the University of East Anglia (Norwich, U.K.). He has held visiting professorships in Austria, Australia, Canada, France, Greece, Ireland, Italy, Poland, South Africa, Spain, Sweden and the U.S.

Ogden is a world leader in solid mechanics including nonlinear elasticity. He has developed countless applications, notably rubber elasticity and the mechanics of soft biological tissue. His contributions to constitutive inequalities, wave propagation, growth mechanics, and the effects of pre-stress and residual stress are legendary. Ogden’s more recent contributions in nonlinear electroelastic and magnetoelastic interactions have set the standard.

He has published more than 250 papers in international journals, and several books including “Non-Linear Elastic Deformations” (Ellis Horwood, 1984; reissued, Dover, 1997) and “Nonlinear Electroelastic and Magnetoelastic Interactions” (Springer, 2014). He was executive editor of the *IMA Journal of Applied Mathematics* (1988–98) and solid mechanics editor of the *International Journal of Non-Linear Mechanics* (2005–15).

Ogden served as chair of the EUROMECH Solid Mechanics Conference Committee (2008–13) and chair of the Royal Society International Joint Projects/International Exchanges Committee (2010–12).

An ASME member, Ogden has been serving on the Applied Mechanics Division’s Elasticity Committee since 2000. He received the Society’s Warner T. Koiter Medal in 2005.

Ogden is a Fellow of the Royal Society of London, the Royal Society of Edinburgh and the Institute of Mathematics and its Applications.

His other honors include the William Prager Medal (2010) from the Society of Engineering Science and the Rodney Hill Prize in Solid Mechanics (2016) from Elsevier and the International Union of Theoretical and Applied Mechanics.

Ogden earned his bachelor’s degree in mathematics, and his master’s degree and Ph.D. in solid mechanics and applied mathematics at the University of Cambridge, U.K., in 1966 and 1970, respectively.

# Worcester Reed Warner Medal

ISAAC ELISHAKOFF

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE WORCESTER REED WARNER MEDAL was established in 1930 and is awarded for outstanding contributions to the permanent literature of engineering. Contributions may be single papers, treatises or books, or a series of papers.

ISAAC ELISHAKOFF, Ph.D., distinguished research professor, department of ocean and mechanical engineering, Florida Atlantic University, Boca Raton; and visiting distinguished professor, faculty of civil engineering, Technion-Israel Institute of Technology, Haifa, for seminal contributions to the permanent literature of engineering research through highly praised books on probabilistic theory of structures, elastic stability, the stochastic finite element method, safety factors and reliability of composite structures; and numerous breakthrough research papers over the past 40 years.

Dr. Elishakoff has been a member of the tenured faculty at Florida Atlantic University (FAU), Boca Raton, since 1991. Currently he is distinguished research professor in the department of ocean and mechanical engineering. He is also a visiting distinguished professor in the faculty of civil engineering at Technion-Israel Institute of Technology, Haifa.

Previously Elishakoff was a professor of aeronautical engineering (1984–89) at Technion, where he was a faculty member since 1972. He was the inaugural holder of the Frank M. Freimann chair professorship of aerospace and mechanical engineering (1985–86) and the Henry J. Massman Jr. chair professorship of civil engineering (1986–87) at the University of Notre Dame (South Bend, Ind.); a visiting Castigliano distinguished professor at the University of Palermo, Italy (1992); the inaugural holder of the W.T. Koiter chair professorship at the Delft University of Technology, the Netherlands (2000), where he also was previously an associate professor (1979–80) and a visiting professor (1990;1991); an eminent scholar at the Beijing University of Aeronautics and Astronautics (2007) and at Hunan University, China (2014); and a Royal Academy of Engineering distinguished visiting fellow at the University of Southampton, U.K. (2015).



Elishakoff is the author/co-author or editor/co-editor of 27 books published by prestigious publishing houses including Cambridge University Press, Oxford University Press and Imperial College Press. He has also published more than 460 journal articles covering both fundamental and applied contributions in stochastic mechanics, elastic stability, deterministic and random vibrations, non-probabilistic modeling of uncertainty, structural reliability and semi-inverse problems.

Since 1988 Elishakoff has been general advisory editor for publications on vibration, stability and reliability for the series "Studies in Applied Mechanics" and "Developments in Civil Engineering" (Elsevier Science Publishers, U.K.). He serves on the advisory editorial board for the Springer book series "Risk Engineering" and is scientific editor of the series "Mechanical Engineering and Solid Mechanics" (ISTE-Wiley Publishers, London).

