ASME
SETTING THE STANDARD

2015 HONORS & AWARDS

The American Society of Mechanical Engineers (ASME)

ASME

2015 Honors & Awards

Table of Contents

2015 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 Award 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 2015 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 2015 International Mechanical Engineering Congress, November 13–19, in Houston, Texas.

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ASME Medal

JAMES R. RICE

Conferral at the Honors Assembly,
2015 International Mechanical Engineering Congress and Exposition

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

JAMES R. RICE, Ph.D., Mallinckrodt professor of engineering sciences and geophysics, Harvard University, Cambridge, Mass., *for seminal contributions in the field of applied mechanics including the J-integral method in elastic-plastic fracture mechanics that has been broadly applied in mechanical engineering and related disciplines.*

Dr. Rice has been a leader in the field of applied mechanics for five decades. His pioneering ideas have had a major impact on engineering practice and have facilitated new directions of research.

Rice is currently the Mallinckrodt professor of engineering sciences and geophysics at Harvard University (Cambridge, Mass.), where he has been since 1981. From 1965 to 1981 he was a faculty member of the Division of Engineering at Brown University (Providence, R.I.). Initially an assistant professor at Brown, he was promoted to professor in 1970 and was named L. Herbert Ballou professor of theoretical and applied mechanics in 1973.

At Brown and Harvard, Rice has taught courses on topics including solid mechanics, fluid mechanics, fracture mechanics, computational mechanics, hydrology and environmental geomechanics, soil mechanics, earthquake source processes, mechanics in earth and environmental science, differential equations and complex variable theory.

Rice's scientific focus in recent decades is on solid and fluid mechanics, and related materials and thermal science, as directed to earth and environmental problems. These include fault zone shear processes, earthquake nucleation, dynamic rupture propagation, aseismic deformation transients, tsunami propagation, meltwater interactions with glacier and ice sheet dynamics, the origin of ice streams on the great ice sheets, landslide processes, and general hydrologic phenomena involving fluid interactions in deformation, flow and failure of earth materials.

His earlier work focused primarily (and exclusively up to the mid-1970s) on plastic deformation and cracking processes, principally in metals, as they arose in mechanical and materials engineering; and on related computational and analytical methodology. Efforts included foundational papers on determining elastic-plastic deformation fields near crack tips in ductile metals, on mechanisms of ductile fracture, and on the structure of elastic-plastic and creep constitutive relations.

Atop his extensive list of well-cited papers is "A Path Independent Integral and the Approximate Analysis of Strain Concentration by Notches and Cracks," published in ASME's *Journal of Applied Mechanics* in 1968. His discovery of a path independent integral, later called the J-integral, produced a quantum leap forward in the field of fracture mechanics.

An ASME Fellow, Rice served a four-year term on the Executive Committee of the Applied Mechanics Division, including chair (1986–87). He has participated in Society meetings and published occasionally in ASME journals. He received the Society's Henry Hess Award in 1969, Pi Tau Sigma Gold Medal in 1971, Timoshenko Medal in 1994 and Nadai Medal in 1996.

Rice is a Fellow of the American Academy of Arts and Sciences; an Honorary Fellow of the Royal Society of Edinburgh; a member of the National Academy of Engineering and the National Academy of Sciences; a foreign member of the Royal

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Society of London and the Academy of Sciences of the Institute of France; and a corresponding member of the Spanish Academy of Engineering. He is also a member of the American Geophysical Union (AGU), the American Society of Civil Engineers (ASCE), the Seismological Society of America, the American Physical Society, the Society of Engineering Science, the American Association for the Advancement of Science, and Sigma Xi, the Scientific Research Society.

Among his most recent honors, Rice received the Maurice A. Biot Medal (2007) from ASCE, the Panetti-Ferrari International Prize for Applied Mechanics (2008) from the Academy of Sciences of Turin (Italy), the Louis Néel Medal (2012) from the European Geosciences Union, the Walter H. Bucher Medal (2012) from AGU, the Harry Fielding Reid Medal (2012) from the Seismological Society of America, the George Irwin Gold Medal (2013) from the International Congress on Fracture and the Theodore von Karman Medal (2014) from ASCE.

Rice earned three degrees from Lehigh University (Bethlehem, Pa.): his bachelor's degree in engineering mechanics in 1962, and his master's degree and Ph.D. in applied mechanics in 1963 and 1964, respectively. He holds six honorary doctoral degrees.

Honorary Membership

ROMESH C. BATRA

Conferral at the Honors Assembly,
2015 International Mechanical Engineering Congress and Exposition

ROMESH C. BATRA, Ph.D., Clifton C. Garvin professor, Virginia Polytechnic Institute and State University, Blacksburg, *for the outstanding mentoring of more than 100 graduate students and postdoctoral fellows; and for pioneering work in applied mechanics including rubber-covered rolls, nonlinear elasticity, laminated plates, functionally graded structures, instabilities in microelectromechanical systems, mechanical characterization of carbon nanotubes, and adiabatic shear banding.*

Dr. Batra developed a passion for teaching and sharing knowledge with others as a high school and undergraduate student in India. After completing his education in Canada and the U.S., Batra spent two years (1972–74) as a postdoctoral researcher, first at Johns Hopkins University, Baltimore, and then at McMaster University (Hamilton, Ontario), before starting his teaching career. Initially a visiting assistant professor at the University of Missouri–Rolla (now Missouri University of Science and Technology), he was promoted to professor in 1982.

In 1994 Batra joined Virginia Polytechnic Institute and State University, Blacksburg, as Clifton C. Garvin professor of engineering science and mechanics. In addition to teaching graduate level courses in continuum mechanics, nonlinear elasticity and the finite element method, Batra's responsibilities at Virginia Tech include mentoring graduate students in their dissertation research, collaborating in research with postdoctoral fellows and visiting scientists, and enhancing the visibility of the department and college internationally.

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Batra has mentored to successful completion 49 graduate students (32 Ph.D. and 17 M.S.), and collaborated with more than 50 postdoctoral fellows/visiting scientists from all over the world. He is presently mentoring five Ph.D. students, co-mentoring three Ph.D. students, and working with three postdoctoral fellows and two visiting scientists.

He is well known for contributions to mechanics of dynamic penetration and adiabatic shear banding, nonlinear thermo-mechanical modeling, functionally graded materials, and smart materials and structures. Batra was one of the first researchers to carefully evaluate the performance of functionally graded materials under combined thermo-mechanical loading. His work on smart structures has helped design engineers control structural vibrations. The software Batra developed for analyzing the contact problem for rubber-covered rolls has been used by several industries to optimize the design of roll covers.

His group has published 400 peer-reviewed papers in high-impact journals, and he has given various plenary/memorial lectures. His graduate-level textbook titled "Elements of Continuum Mechanics" (AIAA, 2006) has been adopted at many universities, and his lectures on the subject are available on YouTube. According to scholar.google.com, he has more than 12,000 citations with an h-index of 55.

An ASME Fellow, Batra was organizer and co-chair of the 2002 U.S. National Congress on Theoretical and Applied Mechanics (sponsored by ASME and other professional societies); one of the largest gatherings of eminent scientists and researchers in mechanics from all over the world, the then-governor of Virginia recognized the conference by declaring Theoretical and Applied Mechanics Week in the state. Batra served as associate technical editor of the *Journal of Engineering Materials and Technology* (1996–2000) and chair of the Applied Mechanics Division's Elasticity Committee (1995–2000). He has organized symposia at the Society's International Mechanical Engineering Congress and Exposition, and he co-edited four books/journal volumes published by ASME.

Batra is also a Fellow of the American Academy of Mechanics, the American Society for Engineering Education, the Society of Engineering Science (SES) and the U.S. Association for Computational Mechanics.

His extensive list of other honors includes selection as a Fulbright Specialist in Nonlinear Solid Mechanics (2013) and a Virginia Outstanding Scientist (2011); and he received an Outstanding Faculty Award (2010) from the State Council of Higher Education for Virginia, the Engineering Science Medal (2009) from SES, the ICCES (International Conference on Computational Engineering and Sciences) Eric Reissner Medal (2000), the Alexander von Humboldt Award for Senior Scientists (1992) and numerous faculty awards.

Batra received his bachelor's degree in mechanical engineering (first rank) from Thapar University (Patiala, India) in 1968. He earned his master's degree in mechanical engineering from the University of Waterloo, Ontario, in 1969. In 1972 he earned his Ph.D. in mechanics and materials science from Johns Hopkins University. 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.

Honorary Membership

WEBB MARNER

Conferral at the Honors Assembly,
2015 International Mechanical Engineering Congress and Exposition

WEBB MARNER, Ph.D., adjunct professor of mechanical engineering, University of California, Los Angeles, *for significant contributions to the mechanical engineering profession through research in enhanced heat transfer, gas-side fouling and process engineering; outstanding teaching and student mentoring; and extensive, exemplary professional service.*

Dr. Marner is an internationally recognized engineer, researcher, educator, manager and professional leader who has distinguished himself with significant contributions in mechanical engineering in general, and in thermal science and engineering in particular.

After graduating from Purdue University (West Lafayette, Ind.) in 1962 with a bachelor's degree in mechanical engineering, Marner spent nearly two years as a quality control engineer with Sarkes Tarzian, Inc. (Bloomington, Ind.). He earned his master's degree in mechanical engineering from Purdue in 1965. Following receipt of his Ph.D. from the University of South Carolina, Columbia, in 1969, Marner served on the faculty of the South Dakota School of Mines and Technology (SDSM&T), Rapid City, where he taught and carried out research in thermodynamics and heat transfer. From 1973 to 1980 he was a member of the technical staff at Heat Transfer Research, Inc. (Alhambra, Calif.), where he was engaged in applied heat transfer research.

In 1980 Marner moved to the California Institute of Technology's Jet Propulsion Laboratory (JPL) in Pasadena, where he spent most of his career. His early years at JPL were devoted to energy related research. From 1995 to 2004 he served as manager of the Measurement, Test and Engineering Support Section, which had the primary responsibility of supporting the environmental testing of JPL's spacecraft including Cassini, Mars Pathfinder and Mars Exploration Rover. Although Marner retired from Caltech's JPL in 2006, he continued his service there as an interim employee until 2013.

He has served as a lecturer at several schools in Southern California since 1980. Marner is presently an adjunct professor of mechanical engineering at the University of California, Los Angeles (UCLA), where he has taught since 1991. He is very interactive both inside and outside the classroom, and does a lot of one-on-one mentoring. Based on feedback and student evaluations his teaching performance is excellent.

Marner has published more than 60 archival papers and technical reports covering a variety of topics including the numerical prediction of free convection and combined free and forced convection in Newtonian as well as non-Newtonian fluids; enhanced heat transfer; gas-side fouling; and the history of heat transfer. He has given over 30 invited lectures on space exploration, management, heat transfer, engineering and related topics. Marner has served as an expert reviewer for more than 15 national and international journals, and he is the co-inventor on two patents.