Elishakoff has given over 200 lectures, including 36 invited and 20 keynote/plenary lectures, at national and international meetings and seminars. He has organized international conferences, and coordinated several special courses at CISM—the International Centre for Mechanical Sciences in Udine, Italy.

An ASME Fellow, Elishakoff organized several symposiums, served as associate editor of the *Applied Mechanics Reviews*, and published three books with ASME Press.

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## Worcester Reed Warner Medal (cont.)

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He was a Distinguished Lecturer from 1996 to 2002. At the 2009 International Mechanical Engineering Congress and Exposition, a Symposium on Stability, Structural Reliability and Random Vibrations was held in his honor.

Elishakoff is a member of the European Academy of Sciences and Arts; a foreign member of the Georgian National Academy of Sciences; a full member of the Academy of Engineering, Georgia; and a Fellow of the American Academy of Mechanics and the Japan Society for the Promotion of Science.

His other honors include a Batsheva de Rothschild Prize (1973) from the Batsheva de Rothschild Foundation for the Advancement of Science and Technology; and special medallions from the University of Notre Dame (1985) and the University of Tokyo (1992).

Elishakoff earned three degrees in mechanical engineering from the Moscow Power Engineering Institute: his bachelor's and master's degrees, summa cum laude, in 1968; and his Ph.D. in 1971.

## George Westinghouse Medals

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**KENNETH BRAY - GOLD**  
**ELIA MERZARI - SILVER**

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE GEORGE WESTINGHOUSE MEDALS were established to recognize eminent achievement or distinguished service in the power field of mechanical engineering to perpetuate the value of the rich contribution to power development made by George Westinghouse, honorary member and 29th president of the Society. The Gold Medal was established in 1952 and the Silver Medal in 1971.

### GOLD

*KENNETH BRAY, Ph.D., emeritus professor, University of Cambridge, U.K., for outstanding and lasting contributions to the power field through fundamental research and novel combustion model development that have significantly improved the efficiency and performance of gas turbine combustors; and for significant educational contributions that have produced world-class engineers and scientists.*



Dr. Bray has been a member of the faculty at the University of Cambridge, U.K., since 1985. He served as Hopkinson and Imperial Chemical Industries professor of applied thermodynamics. Since 1997 he is emeritus professor.

Previously Bray was with Southampton University, U.K. (1956–85), where he served in a number of positions including professor of gas dynamics, head of the department of aeronautics and astronautics, and dean of the faculty of engineering and applied science.

His research interests include topics in fluid mechanics and combustion, and he has explored the various ways in which turbulence interacts with combustion processes. Bray's seminal work includes the theoretical framework on combustion modeling, known in the

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## George Westinghouse Medals (cont.)

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combustion community as the Bray-Moss-Libby (BML) model on the thermochemistry of premixed turbulent combustion. His flamelet model is now used universally in different forms. Bray theoretically discovered the phenomena of counter diffusion transport in turbulent premixed flames, which was then verified by experiments. His work on turbulent combustion is a landmark that is widely used by other researchers in the field. His teaching and mentoring abilities have inspired generations of researchers, and many of his students hold leadership positions in industry and at academic institutions worldwide.

Bray has authored/co-authored more than 150 research papers and has presented many invited talks. He served as editor of *Combustion and Flame* (1981–86).

He is a Fellow of the Royal Society. Bray's other honors include the American Institute of Aeronautics and Astronautics' Energy Systems Award (1997) and The Combustion Institute's Bernard Lewis Gold Medal (1998).

Bray earned his bachelor's degree in engineering, with first class honors, from the University of Cambridge in 1953; his master's degree in engineering from Princeton University, N.J., in 1955; and his Ph.D. in engineering from Southampton University in 1961.

### SILVER

ELIA MERZARI, Ph.D., principal nuclear engineer, Argonne National Laboratory (Lemont, Ill.), for dedicated leadership and tireless support of ASME technical committees and conferences; and for outstanding contributions to the simulation of complex thermal-hydraulic phenomena in advanced nuclear reactor fuel bundles to enhance the safety and efficiency of next-generation advanced reactor designs.

Dr. Merzari received his bachelor's degree in engineering, under the supervision of Dr. Marco E. Ricotti, and his master's degree in nuclear engineering from Politecnico di Milano in 2003 and 2005, respectively. In 2008 he received his Ph.D. in nuclear engineering from the Tokyo Institute of Technology, under the supervision of Dr. Hisashi Ninokata, with a thesis on the use of advanced computational fluid dynamics techniques to simulate the flow in rod bundles. After graduation he remained at the institute as a JSPS (Japan Society for the Promotion of Science) fellow. In 2009 Merzari joined Argonne National Laboratory (Lemont, Ill.) as a post-doctoral fellow and, in 2010, as a staff member. He is now a principal nuclear engineer and holds a joint appointment in the Mathematics and Computer Science and the Nuclear Engineering divisions.