An ASME Fellow, Marner was faculty advisor to the ASME Student Section at SDSM&T (1971–73). He served as chair of the Los Angeles Section (1986–87), chair of the Region IX Honors and Awards Committee (1987–95), chair of the Heat Transfer Division (1990–91) and chair of the General Awards Committee (1991–95). Among other roles, he was vice president of the Basic Engineering Technical Group (1995–98), member-at-large on the Board of Governors (1998–2001), member of the Committee on Finance and Investment (2003–12) and Society secretary and treasurer

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(2008–12). He is currently a Pension Plan trustee and associate editor of the *Journal of Thermal Science and Engineering Applications*. Marner received Superior Teaching awards from the ASME Student Section at UCLA in 1994 and 1995. He also received the Society's Dedicated Service Award in 2002, Edwin F. Church Medal in 2009 and 50 Year Service Award in 2011; and a 75th Anniversary Medal of the ASME Heat Transfer Division in 2013.

Marner is a member of Sigma Xi, the Scientific Research Society; the American Institute of Aeronautics and Astronautics; the American Society for Engineering Education (ASEE); and The Planetary Society.

Among his other honors, Marner received a NASA–ASEE Summer Faculty Fellowship (1970) and a Level A Bonus Award (2001) from JPL/Caltech.

Honorary Membership

TERRY E. SHOUP

Conferral at the Honors Assembly,
2015 International Mechanical Engineering Congress and Exposition

TERRY E. SHOUP, P.E., Ph.D., professor of mechanical engineering, Santa Clara University, California, *for distinctive career contributions as a researcher and educator, and through service to the engineering profession as exemplified by leadership positions in various engineering societies.*

Dr. Shoup has been a strong contributor to engineering education for more than 45 years. He has served as a teacher, a researcher and an administrative leader at Rutgers University (New Brunswick, N.J.); the University of Houston; Texas A&M University, College Station; Florida Atlantic University (Boca Raton, Fla.); and, currently, at Santa Clara University (SCU), California.

Shoup joined SCU in 1989 as dean of engineering (1989–2002), a position he served in while at Florida Atlantic. As dean, he raised funds and developed new academic programs that enabled educational improvements in engineering education. More recently his focus has been on serving the administrative needs of diverse university programs at Santa Clara through positions including interim dean of Education, Counseling Psychology and Pastoral Ministries (2005–06); interim vice provost for Enrollment Management (2006–08); interim executive director for International Programs (2009–11); and interim chair of Education (2014–15). Shoup has been a professor of mechanical engineering at SCU since 1989.

An innovator in the field of machine design and design optimization methods, Shoup's research and development activities have focused on the use of spreadsheet modules to augment the design process in the analysis and synthesis of machine elements. Early in his career, his novel research on rehabilitation equipment for disabled children landed him appearances on several of the National Easter Seals Telethons.

Shoup has authored/co-authored over 15 textbooks and more than 140 technical articles. For over 25 years he was editor-in-chief of *Mechanism and Machine Theory,* the leading international journal in mechanism design.

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An ASME Fellow, Shoup served as the 125th president (2006–07) of the Society. Among his other positions at ASME, Shoup was chair of the Design Engineering Division (1987–88), senior vice president for Education (1998–2000), member of the ASME Board of Governors (2001–04), chair of the ASME Foundation (2009–11) and senior leadership trainer for ASME's VOLT (Volunteer Orientation and Leadership Training) Academy (2012–14). He received the Society's Centennial Medal in 1980 and Gustus L. Larson Memorial Award in 1981, and a Distinguished Service Award from the ASME Council on Education in 1988.

Shoup has been an active member of the American Society for Engineering Education (ASEE). He held numerous leadership positions in the Mechanical Engineering Division, culminating in service as chair (1980–81). He was a member of the board of directors of the Junior Engineering and Technical Society (1983–87). For the International Federation for the Promotion of Mechanism and Machine Science (IFToMM), Shoup served as vice president (1992–96) and was chair of the Commission on Publications (1982–2001). He also served in various positions for ABET including accreditation trainer (1990–94) and member of the board of directors (1996–99).

Shoup is a Fellow of the American Association for the Advancement of Science. He is also a member of Sigma Xi, the Scientific Research Society; Pi Tau Sigma, the International Mechanical Engineering Honor Society; Tau Beta Pi, the Engineering Honor Society; and the Order of the Engineer.

Among his other honors, Shoup received the Dow Outstanding Young Faculty Award (1974) from ASEE, a Medal of Merit in Mechanics (1991) from the Czechoslovak (now Czech) Academy of Sciences, the Rodney D. Chipp Memorial Award (2002) from the Society of Women Engineers, a Distinguished Service Award (2007) from IFToMM, induction into the Silicon Valley Engineering Hall of Fame (2011) and the President's Special Recognition Award (2012) from SCU.

Shoup earned his bachelor's degree, master's degree and Ph.D. in mechanical engineering from The Ohio State University, Columbus, in 1966, 1967 and 1969, respectively. He earned an M.A. in pastoral ministry from SCU in 2002. Shoup is a registered professional engineer in Ohio.

Barnett-Uzgiris Product Safety Design Award

JOHN R. PUSKAR

Conferred at the International Design Engineering Technical Conferences, Boston, August 2015

THE BARNETT-UZGIRIS PRODUCT SAFETY DESIGN AWARD was established as the Triodyne Safety Award by the Design Engineering Division and operated as a division award until 2008, when it was elevated to a Society award and renamed the Barnett-Uzgiris Product Safety Design Award. The award recognizes individuals who have made significant contributions to the safe design of products through teaching, research and professional accomplishments.

JOHN R. PUSKAR, P.E., president, Prescient Technical Services LLC, Cleveland, *for long-term efforts in transforming industrial fuel systems and fired combustion equipment safety through systems for the testing and inspection of tens of thousands of pieces of equipment, thereby preventing explosions and fires and saving the lives of countless individuals; and for educating thousands of industrial workers and managers through training programs, conference presentations and publications.*

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Barnett-Uzgiris Product Safety Design Award (cont.)

Mr. Puskar began his career at Standard Oil of Ohio, Cleveland, in 1981. In 1984 he left Standard Oil and, over the next 28 years, built the largest fuels and industrial combustion safety company in the world. The firm, CEC Combustion Services Inc. (originally CEC Consultants) in Cleveland, was retained by dozens of major corporate clients, including Ford, General Motors, ConAgra, Alcoa and U.S. Steel, to create programs for safety and training related to fuel and combustion systems, in many cases after serious accidents involving this kind of equipment cost lives and injured workers. Mitigating the aftermath of these catastrophes led Puskar to dedicate his life to the prevention of fires and explosions.

Among his accomplishments, Puskar developed a comprehensive system for routinizing safety testing of combustion systems that includes checks for compliance with relevant codes and standards, and creates a management system for issues found. This system has now been implemented on more than 50,000 pieces of industrial combustion equipment in more than 20 countries.

Puskar sold CEC Combustion in 2011. Now, as president of Prescient Technical Services LLC in Cleveland, Puskar is applying his 30 years of fire and explosion prevention experience to the oil and gas industry.

His publications include more than 40 journal articles and the book titled "Fuel and Combustion Systems Safety–What you don't know can kill you!" (John Wiley & Sons, 2014). Puskar has presented papers at more than 50 conferences, and he holds one patent.

An ASME member, Puskar served on the Executive Board of the Cleveland Section as both member and chair. He also served on the Society's CSD-1 Committee on Controls and Safety Devices for Automatically Fired Boilers.

Puskar is also a member of the American Society of Safety Engineers; the Association of Energy Engineers (AEE); and the National Fire Protection Association, where he continues to serve on various standards and codes committees.

His honors include seven Weatherhead 100 awards from Case Western Reserve University's (CWRU) Weatherhead School of Management (between 1992 and 2004); a Forty under 40 Award (1992) from *Crain's Cleveland Business*; the Energy Engineer of the Year Award (1993) from AEE; the Young Engineer of the Year (1993) and Technical Achievement (1999) awards from the Cleveland Technical Societies Council; the Edison Innovation Award (1998) from *Cleveland Enterprise Magazine*; the PACE Award (1999) from *Automotive News* magazine; and an Energy Star Buildings Ally of the Year Award (1999) from the Environmental Protection Agency.

Puskar earned his bachelor's degree in mechanical engineering from Youngstown State University, Ohio, in 1981. In 1985 he earned his master's degree in business administration from CWRU's Weatherhead School of Management, Cleveland. Puskar is a registered professional engineer in seven states and holds multiple contractor licenses in Ohio.

Bergles-Rohsenow Young Investigator Award in Heat Transfer

BARATUNDE COLA

Conferral at the Heat Transfer Luncheon,
2015 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.

BARATUNDE COLA, Ph.D., associate professor, Georgia Institute of Technology, Atlanta, *for outstanding efforts that have produced seminal measurements and predictions of contact resistance in nanostructured thermal interface materials, and new insight into heat conduction in organic nanomaterials; and for the successful transfer of these developments to industry and to society through creative outreach.*

Dr. Cola joined the faculty at the Georgia Institute of Technology, Atlanta, as an assistant professor in April 2009. He is currently an associate professor in the George W. Woodruff School of Mechanical Engineering and, by courtesy, in the School of Materials Science and Engineering; and co-founder and co-director of a new interdisciplinary center, Heat Lab (www.heat.gatech.edu).

Cola's work is both fundamental and applied, and has been featured in several news sources including *IEEE Spectrum, Science Daily, Phys.org, Chemical & Engineering News* and *The Baltimore Times*. He is currently focused on understanding and designing thermal transport and energy conversion in nanostructures and devices, particularly those based on carbon nanotubes or conjugated polymers. His group develops tools to characterize thermal transport across several orders of scale for this purpose. His research interests also include scalable fabrication of organic and organic-inorganic hybrid nanostructures for novel technological use. These technologies include thermal interface materials, nanotube-metal composites, thermo-electrochemical cells, solar rectenna, and materials that can be tuned to regulate the flow of heat. To date, he and his collaborators have received more than 15 extramural grants to support their efforts; support from the National Science Foundation (NSF), the Defense Advanced Research Projects Agency (DARPA), the U.S. Air Force, the U.S. Army and Georgia Research Alliance has averaged $1 million annually since Cola began his career. In 2012 Cola founded Carbice Nanotechnologies, Inc. to commercialize advanced thermal interface materials, and the company has produced to date a leading thermal interface solution for chip testing.

In addition to cutting-edge research and technology transfer, Cola developed a new undergraduate course, Multiscale Thermal Engineering, to teach concepts from his research. He has also developed award-winning programs to engage young students and the public in nanotechnology and energy research. Among his outreach efforts, Cola has worked with teachers in multiple Georgia school districts to develop nanotechnology-focused lesson plans; inspired art students and teachers to produce nanotechnology-inspired art for public display; and had his Georgia Tech students design K-12 activities that address heat transfer fundamentals for use in the community.

Cola has published more than 65 refereed articles, and has given over 55 invited talks and seminars. He holds three U.S. patents and has seven applications pending.

An ASME member, Cola serves on several committees including the NanoEngineering for Energy and Sustainability Steering Committee and Heat Transfer Divi-

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sion K-9–Nanoscale Transport Phenomena Committee (since 2012). He previously served on K-6–Heat Transfer in Energy Systems (2009–13). He has organized tracks, topics, panels and sessions for several Society conferences that focus on heat transfer and nanotechnology.