At Argonne, Merzari's work relies on predictive large-scale simulations of turbulence to improve the physical understanding of complex flows and to ultimately design safer and more efficient nuclear reactors. He has received several awards related to these efforts in the area of high-performance computing (HPC). Recently Merzari led the coupled simulation team of SHARP (simulation-based high-efficiency advanced reactor prototyping), which produced groundbreaking results including the first fully coupled calculation of all physics involved in reactor core simulations at high fidelity. He is currently leading a HIP (high impact problem) project on flow induced vibrations in advanced steam generators that is funded by the U.S. Department of Energy's NEAMS (Nuclear Energy Advanced Modeling Simulation) program.

Merzari has more than 80 publications in journals and refereed conference proceedings. He serves on the editorial advisory board for *Nuclear Engineering and Design*.

An ASME member, Merzari is vice chair of the Fluids Engineering Division's (FED)

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## George Westinghouse Medals (cont.)

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Computational Fluid Dynamics Technical Committee. He has been track chair/co-chair for several FED summer meetings; and for ICONE—the International Conference on Nuclear Engineering that is co-sponsored by ASME’s Nuclear Engineering Division. He has also been a reviewer for ASME journals

Merzari is also a member of the American Nuclear Society (ANS) and the International Association for Hydro-Environment Engineering and Research.

His honors include ANS’s Landis Young Member Engineering Achievement Award (2014), Young Member Excellence Award (2012) and Thermal Hydraulics Division Best Paper Award (2010); and the International Data Corporation’s HPC Innovation Excellence Award (2014).

### Arthur L. Williston Medal

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LEONG KA LONG KAREN

*Conferral at the Members and Students Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE ARTHUR L. WILLISTON MEDAL was established in 1954 and is presented to an ASME student member or member for the best paper submitted in the annual competition on a subject chosen to challenge their engineering abilities.

LEONG KA LONG KAREN, graduate trainee, ATAL Engineering Limited, Hong Kong, for the paper titled “Fuel Choice Regulation – The Way to Narrow the Gap Between Current IMO Marine Standard and 2025 Greenhouse Gas Emission Target.”



Ms. Leong graduated from The Hong Kong University of Science and Technology (HKUST) in June 2016 with a bachelor’s degree in mechanical engineering. She is currently working in Hong Kong as a graduate trainee at ATAL Engineering Limited, a contracting firm that specializes in environmental engineering. Leong was a trainee at ATAL while pursuing her degree.

She is passionate about the environment and has participated in activities related to environmental issues and solutions. In April 2016 Leong attended After COP21: Student Energy Forum, which was co-organized by the Hong Kong-America Center, HKUST and Konrad-Adenauer-Stiftung as a follow-up to COP21 in Paris. Her team earned best performance in a workshop that followed the seminars.

Leong has also pursued leadership development opportunities. As a delegate for HKUST, she attended the 6th University Scholars Leadership Symposium in Hong Kong in August 2015. At the themed conference – enrich, educate enlighten – she had an opportunity to exchange ideas with students from various countries.

An ASME member, Leong served as vice chair (2014–16) of the Student Section at HKUST and is now Student Section advisor (2016–17).

Leong is an affiliate member of the Institution of Mechanical Engineers.

# Henry R. Worthington Medal

BRUNO SCHIAVELLO

*Conferral at the President's Luncheon,  
2016 International Mechanical Engineering Congress and Exposition*

THE HENRY R. WORTHINGTON MEDAL, established in 1980, is bestowed for eminent achievement in the field of pumping machinery including, but not limited to, research, development, design, innovation, management, education or literature.

BRUNO SCHIAVELLO, research fellow, hydraulics, Flowserve Corporation (Bethlehem, Pa.), for four decades of technical leadership in the pump industry through contributions to hydraulic research, design and innovative technical solutions; for specific studies in the field of cavitation that are referenced in scientific literature; and for promoting scientific knowledge dissemination as lead organizer of ASME's Pumping Machinery symposia over the last decade.

Mr. Schiavello started his pump hydraulic research in 1973 while working on his bachelor's thesis at Worthington SpA (Desio, Italy). There he developed a computer model with losses and efficiency optimization, generating for the first time an efficiency chart with optimum design coefficients. He earned his bachelor's degree in mechanical engineering from the University of Rome in 1974. While pursuing his master's, his efforts included experimental research on pump suction recirculation and internal flows. He earned his master's degree in fluid dynamics from The von Karman Institute for Fluid Dynamics (VKI), Belgium, in 1975.