Cola is also a member of the Electrochemical Society, the Materials Research Society, the American Association for the Advancement of Science (AAAS), IEEE and the American Physical Society; and the National Society of Black Engineers, where he co-founded the Academic and Research Leadership Network and Symposium.

His honors include various fellowships, DARPA's Young Faculty Award (2009), the NSF CAREER Award (2011), the Presidential Early Career Award for Scientists and Engineers (2012), AAAS's Early Career Award for Public Engagement with Science (2013) and the Army Research Office's Young Investigator Program Award (2013). In 2013 Cola was invited to attend the National Academy of Engineering's U.S. Frontiers of Engineering Symposium. In 2014 he was invited to attend the National Academy of Engineering's U.S. Frontiers of Engineering Education Symposium; and he was named a Kavli Frontiers of Science Fellow and participated in the National Academy of Sciences' Kavli U.S. Frontiers of Science Symposium.

Cola earned three degrees in mechanical engineering: his bachelor's and master's at Vanderbilt University (Nashville, Tenn.) in 2002 and 2004, respectively; and his Ph.D. at Purdue University (West Lafayette, Ind.) in 2008.

Per Bruel Gold Medal for Noise Control and Acoustics

DAVID T. BLACKSTOCK

Conferral at the President's Luncheon,
2015 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.

DAVID T. BLACKSTOCK, Ph.D., Eugene P. Schoch professor emeritus, department of mechanical engineering, and professor, Applied Research Laboratories, The University of Texas at Austin; and visiting professor, department of electrical and computer engineering, University of Rochester, N.Y., *for educational mentorship; and for pioneering theoretical, experimental and computational work in nonlinear acoustics including biomedical ultrasound, high-intensity sound beams, lithotripsy, parametric arrays, shock waves and sonic booms, and propagation and absorption of high-intensity sound.*

Dr. Blackstock earned his bachelor's and master's degrees in physics at The University of Texas (UT) at Austin in 1952 and 1953, respectively. He then spent two years in the U.S. Air Force, which started him on a lifelong professional career in acoustics. After earning his Ph.D. in applied physics at Harvard University (Cambridge, Mass.) in 1960, Blackstock spent ten years in Rochester, N.Y.: three at General Dynamics/Electronics; and seven at the University of Rochester, where he was associate professor in the department of electrical engineering.

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

In 1970 Blackstock moved to UT Austin. He is currently Eugene P. Schoch professor emeritus in the department of mechanical engineering and a professor at the Applied Research Laboratories. Since 1987 he has also been visiting professor in the department of electrical and computer engineering at the University of Rochester.

Most of Blackstock's research has been in physical acoustics, principally nonlinear acoustics and biomedical ultrasound, and has been both theoretical and experimental. Problems that he has worked on include nonlinear effects in reflection of intense sound, enhanced absorption due to nonlinear effects, waveforms containing shocks, airborne and underwater parametric arrays, propagation of high-intensity aircraft noise, sonic booms and lithotripsy (use of shock waves to break up kidney stones). To this day, data produced through intricate experiments performed by Blackstock and his graduate students serve to validate new theories and guide acoustical design.

Recognized as a gifted teacher and mentor, Blackstock is proud of the many students he has taught acoustics to over a span of more than 50 years, particularly his 13 Ph.D. students and 23 master's degree students. He is the author of "Fundamentals of Physical Acoustics" (Wiley-Interscience, 2000), a first-year graduate textbook; and is co-editor of two books on nonlinear acoustics. He has also authored/co-authored nearly 80 papers in refereed journals and conference proceedings.

Among his governmental committee service activities, Blackstock served on the Engineering Panel for The National Academies of Sciences, Engineering and Medicine's NRC (National Research Council) Research Associateship Programs (2009–14). He served as member (1984–90) and chair (1990–93) of the International Commission on Acoustics, a worldwide consortium of acoustics organizations that promotes collaboration in research, development, education and standardization in all fields of acoustics.

Blackstock is a member of the National Academy of Engineering, and the Texas Academy of Medicine, Engineering and Science. He is also a Fellow of the Acoustical Society of America (ASA), where he served on the executive council (1973–76, 1977–79 and 1981–84) and as vice president (1978–79) and president (1982–83). He continues his long-term service on ASA's Technical Committee on Physical Acoustics and Committee on Education in Acoustics; and is the administrator of the Students Meet Members for Lunch Program.

Among his other honors, Blackstock received a Silver Medal in Physical Acoustics (1985), Gold Medal (1993), Student Council Mentor Award (2004) and Rossing Prize in Acoustics Education (2007) from ASA; and the Jeffress Award (1992) from the Applied Research Laboratories at UT Austin. He was named Honorary Mechanical Engineer in UT Austin's Mechanical Engineering Academy of Distinguished Alumni (2014).

Edwin F. Church Medal

WILLIAM J. WEPFER

Conferred at the Education Leadership Summit,
Newport Beach, Calif., March 2015

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.

WILLIAM J. WEPFER, Ph.D., professor and Eugene C. Gwaltney Jr. school chair, George W. Woodruff School of Mechanical Engineering, Georgia Institute of Technology, Atlanta, *for exemplary leadership of one of the largest mechanical engineering programs in the United States, and for continuing to advance mechanical engineering education through visionary initiatives and substantial guidance of the accreditation process.*

Dr. Wepfer joined the faculty at the Georgia Institute of Technology, Atlanta, in 1980. A professor since 1993, he has been serving as Eugene C. Gwaltney Jr. chair of the George W. Woodruff School of Mechanical Engineering since 2008. Prior positions include vice provost, distance learning and professional education (2003–07) and associate chair, graduate studies (1989–2002).

Wepfer's research interests are in thermal systems, heat transfer and thermodynamics with a focus on hybrid combustion-turbine fuel cell systems and combined heat-power systems. He has also done extensive research in the area of heat and mass transfer phenomena in textile materials.

Throughout his career Wepfer has played a role in curricular development. Efforts have included offering a course in textile drying, implementing a new thermal science laboratory and modernizing instrumentation in experimental laboratories, and instituting an Invention Studio to allow students to build their designs. Wepfer implemented the first five-year bachelor's/master's program at Georgia Tech. He has also placed a strong emphasis on international opportunities through joint graduate programs with Seoul National University, South Korea, and the Universität Stuttgart, Germany.

Wepfer has authored numerous refereed publications, given many conference presentations and invited talks, and conducted various seminars and workshops. He has also served as a reviewer for various trade journals since 1982.

An ASME Fellow, Wepfer began a three-year term as senior vice president for the Public Affairs and Outreach Sector in June 2012. Earlier positions include vice president of Education (2010–12), member of the Vision 2030 Task Force (2008–12), associate editor of the Journal of Energy Resources Technology (1995–2000) and chair of the Atlanta Section (1989–90). He received a Dedicated Service Award in 2009.

Wepfer is a member of the Executive Committee of the Engineering Accreditation Commission (EAC) of ABET–the Accreditation Board for Engineering and Technology, Inc.; and he serves as chair of the EAC for the 2014–15 accreditation cycle. He is also a member of the Pan American Academy of Engineering, a Fellow of ASHRAE and a member of American Society for Engineering Education (ASEE).

His honors range from SAE International's Ralph R. Teetor Award (1985) to Georgia Tech's College of Engineering ADVANCE Leadership Award (2012), and include several awards from ASEE and ASHRAE.

Wepfer earned three degrees in mechanical engineering: his bachelor's from Marquette University, Milwaukee, in 1974; his master's from Stanford University, California, in 1976; and his Ph.D. in mechanical engineering from the University of Wisconsin–Madison in 1979.

Daniel C. Drucker Medal

KRISHNASWAMY RAVI-CHANDAR

Conferral at the Applied Mechanics Dinner,
2015 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.

KRISHNASWAMY RAVI-CHANDAR, Ph.D., professor, The University of Texas at Austin, *for seminal contributions to the understanding of dynamic fracture and failure of solids.*

Dr. Ravi-Chandar received his bachelor's degree in physics from Bangalore University (Karnataka, India) in 1973; and his diploma in aeronautical engineering, with honors, from the Madras Institute of Technology (Tamil Nadu, India) in 1976. He received his master's degree and Ph.D. in aeronautics from the California Institute of Technology, Pasadena, in 1977 and 1982, respectively. He started his academic career at the University of Houston in 1983, and moved to The University of Texas at Austin in 2000 as a professor in the department of aerospace engineering and engineering mechanics. Since 2007 he holds the Temple Foundation endowed professorship No. 1. He has also held visiting positions in the U.S., Europe and India.

Ravi-Chandar's teaching and research interests are in the general area of mechanics of materials, experimental mechanics and fracture mechanics; and he has made seminal contributions to the understanding and analysis of dynamic fracture and failure of solids. His experimental work has provided a fundamental understanding of problems in structural integrity, fracture pattern generation, strain localization, fragmentation, blast protection and other applications. He has published more than 150 articles in journals, books and conference proceedings on these and related topics; and he authored a book titled "Dynamic Fracture" (Elsevier Science, 2004). He is the editor-in-chief of the *International Journal of Fracture* and serves on the editorial board of a number of publications. He holds four patents.

An ASME Fellow, Ravi-Chandar served on the Executive Committee of the Applied Mechanics Division (AMD) as member (2003–08), program chair (2005–06), vice chair (2006–07) and chair (2007–08). He also served as chair of AMD's Experimental Mechanics Committee (2001–03); associate editor of the *Journal of Applied Mechanics* (1993–2006); and a member of various Society and AMD award committees (2003–13).

Ravi-Chandar is also a Fellow of the Society for Experimental Mechanics (SEM) and the American Academy of Mechanics, and an Honorary Fellow of the International Congress of Fracture. Among his other honors, Ravi-Chandar received SEM's Murray Medal (2004).

Thomas A. Edison Patent Award

ANDY WALKER

Conferral at the President's Luncheon,
2015 International Mechanical Engineering Congress and Exposition

THE THOMAS A. EDISON PATENT AWARD, established in 1997, recognizes creativity of a patented device or process that has the potential of significantly enhancing some aspect of mechanical engineering

ANDY WALKER, P.E., Ph.D., principal engineer, National Renewable Energy Laboratory (Golden, Colo.), *for the invention of renewable energy delivery systems and methods that enable planning of renewable energy projects in a cost-optimal way, which has opened up new opportunities and resulted in renewable energy deployment at a speed and scale to make a positive difference in the economy and environment.*

Dr. Walker is a principal engineer at the National Renewable Energy Laboratory (NREL) in Golden, Colo. With NREL since 1993, Walker conducts engineering and economic analysis of energy efficient and renewable energy projects in government facilities such as national parks and military bases, and various corporate facilities. He has also taught several energy-related classes in the mechanical and architectural engineering departments at the University of Colorado at Boulder; the Colorado School of Mines, Golden; and Metropolitan State College of Denver.

Prior to joining NREL, Walker was renewable energy coordinator at the Colorado Office of Energy Conservation, Denver (1991–93). While pursuing his education, he was a research assistant at the Solar Energy Applications Laboratory at Colorado State University, Fort Collins (1987–91).