From 1975 to 1982, Schiavello worked at Worthington SpA as a hydraulic researcher and vertical pumps manager. He supervised joint research projects with VKI (suction recirculation); Politechnic University of Milan (incipient cavitation); and VNIIGhidromash Institute, Moscow (water-air pumps, mixed-flow models). He also worked on advanced hydraulic designs (pumps for 15 percent gas, vertical pumps) and 1D-design codes used in the company.

Schiavello moved to the U.S. in 1982 to work in central research at Worthington Corporation (Mountainside, N.J.), and became director, fluid dynamics in 1983. He maintained this position, through various acquisitions, working in New Jersey at the Dresser Pump Division, Ingersoll-Dresser Pumps and Flowserve Corporation. Schiavello played a worldwide role in research (recirculation, cavitation, pipeline pumps); in the design of a large variety of pumps (five lines, challenging orders); and in introducing advanced features for compactness (patents: double blade-row impeller, open-bowl diffuser), efficiency (continuous crossover diffuser) and wide operating range (low suction recirculation, enhanced life for cavitation). He was also responsible for troubleshooting (shop, field) and for computational fluid dynamic (CFD) studies (cavitation, head instability, high performance targets).

Since 2013 Schiavello is research fellow, hydraulics in the research and development/product development area at Flowserve Corporation (Bethlehem, Pa.), where he leads CFD research and design.

Schiavello has also shown technical leadership in the pump industry through lectures; cited publications; tutorials and short courses presented worldwide; societal activities; and the promotion of scientific knowledge dissemination through international symposium efforts including ongoing service on the Pump Advisory Committee (founding member, 1984) for the annual Pump Users Symposium organized by Texas A&M University's Turbomachinery Laboratory and on ASME's Pumping Machinery symposia.

*(continued)*

## Henry R. Worthington Medal (cont.)

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An ASME member, Schiavello is lead organizer for the 2017 International Symposium on Pumping Machinery, to be held during the Fluids Engineering Division (FED) Summer Meeting; he previously served in this capacity for the 2005, 2009, 2011 and 2015 symposiums. Schiavello is a member of FED's Fluid Applications and Systems Technical Committee. He served two terms as associate editor of the *Journal of Fluids Engineering* (1997-99, 2000-02), and has been a journal paper reviewer since 2003. He received FED's Fluids Machinery Design Award in 2006.

Schiavello's honors include an undergraduate student grant from Worthington SpA and the University of Rome's faculty of engineering (1973-74); and Worthington SpA's Henry R. Worthington European student fellowships (1974-75) and Henry R. Worthington European Award (1979). He is a professional engineer in Italy.

## Savio L-Y. Woo Translational Biomechanics Medal

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**B. BARRY LIEBER**

*Conferred at the Summer Biomechanics, Bioengineering and Biotransport Conference, National Harbor, Md., June-July 2016*

THE SAVIO L-Y. WOO TRANSLATIONAL BIOMECHANICS MEDAL, established in 2015, recognizes an individual who has translated meritorious bioengineering science to clinical practice through research, education, professional development, and with service to the bioengineering community.

B. BARRY LIEBER, Ph.D., professor, Stony Brook University; and director, Cerebrovascular Center for Research, Stony Brook University Medical Center, New York, for significantly advancing brain aneurysm treatment through the engineering and development of flow diversion technology that, to date, has been used to treat more than 50,000 patients worldwide.



Dr. Lieber is a professor in the department of neurosurgery at Stony Brook University and the director of the Cerebrovascular Center for Research at Stony Brook University Medical Center, New York. Prior affiliations include the University of Miami (2001-09) and the State University of New York at Buffalo (1987-2001).

Lieber has a strong background in engineering, animal models, and endovascular methods and devices, with specific expertise in cerebrovascular disease and stroke. His establishment of strong ties within the industry and with health care providers has enabled the rapid translation of his research to clinical practice.

He is the co-inventor of the flow-diverter, a device for endovascular bypass of brain aneurysms. This biomedical implant is considered one of the most innovative technologies in the field of neuro-intervention in the last decade and has been used to treat brain aneurysms in over 50,000 patients around the world.

Lieber holds several patents. He has published countless journal articles and four book chapters, edited two books, and given numerous invited papers and talks. He has been an associate editor for *Cardiovascular Engineering and Technology* since 2013.