In 2013 Walker was awarded U.S. Patent No. 8,604,641, Renewable Energy Delivery Systems and Methods, as the inventor of a stochastic algorithm to evaluate integrated renewable energy (RE) technologies. This invention optimizes the size of multiple projects at a site or multiple sites, and it forms the basis of the renewable energy optimization (REO, now REOpt) software and much of the techno-economic feasibility assessments conducted in the NREL Integrated Applications Center. Based on this patent, work at NREL has grown from a DOE-funded task of $40,000 in 2007 to revenue of $1.4 million in 2014 comprised of fees paid by a wide range of customers for REOpt service, and $13.8 million of work to help implement REOpt recommendations in 2014. Walker's efforts have significantly influenced the delivery of RE projects, providing both economic and environmental benefits.

Walker is the author of the book titled "Solar Energy: Technologies and Project Delivery for Buildings" (John Wiley & Sons, 2013). He has also authored/co-authored more than 30 book chapters, journal articles and conference papers.

An ASME member, Walker served on the Solar Energy Division's (SED) Executive Committee (member: 2008–13; chair: 2011–12). He was chair of SED's Conservation and Solar Buildings Committee (2006–08) and System and Component Simulation Committee (1993–95); and was associate editor of the *Journal of Solar Energy Engineering* (2001–06). For the International Conference on Energy Sustainability, he served as technical program chair and general program chair in 2009 and 2011, respectively. An organizer for the International Solar Energy Conference, Walker served as session chair (1992–97, 2000 and 2006–07) and track chair (2008). He earned Best Paper awards in 1990 and 1992, and received certificates of Appreciation in 2009 and 2011.

Walker is also a member of the American Solar Energy Society; the International Solar Energy Society; and the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

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Among his extensive list of honors, Walker received President's awards for Exceptional Performance (2003, 2010 and 2014) from NREL, a Blue Pencil Award (2004) from the National Association of Government Communicators and a Certificate of Appreciation (2002) from the U.S. Department of Energy Federal Energy Management Program.

Walker earned his bachelor's degree, master's degree and Ph.D. in mechanical engineering from Colorado State University in 1984, 1989 and 1991, respectively. He is a registered professional engineer in Colorado.

William T. Ennor Manufacturing Technology Award

ELIJAH KANNATEY-ASIBU JR.

Conferral at the Members and Students Luncheon, 2015 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.

ELIJAH KANNATEY-ASIBU JR., Ph.D., professor, University of Michigan, Ann Arbor, *for scholarly and pioneering work in multiple-beam laser processing, acoustic emission process monitoring and frequency-based pattern recognition analysis of process outputs; and for outstanding contributions to educational, outreach and diversity efforts.*

Dr. Kannatey-Asibu joined the faculty at the University of Michigan (U-M), Ann Arbor, in 1983, and has been a professor in the department of mechanical engineering since 1994. Prior to joining U-M, he was an assistant professor (1980–82) with General Motors Institute (now Kettering University) in Flint, Mich.

At U-M, Kannatey-Asibu has served in several positions including associate chair of the mechanical engineering department (1997–98); associate director for education for the National Science Foundation Engineering Research Center for Reconfigurable Manufacturing Systems (1999–2007); and director of the Program in Manufacturing (2007–10). He also served on several U-M College of Engineering committees including the Faculty Rules Committee (chair: 1995–96); and the Library, Disciplinary, Freshman Counseling and Faculty Admissions committees. He has been involved in a number of outreach activities designed to expose K-12 students, especially underrepresented minorities and females, to engineering in general and manufacturing in particular.

Kannatey-Asibu's research interests include multi-sensor monitoring of manufacturing processes, multiple-beam laser processing, acoustic emission investigation of manufacturing processes and micro-fabrication using femtosecond lasers. His groundbreaking contributions in these areas have had a significant impact on industrial applications, including welding, casting and machining processes, with resultant savings in time, cost and energy.

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William T. Ennor Manufacturing Technology Award (cont.)

Kannatey-Asibu is the author of a book titled "Principles of Laser Materials Processing" (John Wiley & Sons, 2009); and he has published more than 100 refereed articles in archival journals and conference proceedings.

An ASME Fellow, Kannatey-Asibu is a reviewer for several Society journals. He served on the Manufacturing Engineering Division's Executive Committee (member: 1992–96; chair: 1996–97); and was associate technical editor (1991–95) of the *Journal of Engineering for Industry* (now the *Journal of Manufacturing Science and Engineering*). He served as co-organizer for various symposia held at ASME Winter Annual meetings. He received the ASME Blackall Machine Tool and Gage Award in 1986.

Kannatey-Asibu is also a Fellow of SME.

Among his other honors, Kannatey-Asibu received SME's Education Award (2015); U-M's Harold Johnson Diversity Service Award (2010), College of Engineering Outreach and Diversity Award (2009–10), Robert M. Caddell Memorial Award (2000), and Excellence in Research (1998) and Excellence in Service (1997) awards from the department of mechanical engineering; the American Welding Society's A.F. Davis Silver Medal (1998); and the American Foundry Society's Best Paper Award (1995).

Kannatey-Asibu earned three degrees in mechanical engineering: his bachelor's degree from the Kwame Nkrumah University of Science and Technology (Kumasi, Ghana) in 1974; and his master's degree and Ph.D. from the University of California, Berkeley in 1977 and 1980, respectively.

Nancy DeLoye Fitzroy and Roland V. Fitzroy Medal

GEORGE W. SUTTON

Conferral at the President's Luncheon,
2015 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.

GEORGE W. SUTTON, Ph.D., consultant, Analysis and Applications, Inc. (Huntsville, Ala.), *for distinguished contributions to the art and science of mechanical engineering including cavitation, hypersonic heat transfer, direct energy conversion, high-energy lasers and aero-optics; and for the invention of the first successful re-entry ablation material and the development of the transcutaneous energy supply for artificial hearts.*

Throughout his career Dr. Sutton has made fundamental contributions to several areas of engineering including hypersonic flows, magnetohydrodynamics, medical devices and imaging systems.

Early on, Sutton achieved a number of firsts: His doctoral dissertation contained the first measurements of stress waves due to water cavitation, and he was the first to measure the heating rate in rocket engine nozzle throats while at the California Institute of Technology's Jet Propulsion Laboratory, Pasadena.

At General Electric in Philadelphia (1956–63), Sutton invented the heat protection material for hypersonic flight through the Earth's atmosphere. This invention made possible the first U.S. reconnaissance satellites, allowing high resolution film to be

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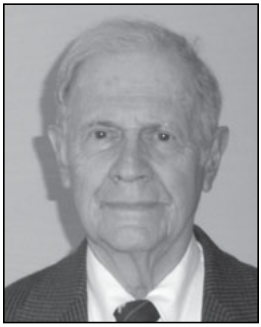
Nancy DeLoye Fitzroy and Roland V. Fitzroy Medal (cont.)



brought back to Earth in a recovery vehicle. Under the Corona Project, publicly lauded by President Lyndon Johnson, the satellite photographic surveillance showed that the Soviet Union had only six intercontinental ballistic missiles, instead of the thousand previously thought.

After serving as scientific advisor (1963–65) to U.S. Air Force Headquarters in the Pentagon, Sutton continued making engineering contributions as an employee of various companies. Among his accomplishments, Sutton did the conceptual design of the world's first high power laser (over 100 kW). He also supervised the design and construction of the first high power laser to be installed in a military vehicle; it successfully downed a test drone and helicopter. Sutton invented the high frequency transcutaneous energy supply for artificial hearts. Later, he headed a program for a blue-green laser that demonstrated communication with a submerged submarine. He did the concept design of NASA's Stratospheric Observatory for Infrared Astronomy on a modified B747 aircraft carrying a 2.5 meter diameter $100 million telescope, and he also did the pioneering aero-optical analysis for its open port. Sutton retired from Cobham Analytic Solutions (SPARTA until 2008) in Arlington, Va., after serving as principal senior scientist for new projects and the Space Laser Project (1999–2011). He is now a consultant at Analysis and Applications, Inc. (Huntsville, Ala.).

While working full time, Sutton served as editor-in-chief of the *AIAA Journal* for nearly 30 years (1967–96); he is now editor-in-chief emeritus. His publications include more than 100 technical papers, and he co-authored a book titled "Direct Energy Conversion" (McGraw-Hill, 1966) that was translated into Japanese and Russian. He holds eight patents.

A member of ASME, Sutton is also a member of the National Academy of Engineering, an Honorary Fellow of the American Institute of Aeronautics and Astronautics (AIAA), a Fellow of the American Association for the Advancement of Science and a past member of the American Physical Society.

His honors include The George Washington University Tractenberg School of Public Policy and Public Administration's Arthur S. Flemming Award (1964); AIAA's Thermophysics Award (1980), Distinguished Service Award (1988) and Plasmadynamics and Lasers Award (2007); and induction into Brooklyn (N.Y.) Technical High School's Hall of Fame (2005).

Sutton earned his bachelor's degree in mechanical engineering, with honors, from Cornell University (Ithaca, N.Y.) in 1952. He earned his master's degree in mechanical engineering in 1953 and his Ph.D. in mechanics and physics, magna cum laude, from Caltech in 1955.

Fluids Engineering Award

PROMODE R. BANDYOPADHYAY

Conferred at the ASME-JSME-KSME Joint Fluids Engineering Conference, Seoul, South Korea, July 2015

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.

PROMODE R. BANDYOPADHYAY, Ph.D., senior research scientist and technical program manager, Naval Undersea Warfare Center (Newport, R.I.), *for accomplishments including the classic experiment on inclined hairpin vortex turbulent boundary layer structures and Reynolds number thinning effects, transitioning flapping fin propulsion and olivo-cerebellar control to underwater vehicles, and transitioning microbial fuel cells; and for naval mentoring, leadership in microelectromechanical systems application, and U.S.–Russian–U.K. collaborations.*

Dr. Bandyopadhyay has been with the Naval Undersea Warfare Center (NUWC) in Newport, R.I., since 1991. Currently a senior research scientist and technical program manager, Bandyopadhyay mentors engineers and student interns, and leads a multidisciplinary engineering group in the bridging of biological sciences and naval engineering. He served as a program officer at the Office of Naval Research in Washington, D.C. (2001–03).

Among his prior experience, Bandyopadhyay was an adjunct professor in the electrical engineering department at the University of Rhode Island, Kingston, and the mechanical engineering department at Old Dominion University (Norfolk, Va.); and a postdoctoral researcher at the University of Houston and the University of Cambridge, U.K.

Bandyopadhyay's efforts have led to the maturing of sciences into emergent technologies such as flapping fin propulsion technology, microbial fuel cells for littoral powering of instruments, and the demonstration of underwater propulsion using olivo-cerebellar dynamic controllers. He led the U.S.–Russian–U.K. research teams on compliant coating drag reduction. His classic experiment at Cambridge (with M.R. Head) clearly showed the preponderance of hairpin vortices in turbulent boundary layers and the Reynolds number thinning effects. His recent unsteady analytical modeling shows that there is a large-scale spatiotemporal self-regulated coherence in the low Reynolds number turbulent boundary layers of sharks and dolphins and in the optimal swimming of animals that use flapping fins; and further shows that the skins of sharks and dolphins delay the disorganization onset of wall-vorticity through the self-referential phase reset mechanism used by animals for the coordination of muscles to undertake tasks such as moving an object.