*(continued)*



## *Savio L-Y. Woo*

### *Translational Biomechanics Medal (cont.)*

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An ASME Fellow, Lieber has been a member of the Bioengineering Division's (BED's) Fluid Mechanics Committee since 1987 and served as chair (2001-03). Among his other service, Lieber was chair of BED's Nominating Committee (2010-11), Executive Committee (2009-10) and Program Committee for the International Mechanical Engineering Congress and Exposition (2003); conference chair of the Summer Bioengineering Conference (2008); and an associate editor for the *Journal of Biomechanical Engineering* (2005-10).

Lieber is also a Fellow of the American Institute for Medical and Biological Engineering and a member of the Biomedical Engineering Society.

His honors include the University of Miami's College of Engineering Johnson A. Edosomwan Researcher of the Year (2005) and Scholarly Productivity (2006) awards; the American Society of Neuroradiology's Summa Cum Laude Award for Excellence of Scientific Exhibit (2004); and the Radiological Society of North America's Award for Excellence in Design (1998) and Merit Award for Scientific Excellence (1996, 1997 and 1998).

Lieber earned her bachelor's degree in mechanical engineering, magna cum laude, from Tel Aviv University, Israel, in 1979. He earned his master's degree and Ph.D. in aerospace engineering from the Georgia Institute of Technology, Atlanta, in 1982 and 1985, respectively.

### *S.Y. Zamrik PVP Medal*

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**ARTIN A. DERMENJIAN**

*Conferred at the Pressure Vessels and Piping Conference,  
Vancouver, British Columbia, July 2016*

The Pressure Vessel and Piping Medal was established in 1980. Renamed the S.Y. ZAMRIK PVP MEDAL in 2010, it is bestowed for outstanding contributions in the field of pressure vessel and piping technology including, but not limited to, research, development, teaching and significant advancements of the state of the art.

ARTIN A. DERMENJIAN, *for providing numerous services to ASME including Codes and Standards, and the Pressure Vessels and Piping Division; and for significant contributions to the design, analysis and maintenance of nuclear power plants worldwide.*

After earning his bachelor's degree in mechanical analysis and design from the University of Illinois at Chicago in 1973, Mr. Dermenjian joined the staff at Sargent & Lundy, Chicago. During nearly 40 years with the firm, he held positions with increasing levels of responsibility in the design, analysis and evaluation of nuclear power plant systems and components. He retired in 2012.

Dermenjian served as a member of Sargent & Lundy's leadership team, responsible for implementing the organizational goals and standard operating procedures to consistently provide quality work to meet or exceed customer requirements and to achieve excellence in the industry.

As a discipline manager and a process owner for nuclear piping analysis and mechanical design in Sargent & Lundy's nuclear power



*(continued)*

## *S.Y. Zamrik PVP Medal (cont.)*

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technologies group, Dermenjian was responsible for managing the analysis and design activities for 12 major work processes related to nuclear power plant design and plant modification. He managed a staff of engineering and design professionals, defined and developed project work scopes, and prepared cost estimates, budgets and schedules.

Dermenjian was also accountable for making sure the firm's design and analysis work scopes met the applicable ASME codes—including ASME Boiler and Pressure Vessel Code (BPVC) Section III—Rules for Construction of Nuclear Facility Components and B31.1—Power Piping—as well as American National Standards Institute standards. He coordinated interdisciplinary and client/vendor communications to resolve design problems, and participated in the resolution and disposition of Nuclear Regulatory Commission questions on design reviews and licensing issues. Dermenjian prepared in-house training material on ASME's BPVC for new career engineers. He also provided consulting services related to ASME operation and maintenance codes and standards to a Japanese nuclear utility group; his efforts included 17 years of formal presentations to group representatives in Tokyo.

An ASME Fellow, Dermenjian has supported Knowledge and Community, and Codes and Standards activities for more than 30 years. He served in numerous capacities in the Pressure Vessels and Piping Division (PVPD), on Operation and Maintenance (O&M) committees, and as a member of BPVC subgroups and working groups. He received ASME's Dedicated Service Award in 2002; numerous certificates of appreciation, recognition or acclamation (2000-12) from the Board of Governors, the Council on Codes and Standards, and PVPD; and the Nuclear Outstanding Service Medal from the O&M Standards Committee in 2015.

As a member of tasks groups for the Nuclear Construction Issues Group (NCIG), Dermenjian was an active participant in the preparation and development of two technical reports—NCIG-05—Guidelines for Piping System Reconciliation and NCIG-14—Procedure for Seismic Evaluation and Design of Small Bore Piping—used by the power industry to reverify the design basis of installed piping systems and components. NCIG-05 became the base document for the Welding Research Council's Bulletin WRC 316— Technical Position on Piping System Installation Tolerances; Technical Position on Damping Values for Insulated Pipe.

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