Bandyopadhyay has published more than 60 archival journal articles and 50 peer-reviewed conference papers. He holds 15 patents and has one application pending.

An ASME Fellow, Bandyopadhyay co-founded the Microelectromechanical Division. He was a member of the Fluids Engineering Technical Committee (1983–89), an associate editor for the *Journal of Fluids Engineering* (1994–99) and the lead organizer of the first Conference on the Application of Microfabrication to Fluid Mechanics (1994). He received the Freeman Scholar Award in 2006.

Bandyopadhyay is an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a member of the American Physical Society and IEEE.

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Fluids Engineering Award (cont.)

His honors include a Top Navy Scientist and Engineer Award (2007) from the assistant secretary of the Navy (research, development and acquisition); the Excellence in Basic and Applied Science Award (2006) from NAVSEA's (Naval Sea Systems Command) NUWC; and NASA's Technology Utilization and Application Award (1993).

Bandyopadhyay received his bachelor's degree in mechanical engineering from the University of North Bengal (Siliguri, India) in 1968; and his master's degree in mechanical engineering from the Indian Institute of Engineering Science and Technology, Shibpur, in 1970. He earned his first Ph.D. degree in applied mechanics from the Indian Institute of Technology, Madras, in 1974; in 1978 he earned a Ph.D. in aerodynamics from the University of Cambridge.

Y.C. Fung Young Investigator Award

ADAM J. ENGLER

Conferred at the Summer Biomechanics, Bioengineering and Biotransport Conference, Snowbird, Utah, June 2015

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.

ADAM J. ENGLER, Ph.D., associate professor, University of California, San Diego, *for innovative contributions to the field of bioengineering through research in mechanobiology and the interactions between cells and their extracellular matrix, and for translating basic scientific findings of cell-matrix interactions into important applications related to clinical medicine.*

Dr. Engler is an associate professor of bioengineering at the University of California, San Diego, where he has been on the faculty since 2008. He is also a resident scientist at the Sanford Consortium for Regenerative Medicine (La Jolla, Calif.). Engler previously trained with Dr. Dennis E. Discher at the University of Pennsylvania, Philadelphia, where he earned his Ph.D. studying how extracellular matrix stiffness regulated stem cell fate. He also did a postdoctoral fellowship with Dr. Jean E. Schwarzbauer at Princeton University, New Jersey, in the department of molecular biology (2006–08).

Engler's current research focuses on how physical properties of the niche influence stem cell function and misregulate muscle function and heart performance during disease and aging. His lab makes natural and synthetic matrices with unique spatiotemporal properties to mimic niche conditions to improve stem cell behavior and commitment in vitro for their therapeutic use in vivo. His lab also studies the mechanical influences of aging on the cardiovascular system in vivo using rapidly aging model systems such as Drosophila melanogaster and large vertebrate animal models such as Rhesus macaque.

He has co-authored more than 60 refereed journal publications and 12 book chapters, and has given invited talks worldwide. He holds two patents.

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Y.C. Fung Young Investigator Award (cont.)

An ASME member, Engler has contributed to the Summer Bioengineering Conference (SBC) through the Bioengineering Division's Tissue and Cellular Engineering Technical Committee. As track chair for subcellular biophysics and mechanotransduction over the past two years, he has helped grow this track from a fringe topic to one that achieved the largest draw of abstracts at the last SBC.

Engler is also a member of the American Heart Association, the American Society for Cell Biology, the American Society for Matrix Biology (ASMB), the Biomedical Engineering Society, the Biophysical Society, the International Society for Stem Cell Research, and the Tissue Engineering and Regenerative Medicine International Society.

Among his honors, Engler received Penn's Graduate Research Symposium Award and John A. Goff Prize (2006); the National Institutes of Health's New Innovator Award (2009), the Human Frontier Science Program's Young Investigator Award (2010), the U.S. Department of Defense's Breast Cancer Idea Award (2013) and ASMB's Renato Iozzo Award (2014).

Engler earned his bachelor's degree in bioengineering and his Ph.D. in mechanical engineering from the University of Pennsylvania in 2002 and 2006, respectively.

Gas Turbine Award

HARIKA S. KAHVECI
KEVIN R. KIRTLEY

Conferred at ASME Turbo Expo 2015,
Montreal, June 2015

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.

HARIKA S. KAHVECI, Ph.D., senior engineer, GE Aviation (Gebze, Kocaeli, Turkey); and KEVIN R. KIRTLEY, Ph.D., executive–engineering, GE Power & Water (Greenville, S.C.), *for the paper titled "Comparison of Temperature Profile and Heat Transfer Predictions With Statistically-Modeled Data From a Cooled 1-1/2 Stage High-Pressure Transonic Turbine."*

Dr. Kahveci began her General Electric Company career at GE Energy in 2004 as a member of the gas turbine acoustics and aero design team in Greenville, S.C., where she supported the hot gas path aero design of high-pressure turbine and compressor blades for gas turbine engines. In 2006 Kahveci attended the GE Aviation University Strategic Alliance Program and worked toward her Ph.D. at the short-duration rotating rig facility of the Gas Turbine Laboratory at The Ohio State University, Columbus, focusing on high-pressure turbine vane heat transfer. Between 2010 and 2012, she was on the heat transfer, cooling and sealing design team at GE Power & Water, also in Greenville, and worked on high-pressure turbine blade cooling and thermal design of gas turbine engines. Since December 2012, Kahveci, a senior engineer, has been a member of the thermal systems design team at GE Aviation (Gebze, Kocaeli, Turkey).

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An ASME member, Kahveci is co-chair for the Heat Transfer/Film Cooling Session on Novel Cooling Geometries at ASME Turbo Expo 2015. She was a reviewer for the IGTI Heat Transfer Committee for ASME Turbo Expo 2014. Between 2007 and 2013, she has had four technical papers published in conference proceedings as well as four publications in the *Journal of Turbomachinery*. She received the ASME IGTI Heat Transfer Committee's 2013 Best Technical Paper Award.

Kahveci is also a member of Tau Beta Pi, the Engineering Honor Society; and the GE Women's Network.

Her honors include Ohio State's Critical Difference for Women Scholarship (2008–09), the UTSR (University Turbine Systems Research) Gas Turbine Industrial Fellowship (2003) and 11 GE awards (2005–14).

Kahveci earned her bachelor's degree in aeronautical engineering at Middle East Technical University (Ankara, Turkey) in 2002; and her master's degree in aerospace engineering from The Pennsylvania State University, University Park, in 2004. She received her Ph.D. in mechanical engineering from Ohio State in 2010.

Dr. Kirtley began his career with Sverdrup Technology in Cleveland, where he supported the NASA Glenn Research Center's efforts on turbomachinery aerothermodynamics. He joined General Electric Company in 1995 and continued this work at GE Global Research (Niskayuna, N.Y.). In 2001 Kirtley moved to a design and experimental role developing fluidic flow control concepts for gas turbine engines that included an advanced fluidic compressor tested at GE Aviation, centrifugal compressors for GE Oil & Gas and compact diffusers for GE Energy. In 2005 he led a small team tasked with building a new turboshaft engine test facility using a GE CT7 engine to test advanced concepts.

Kirtley joined GE Energy (Greenville, S.C.) in 2007 as engineering manager of the acoustics, aeromechanics, and wind turbine aerodynamics groups. In that role, he led the redesign of multimegawatt wind turbine blade tips for low noise and guided investigations of rotor clocking on forced response of compressor airfoils. In 2009 he was named to his present position of executive–engineering for the heat transfer, cooling and sealing design organization at GE Power & Water (Greenville, S.C.), where he leads the engineering staff responsible for gas turbine thermal and clearances design and technology development. In this role, he has directed improvements in design cycle speed and precision, and led reductions in cooling flow for GE's HA (air-cooled H-class gas turbine) product line through technology introduction.

He holds 23 patents and has published more than 20 technical articles on turbomachinery aerothermodynamics and computational fluid mechanics.

Kirtley earned his bachelor's, master's and Ph.D. degrees in aerospace engineering from The Pennsylvania State University, University Park, in 1983, 1985 and 1987, respectively.

Kate Gleason Award

F. SUZANNE JENNICHES

Conferral at the Honors Assembly,
2015 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.

F. SUZANNE JENNICHES, for outstanding leadership in manufacturing innovation; for setting the highest standards of excellence in producibility engineering; and for tireless efforts to increase women's participation in STEM careers.

During a career spanning more than four decades, Mrs. Jenniches was a teacher; a leader in manufacturing innovation and producibility engineering; and an ambassador for engineering as a profession for women, a role she continues in retirement.

Initially a high school biology teacher in Westminster, Md., for five years while pursuing her master's degree, Jenniches joined Westinghouse Electric Corporation, Baltimore, in 1974 as a computerized test engineer. Later, she briefly served as supervisory engineer of robotics development for electronics manufacturing before becoming operations program manager (1981–85); during this time she managed development operations and production for the B-1B electronically scanned antenna and the APQ-164 offensive radar systems. Appointed manager of Systems and Technology Operations in 1986, she was responsible for transitioning defense avionics hardware programs from engineering into smooth high-rate production. Beginning in 1989 Jenniches managed a broad cross-section of defense and nondefense profit and loss operating units with increasing responsibilities for Westinghouse Defense. In 1996 Westinghouse Electronic Systems was acquired by Northrop Grumman Corporation.

Jenniches served as vice president and general manager of Northrop Grumman Corporation's Government Systems Division from 2003 until her retirement in 2010. In this position, she was responsible for the Linthicum, Md., based Electronic Systems businesses for postal automation systems, international air defense and infrastructure systems, and homeland defense; and operational sites in Belgium, France, the Middle East and North Africa. She also led the Northrop Grumman Electronic Systems International Campaign, and the Diversity and Inclusion Council for the sector.

She has authored a number of publications and given various invited presentations, and she holds one patent.

Jenniches served on the United States Army Science Board (1999–2005) and was a member of the National Research Council Committee on Commercial/Military Integration. She served on the board of directors of MICROS Systems, Inc. (1996–2003; 2006–14), a former publicly traded Nasdaq corporation, which was acquired by Oracle Corporation in 2014.

Jenniches serves on the Johns Hopkins University Whiting School of Engineering's Advisory Council; she was the founding chair of the Engineering Programs for Professionals Advisory Council (2003–06). She also chairs the Howard County, Md., advisory board for Project Lead the Way, a national STEM program.

Since 1997 Jenniches chairs the National Academy of Engineering's EngineerGirl website. She is past president of the Society of Women Engineers (SWE) and past chair of the American Association of Engineering Societies (AAES).

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Kate Gleason Award (cont.)

Among her other honors, Jenniches received SWE's Achievement Award (2000), the Baltimore Museum of Industry's Industrialist of the Year award (2007), AAES's Chair's Award (2008), and the Technology and Engineering Educators Association of Maryland's Advocacy Award (2015); and she was named a Distinguished Alumna by Johns Hopkins and Clarion University in 2006 and 2010, respectively,

Jenniches earned her bachelor's degree in biology from Clarion State College, now Clarion University of Pennsylvania, in 1970; and her master's degree in environmental engineering from John Hopkins University's Whiting School of Engineering, Baltimore, in 1979. She completed extensive postgraduate work in international affairs at The Catholic University of America, Washington, D.C.; and the Harvard Business School's (Boston) Program for Management Development.

Melvin R. Green Codes and Standards Medal

JAMES A. THOMAS

Conferral at the Honors Assembly,
2015 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.

JAMES A. THOMAS, president, ASTM International (West Conshohocken, Pa.), *for extraordinary leadership, and achievements on multiple fronts, to ensure voluntary consensus standards developed by ASTM and ASME continue to be afforded fair treatment as international standards under the World Trade Organization's Technical Barriers to Trade Agreement; thus facilitating the ability for national regulatory authorities and global industries to select ASME standards as their standard of choice.*

Mr. Thomas has been a part of the ASTM International family for more than four decades. Throughout his career, he has contributed to the development and delivery of international voluntary consensus standards to improve product quality, enhance safety, facilitate market access and trade, and build consumer confidence.

When Thomas joined ASTM International (West Conshohocken, Pa.) in 1972 he had no knowledge of standards and just two years of college. During his first three years at the organization he pursued his bachelor's degree in industrial relations with the help of the company's tuition reimbursement program, a staff benefit that continues today. Upon receipt of his degree from La Salle University, Philadelphia, he became a staff manager in the standards development division and was assigned a portfolio of technical committees, through which he built an understanding of the power of consensus and the positive impact standards can have on quality, health and safety.

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

Fortunate to be part of an organization that embraced the value of developing in-house assets, Thomas was promoted to vice president of standards development in 1983; and, in 1987, was designated an ASTM executive vice president. In 1990 he received his master's degree in organization and management from La Salle. Thomas was named president of ASTM in 1992 and immediately focused organizational efforts on establishing ASTM and other major U.S. based standards organizations as key components of the international standards community.

Thomas has been an active participant on the United States Trade Representative/Department of Commerce Advisory Committee that, in 2000, was instrumental in establishing a World Trade Organization decision that based the definition of an international standard on principles of standards development rather than organizational membership construct.

ASTM's success can be seen in the relevancy of its work throughout the world. Thomas continues to advocate for broad-based acceptance and use of standards based on technical quality and market relevance, and not their label. ASME and others have benefited greatly from his tireless efforts.

Thomas has given numerous presentations and speeches across the globe. Since 1999, he has written some 85 President's columns for *Standardization News*, an ASTM publication with approximately 30,000 readers worldwide.

Thomas is a Fellow of The Society for Standards Professionals (SES), the American Society of Association Executives, and the Council of Engineering and Scientific Society Executives.

Among his honors, Thomas received an Award of Appreciation (1985) from the National Institute of Building Sciences, the Leo B. Moore Medal (2004) from SES and the Russell J. Eilers Memorial Award (2013) from the Clinical and Laboratory Standards Institute.

J.P. Den Hartog Award

DAVID JOHN EWINS

Conferred at the International Design Engineering Technical Conferences, Boston, August 2015

THE J.P. DEN HARTOG AWARD, established by the Design Engineering Division in 1987 and elevated to a Society award in 2010, recognizes lifetime contributions to the teaching and practice of vibration engineering.

DAVID JOHN EWINS, CEng, DSc, PhD, distinguished research fellow, Imperial College London, *for outstanding educational and research activities in the area of vibration testing and turbo machinery analysis; and for efforts to bring about an integration of experimental, numerical and theoretical methods.*

Dr. Ewins began his primary academic career at Imperial College London in 1967. Initially a lecturer, he held various positions before his appointment as distinguished research fellow in 2014. Since 2007 he has held a secondary position as part-time professor of vibration engineering at the University of Bristol, U.K.

Ewins' research has focused on advancing the structural dynamics technologies that enable structures used in power plants, defense and other critical applications to be designed and operated at the required levels of safety, reliability and commercial advantage. He has been at the forefront of advancing vibration testing technology and continues to bring new technologies into the field of structural dynamics testing. His methods have become standard practice in research laboratories and in industry.

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He previously served as director (1990–2002) of the Rolls-Royce/Imperial College's Vibration University Technology Centre (VUTC). He also directed the DSI/Nanyang Technological University's Centre for Mechanics of Micro-Systems, Singapore (1999–2002) and the AgustaWestland/University of Bristol's UTC (2007–14). He held visiting appointments at Chulalongkorn University, Bangkok (1968–69); INSA Lyon, France (1974–75); Virginia Polytechnic Institute and State University, Blacksburg (1981); and ETH Zurich (1986).

Ewins has been serving on the Rolls-Royce Materials, Manufacturing and Structures Advisory Board, U.K., and the Institute for Technology Research Advisory Board, Sao Paulo, since 2002 and 2012, respectively. Since 1973, as an independent consultant, he has been working with industry and research organizations worldwide. Previously he was a member of INSA Lyon's Scientific Council (2007–10); and chairman of the Scientific and Technological Advisory Board (2010–14) for Clean Sky, a public/private partnership between the EU and the aeronautical industry.

Ewins has authored/co-authored more than 250 papers. He is also the author of the book titled "Modal Testing: Theory and Practice" (Research Studies Press, 1984; eighth reprint, 1994; revised, 1995); the second edition, titled "Modal Testing: Theory, Practice and Application" (Research Studies Press, 2000; last reprinted 2009) is widely used as a seminal reference in the area of vibration engineering. He has given numerous keynote addresses and invited talks. In 1999 Ewins co-organized (with D.J. Inman) SD2000, a week-long Strategic Review of Structural Dynamics hosted by the Los Alamos National Laboratory. He has coordinated various workshops and has given more than 100 short courses on modal testing throughout the world.

An ASME member, Ewins is a regular participant at the International Design Engineering Technical Conferences and Turbo Expo. He is founding member and chair of the Society's Research Committee on Joints Modeling.

Ewins is a Fellow of the Royal Society, the Royal Academy of Engineering, the Institution of Mechanical Engineers, the City & Guilds of London Institute, the International Institute of Acoustics and Vibration, AAE–the Air and Space Academy, and the Society for Experimental Mechanics (SEM); and a Foreign Fellow of the Indian National Academy of Engineering.

Among his honors, Ewins received the D.J. DeMichele Award (1993) and M.M. Frocht Award (2002) from SEM, and the Golden Accelerometer Award (2001) from SVIB–the Scandinavian Vibration Association.

Ewins earned his bachelor's degree in engineering from Imperial College London in 1963; his PhD from Cambridge University, U.K., in 1967; and his DSc in engineering from Imperial College London in 1983. He is a chartered engineer in the U.K.

Heat Transfer Memorial Awards

JOHN H. LIENHARD V – ART
FRANCIS A. KULACKI – GENERAL
ZHUOMIN ZHANG – SCIENCE

Conferral at the Heat Transfer Luncheon,
2015 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.

ART

JOHN H. LIENHARD V, P.E., Ph.D., Abdul Latif Jameel professor; and director, Rohsenow Kendall Heat Transfer Laboratory, Abdul Latif Jameel World Water and Food Security Lab, and Center for Clean Water and Clean Energy, Massachusetts Institute of Technology, Cambridge, *for outstanding contributions in technology development of thermally driven desalination and temperature control of electronic test equipment; and in fundamental studies of liquid jet impingement cooling, Rayleigh-Bénard instability, thermal stratified turbulence and extremely high heat flux heat transfer.*

Dr. Lienhard joined the Massachusetts Institute of Technology (MIT), Cambridge, as a professor of mechanical engineering in 1988, immediately after completing his Ph.D. in fluid dynamics at the University of California, San Diego, where he did experimental work on thermally stratified turbulent flows. He had earned his bachelor's and master's degrees in thermal engineering in 1982 and 1984, respectively, from the University of California, Los Angeles, where he worked on buoyant instabilities in solar collectors and evaporating meniscus measurements for desalination systems.

At MIT, Lienhard is currently the Abdul Latif Jameel professor; and director of the Rohsenow Kendall Heat Transfer Laboratory, the Abdul Latif Jameel World Water and Food Security Lab, and the Center for Clean Water and Clean Energy.

Throughout his career at MIT, Lienhard's research has focused on heat transfer, thermal systems and water purification. He has worked on liquid jet impingement, high heat flux engineering, electronics thermal management and desalination. His recent research focuses on water purification including thermal and membrane based desalination, thermodynamic efficiency improvement of desalination processes, solar desalination, and remediation of wastewater from oil and gas operations.

Technologies invented by his group have been commercialized in both the water and electronics industries. His research has led to a number of international collaborations related to desalination including programs with Saudi Arabia, the United Arab Emirates, Kuwait, India and Singapore.

Lienhard has also filled a number of administrative roles at MIT, and he has directly supervised more than 70 graduate theses.

He is the co-author of widely used textbooks on heat transfer and on measurement. He has authored/co-authored over 175 peer-reviewed publications and given more than 100 invited talks worldwide. Lienhard's work has resulted in more than 20 issued and pending U.S. patents.

An ASME Fellow, Lienhard has served on the K-2–Planning and Development and K-8–Theory and Fundamental Research committees of the Heat Transfer Divi-

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sion (HTD). He has organized a dozen technical sessions at HTD and ASME conferences, and served as an associate editor of the *Journal of Heat Transfer*. He was honored with the Society's Technical Communities Globalization Medal in 2012.

Lienhard is a member of the American Association for the Advancement of Science; the International Desalination Association; Tau Beta Pi, the Engineering Honor Society; and the Scientific Council of the International Centre for Heat and Mass Transfer.

His honors range from a Presidential Young Investigator Award (1988) from the National Science Foundation to a Best Paper Award from *Entropy* (2015), and include numerous MIT teaching awards, the Ralph R. Teetor Award (1992) from SAE International, an R&D 100 Award (1997) from *R&D Magazine*, a Best Paper Award (2011) at the International Desalination Association's World Congress on Desalination and Water Reuse, a Best Poster Award (2014) during Singapore International Water Week, and two Best Poster awards (2015) at the American Water Works Association's Annual Conference and Exposition.

Lienhard is a registered professional engineer in the commonwealth of Massachusetts.

GENERAL

FRANCIS A. KULACKI, Ph.D., professor, University of Minnesota, Minneapolis, *for fundamental contributions to the understanding of convective heat transfer in porous media, and natural convection in volumetrically heated fluids and in tube bundles; particularly research that resulted in the development of heat transfer correlations and data sets that have proved important to both modelers and designers, and that have impacted engineering for nuclear reactor safety and geologic disposal of high-level nuclear waste.*

Dr. Kulacki is currently a professor in the department of mechanical engineering at the University of Minnesota (U of M), Minneapolis. With the U of M since 1993, he served as dean of the College of Science and Engineering through 1995. In 2002 he served as the director of graduate studies for the Master of Science in Management of Technology (MOT) program, and he has lectured on energy policy and related issues in the MOT program and at the Hubert H. Humphrey School of Public Affairs at U of M.

Previously Kulacki was dean of engineering at Colorado State University, Fort Collins (1986–92). Earlier he was professor and chair of mechanical and aerospace engineering at the University of Delaware, Newark (1980–85); and assistant/associate professor at Ohio State University, Columbus (1971–79).

Kulacki has served on the advisory boards of engineering programs at Swarthmore College, Pennsylvania; the University of Kentucky, Lexington; the University of Maryland, Baltimore County; and Florida International University, Miami. He served as the executive director of the Technology-Based Engineering Education Consortium (1996–98), an initiative of the William C. Norris Institute at the University of St. Thomas, Minneapolis.

Kulacki's current research and scholarly interests include coupled heat and mass transfer in porous media, two-phase flow in microchannels, natural convection heat transfer, heat transfer in metal foams, hybrid renewable energy systems, thermal energy storage technology, energy policy and management of technology. His body of work in convectively-driven heat transfer in volumetrically-heated layers and the correlations developed from these studies are widely used in estimating the heat transfer rates from postulated loss-of-coolant accidents in nuclear reactors. He has

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advised 20 doctoral students, 45 master's degree students and 14 undergraduate research scholars.

His publications include 200 articles, 14 book chapters and reviews, and more than 30 educational/professional articles. Kulacki is editor of the *Springer Briefs in Thermal Engineering and Applied Science, Springer Mechanical Engineering Series,* and the forthcoming *Springer Handbook of Thermal Engineering and Applied Science*. He is co-holder of two U.S. patents related to the cooling of electronic equipment.

An ASME Fellow, Kulacki has been very active at the Society level and in the Heat Transfer Division (HTD). His Society activities ranges from Student Section advisor at Ohio State (1973–76) to Fellows Review Committee member (2011 to present) and include service as a member of the Engineering Education (1996-99), Professional Development (2000–04) and Center for Education (2006–10) boards. Kulacki's HTD service includes chair of the Executive Committee (1987–88) and chair of the 75th Anniversary Celebration Steering Committee (2011–13). He is associate editor of the *Journal of Thermal Science and Engineering Applications* (2014–17). Kulacki received an ASME Dedicated Service Award in 2004.

He is also a Fellow of the American Association for the Advancement of Science. Among his other honors, Kulacki received U of M's George W. Taylor Award of Distinguished Service (2001); and he was a distinguished visiting professor at The Petroleum Institute, United Arab Emirates (2008).

Kulacki earned his bachelor's degree in mechanical engineering and his master's degree in natural gas engineering from the Illinois Institute of Technology, Chicago, in 1963 and 1966, respectively. He earned his Ph.D. in mechanical engineering from the University of Minnesota in 1971.

SCIENCE

ZHUOMIN ZHANG, Ph.D., professor, Georgia Institute of Technology, Atlanta, *for seminal research contributions in nanoscale thermal radiation including near-field radiative heat transfer and far-field radiative properties of nanostructured materials such as thin films and multilayers, gratings, photonic crystals, and metamaterials for semiconductor manufacturing and energy harvesting.*

Dr. Zhang joined the faculty at the Georgia Institute of Technology, Atlanta, in 2002 and is currently a professor in the George W. Woodruff School of Mechanical Engineering. Previously Zhang was with the University of Florida, Gainesville (1995–2002); and earlier he was at the National Institute of Standards and Technology (NIST) in Gaithersburg, Md. (1992–95).

Zhang's research focuses on thermal radiation at nanoscales and radiative properties of nanostructured materials including metamaterials. He is internationally known as a leading expert in micro/nanoscale heat transfer. He is a pioneer in nanoscale thermal radiation, with applications to radiation thermometry, semiconductor processing and energy conversion.

As principal/co-principal investigator, Zhang has completed more than 30 research projects with total funding in excess of $4.5 million from sources including the National Science Foundation (NSF), the Department of Energy, NIST, the Air Force Research Laboratory and industry.

Under his supervision, 15 Ph.D. and 11 master's thesis students have graduated. Several of his Ph.D. students have established independent careers at major universities in the United States, China (mainland and Taiwan) and South Korea. In addition, Zhang has supervised many visiting scholars, postdoctoral fellows and undergraduate student researchers. He is currently supervising five Ph.D. students and a visiting scholar.

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Zhang has co-authored more than 150 refereed journal publications and eight invited book chapters. His textbook titled "Nano/Microscale Heat Transfer" (McGraw-Hill, 2007) has been adopted by many instructors around the world. In the past five years Zhang has delivered some 80 keynote/invited talks at international conferences and lectures/seminars at universities and government research labs worldwide. He is a co-inventor on two patents.

An ASME Fellow, Zhang has served on various Heat Transfer Division committees: K-18–Low Temperature Heat Transfer (member: since 1993; chair: 2000–03), K-7–Thermophysical Properties (member: since 1994; chair: 2009–12); and he is founding chair (2012–15) of K-9–Nanoscale Thermal Transport and a member of the Yeram S. Touloukian Award Committee (2006–15). He has been serving as associate editor of the *Journal of Heat Transfer* since 2012. Zhang served as co-chair, vice chair and program chair for three key conferences held in 2008, 2009 and 2012, respectively. He received an HTD Best Paper Award in 2000.

Zhang is also a Fellow of the American Association for the Advancement of Science; an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA); and a member of the American Society for Engineering Education, the American Physical Society and Sigma Xi, the Scientific Research Society.

His honors include a Presidential Early Career Award for Scientists and Engineers (1999), a Junior Faculty Research Award (1999) from the University of Florida's chapter of Sigma Xi, a Thermophysics Best Paper Award (2005) from AIAA, and a Hartnett-Irvine Award for best paper (2010) from the International Centre for Heat and Mass Transfer.

Zhang earned his bachelor's and master's degrees from the University of Science and Technology of China, Hefei, in 1982 and 1985, respectively. He earned his Ph.D. from the Massachusetts Institute of Technology, Cambridge, in 1992.

Mayo D. Hersey Award

ALI ERDEMIR

Conferred at the STLE Tribology Frontiers Conference, Denver, October 2015

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.

ALI ERDEMIR, Ph.D., Argonne distinguished fellow and senior scientist, Argonne National Laboratory, Illinois, *for significant contributions to tribology including the design, synthesis and implementation of new materials, coatings and lubricants that can increase energy efficiency, durability and environmental compatibility of advanced transportation systems.*

Dr. Erdemir is an Argonne distinguished fellow and senior scientist at Argonne National Laboratory, Illinois. With Argonne since 1987, Erdemir is internationally recognized for significant accomplishments in the fields of tribology, materials science and mechanical engineering, as well as related disciplines including friction, wear and lubrication; innovative surface engineering and treatment technologies; and nano/micro technology.

His current research is directed toward nanoscale design and large-scale manufacturing of new materials, coatings and lubricants for a broad range of applications in

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manufacturing, transportation and other energy conversion and utilization systems where further increases in efficiency, reliability and environmental compatibility are primary objectives.

Erdemir has authored/co-authored nearly 300 research articles and 18 book/handbook chapters; edited three books; and presented more than 150 invited, keynote and plenary talks. He holds 15 U.S. patents.

An ASME Fellow, Erdemir has been a member of the Tribology Division's Nomination and Oversight Committee since 2012. He previously served the Tribology Division as secretary, treasurer and vice chair (2008–10); member of the Executive Committee member (2006–10); chair of the Technical Exposition Committee (2006–08); and member (2002–05) and chair of the Honors and Awards Committee (2006). Erdemir has also been track organizer and chair for a number of conferences. He received an Innovative Research Award from the Tribology Division in 1999.

Erdemir is also a Fellow of the Society of Tribologists and Lubrication Engineers (STLE), ASM International and the American Vacuum Society; and a member of the American Association for the Advancement of Science and the Society of Vacuum Coaters.

Among his numerous honors, Erdemir received a Distinguished Performance Award (2011) from UChicago Argonne, LLC; five R&D 100 awards (between 1991 and 2012) from R&D Magazine; and two Al Sonntag awards (1992 and 2002) and an Edmond E. Bisson Award (1998) from STLE.

Erdemir earned his bachelor's degree in metallurgy from Istanbul Technical University in 1977. He earned his master's degree in materials engineering and his Ph.D. in materials science and engineering from the Georgia Institute of Technology, Atlanta, in 1982 and 1986, respectively. He received an honorary doctorate from Anadolu University (Eskisehir, Turkey) in 1998.

Patrick J. Higgins Medal

SHABBIR M. RAWALPINDIWALA

Conferred at the ASME A112/CSA Standards Committee Meeting, San Antonio, January 2015

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.

SHABBIR M. RAWALPINDIWALA, manager of codes and standards, Kohler Co., Wisconsin, *for contributions on numerous technical specifications for plumbing products including authoring more than 100 proposals; and for leadership on the ASME A112 Plumbing Materials and Equipment Committee, and extraordinary commitment to the harmonization process between the U.S. and Canada.*

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Mr. Rawalpindiwala is manager of codes and standards at Kohler Co. in Wisconsin. Since joining Kohler in 1998, he has been managing the regulatory aspects of the company's product line. His responsibilities include overseeing applications submitted to regulatory and certification agencies, tracking industry changes that impact product compliance and labeling, coordinating with internal stakeholders to drive decision-making across the organization, and participating on select industry committees (U.S., Canada, China, Europe and Mexico) deemed important to the company's future.

Previously, Rawalpindiwala was director of quality control (1985–89) and director of standards (1989–98) at the International Association of Plumbing and Mechanical Officials (IAPMO) in Ontario, Calif. From 1975 to 1985, he was responsible for evaluating a variety of products as a project engineer with U.S. Testing Co., Inc. (Tulsa, Okla.).

An ASME member, Rawalpindiwala is vice chair of A112 Plumbing Materials and Equipment Committee. He also serves as chair of Project Team A112.18.6–Flexible Water Connectors, A112.19.1–Enameled Cast Iron Plumbing Fixtures, A112.19.3–Stainless Steel Plumbing Fixtures, A112.19.5–Trim for Water Closet Bowls/Tanks, A112.19.7–Whirlpool Bathtub Appliances, A112.19.14–Dual Flush for Six-Liter Water Closets and A112.19.15–Bathtubs and Whirlpools With Pressure Sealed Doors. He has led ASME's A112 harmonization efforts with the Canadian Standards Association (CSA) and is spearheading efforts to harmonize with Mexican standards.

Rawalpindiwala is also a member of CSA, the American Society of Sanitary Engineers, ASTM International, IAPMO, the International Code Council, and the Canadian Institute of Plumbing and Heating (CIPH).

His honors include Plumbing Manufacturers International's President Award (2009), CSA's Award of Merit (2013) and CIPH's Joseph K. Seidner Award (2013).

Rawalpindiwala earned his bachelor's degree in electrical engineering from Oklahoma State University, Stillwater, in 1975.

Soichiro Honda Medal

THOMAS D. GILLESPIE

Conferral at the President's Luncheon,
2015 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.

THOMAS D. GILLESPIE, P.E., Ph.D., research professor emeritus, University of Michigan, Ann Arbor; and director of product planning, Mechanical Simulation Corporation (Ann Arbor, Mich.), *for pioneering research on vehicle dynamics and modeling, with emphasis on truck applications, that has had broad implications for traffic safety, and raised awareness of commercial vehicle performance, braking behavior, stability and energy demand; and for serving as an educator of practicing engineers, particularly through the sharing of real-world knowledge in presentations and seminars worldwide.*

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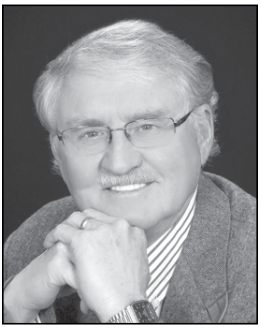

Dr. Gillespie's professional career has been primarily concerned with advanced engineering and research in the automotive and highway areas. From the beginning, his efforts have spanned the breadth of these areas—from directing engineering and service tests on new military construction equipment as project officer (1964–66) with the U.S. Army Corps of Engineers (Fort Knox, Ky.) to applied research in pavement friction test methods (1970–73) at The Pennsylvania State University, University Park. At Ford Motor Company (Dearborn, Mich.), he served as a group leader (1973–76) for the development testing of new heavy truck products, as well as the development of analytical methods and computer programs for predicting truck braking, handling and ride performance.

Gillespie joined the University of Michigan (U-M), Ann Arbor, in 1976 as an associate research scientist in the Transportation Research Institute. He was promoted to research scientist in 1981, senior research scientist in 1997 and research professor in 2002. Gillespie's expertise in the area of road roughness and vehicle dynamics led to consultations with the World Bank in the 1980s that resulted in the development and adoption of the International Roughness Index.

In 1987 Gillespie was appointed to the White House staff as a senior policy analyst for Dr. William R. Graham, science advisor to President Ronald Reagan. He subsequently served as a consultant to Dr. Allan Bromley, science advisor to President George H.W. Bush and chair of the Interagency Task Force, to develop a National Action Plan on Advanced Superconductivity Research and Development.

Upon returning to U-M in 1988, Gillespie served as director of the Great Lakes Center for Truck and Transit Research for 10 years. From 1998 until his retirement in 2006 he was a research professor in the Transportation Research Institute and an adjunct professor in the College of Engineering. He has taught courses to university students and industry engineers in the areas of automotive engineering, vehicle dynamics and integrated vehicle systems design. Gillespie is now research professor emeritus at U-M.

Gillespie currently serves as director of product planning at Mechanical Simulation Corporation (Ann Arbor, Mich.), a leading developer and distributor of advanced software used to simulate vehicle performance under a variety of condition. In addition, he continues to consult, and to teach vehicle and truck dynamics internationally to various industry groups.

His publications include more than 100 papers; and he has authored/co-authored/ edited a number of books including the textbook titled "Fundamentals of Vehicle Dynamics" (SAE, 1992). He has served on the editorial/editorial advisory boards of a number of journals.

Gillespie is a former member of the Michigan Truck Safety Commission, and he served on various committees of the National Academy of Sciences Transportation Research Board.

An ASME member, Gillespie was invited to give the Design Engineering Division's inaugural William F. Milliken Lecture at the 2013 International Conference on Advanced Vehicle Technologies.

Gillespie is a Fellow of SAE International; and a member of The Tire Society, The Honor Society of Phi Kappa Phi and Sigma Xi, the Scientific Research Society.

His honors include SAE's Forest R. McFarland Award (1998) and General Motors' Outstanding Distance Learning Faculty Award (1999 and 2006); and he was invited to give SAE's L. Ray Buckendale Lecture (1985) and the South African Institution of Mechanical Engineers' John Orr Memorial Lecture (2014).

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Soichiro Honda Medal (cont.)

Gillespie earned his bachelor's degree in mechanical engineering from Carnegie Institute of Technology (now Carnegie Mellon University) in Pittsburgh in 1961. He earned his master's degree and Ph.D. in mechanical engineering from The Pennsylvania State University in 1965 and 1970, respectively. Gillespie is a registered professional engineer in Pennsylvania.

Internal Combustion Engine Award

VOLKER SICK

Conferred at the Internal Combustion Engine Division Fall Technical Conference, Houston, November 2015

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.

VOLKER SICK, Dr. rer. nat. habil., Arthur F. Thurnau professor of mechanical engineering and associate vice president for research, University of Michigan, Ann Arbor, *for pioneering work in the application of laser diagnostics to study the interactions of fuel injection, flow physics and combustion processes to further the development of new engine concepts, particularly direct-injection spark-ignition engines.*

Dr. Sick is an internationally recognized pioneer in laser-based imaging diagnostics and their use in engine research. He joined the department of mechanical engineering at the University of Michigan (U-M), Ann Arbor, in 1997. Currently Arthur F. Thurnau professor of mechanical engineering and associate vice president for research, Sick is also director of the Walter E. Lay Automotive Laboratory and has an active research program supported by industry and government sponsors. He previously served as faculty advisor to International Programs in Engineering (2007–12).

Sick's research focuses on the development and application of laser-based and other optical measurement techniques to enable studies of mass and energy transfer at high pressures and high temperatures in mechanically restricted and vibrating environments, such as those present in internal combustion engines, stationary combustion and multiphase mixing processes, to advance the development of next-generation engines.

Among his prior experience, Sick worked at Sandia National Laboratories' Combustion Research Facility (Livermore, Calif.) and SRI International (Menlo, Calif.) while on sabbatical (1994–95) from Heidelberg University, Germany, where he was a senior research scientist (1989–97).

Sick is editor of the *Proceedings of The Combustion Institute* and serves on the editorial board of *Experiments in Fluids*. He has authored/co-authored more than 200 publications in trade journals and conference proceedings.

Sick has served ASME as a journal reviewer and panel discussion member. He is a Fellow of SAE International; a senior member of the Optical Society of America; and a member of The Combustion Institute, the American Society for Engineering Education and DBG–the German Bunsen Society for Physical Chemistry.

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Internal Combustion Engine Award (cont.)

His extensive list of honors includes a Leadership Citation (2012), the Faculty Advisor of the Year Award (2007) and a Forest R. McFarland Award (1999) from SAE International; a Silver Combustion Medal (2008) from The Combustion Institute, and a Harold C. Simmons Award (2006) from the Institute for Liquid Atomization and Spray Systems. His teaching contributions have earned him awards at the local, national and international levels.

Sick earned three degrees from the University of Heidelberg: his diplom and Dr. rer. nat. in chemistry in 1988 and 1992, respectively; and his habilitation in physical chemistry in 1997.

Warner T. Koiter Medal

KAUSHIK BHATTACHARYA

Conferral at the Applied Mechanics Dinner,
2015 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.

KAUSHIK BHATTACHARYA, Ph.D., Howell N. Tyson Sr. professor of mechanics and professor of materials science, California Institute of Technology, Pasadena, *for the development of novel, rigorous and predictive methods for the multiscale behavior of modern engineering materials at scales ranging from subatomic to polycrystal, with special focus on multifunctional materials.*

Following postdoctoral training at the Courant Institute for Mathematical Sciences, New York, Dr. Bhattacharya joined the faculty at the California Institute of Technology, Pasadena, in 1993. He is currently Howell N. Tyson Sr. professor of mechanics and professor of materials science as well as the executive officer for mechanical and civil engineering.

Bhattacharya held visiting positions at Cornell University (Ithaca, N.Y.); Heriot-Watt University, Edinburgh, U.K.; Max Planck Institute (Leipzig, Germany); the University of Cambridge, U.K.; the Indian Institute of Science, Bangalore; and the Jet Propulsion Laboratory (Pasadena, Calif.).

His research concerns the mechanical behavior of solids and specifically uses theory to guide the development of new materials. His broad research areas are: active materials such as shape-memory alloys, ferroelectrics and liquid crystal elastomers; heterogeneous materials and designing unprecedented properties by exploiting heterogeneities; and coarse-grained density functional theory to understand defects in solids. Since virtually every material contains features that are different at different length scales and undergoes processes at a variety of time scales, bridging length scales is a key theme.

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Bhattacharya has supervised 23 doctoral students and mentored 17 postdoctoral scholars, 23 of whom currently hold faculty positions at universities around the world.

His publications include more than 125 journal articles and conference papers, three book chapters, and a book titled "Microstructure of Martensite: Why it Forms and How it Gives Rise to the Shape-Memory Effect" (Oxford University Press, 2003). He has given numerous invited/plenary lectures at various professional organizations and universities in the United States, Europe and Asia; and was named Midwest Mechanics Lecturer (2006–07) and Southwest Mechanics Lecturer (2007–08). He is currently an editor of the *Journal of Mechanics and Physics of Solids*, and serves on the editorial board of other notable archival journals. He holds three patents and has two applications pending.

An ASME member, Bhattacharya received a Special Achievement Award from the Applied Mechanics Division in 2005.

Bhattacharya is a Fellow of the Society of Industrial and Applied Mathematics, and a member of the Society of Engineering Science (SES) and the Materials Research Society.

His honors include a Graduate Student Council Teaching and Mentoring Award (2013) from Caltech; a Young Investigator Award (1994) from the National Science Foundation and a Young Investigator Prize (2004) from SES.

Bhattacharya received his bachelor of technology degree in mechanical engineering from the Indian Institute of Technology–Madras in 1986. He earned his Ph.D. in mechanics from the University of Minnesota, Minneapolis, in 1991.

Robert E. Koski Medal

MONIKA IVANTYSYNOVA

Conferred at the ASME/Bath Symposium on Fluid Power and Motion Control, Chicago, October 2015

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.

MONIKA IVANTYSYNOVA, Ph.D., Maha professor of fluid power systems, Purdue University (West Lafayette, Ind.), *for significant contributions in the area of analysis, design and control of axial piston pumps and hydrostatic-transmission systems, which are used to transmit fluid power in automotive, industrial and aerospace applications; and for efforts to create paths to disseminate fluid power research results.*

After earning her Ph.D., Dr. Ivantysynova worked in the fluid power industry for seven years before returning to academia in 1990. She did research in the field of advanced actuation systems for primary flight controls at the Technical University of Hamburg-Harburg (TUHH), Germany, before accepting a professorship in fluid power and control at the University of Duisburg, Germany, in 1996. She later returned to TUHH as a professor of mechatronic systems (1999-2004).

In 2004 Ivantysynova joined the Purdue University (West Lafayette, Ind.) faculty as the Maha professor of fluid power systems and founded the Maha Fluid Power Research Center, where she continues to serve as director. She is also a thrust leader of the National Science Foundation-funded Engineering Research Center for Compact and Efficient Fluid Power.

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Ivantysynova's research focuses on the modeling and computational design of piston pumps and motors, advanced system architectures, and control and power management concepts for energy efficient actuation and drive systems including hydraulic hybrid systems. Her research on valveless hydraulic actuation systems has the potential to revolutionize the fluid power industry. Her efforts have generated more than 15 patents, and she has several applications pending.

She co-founded Fluid Power Net International (FPNI), the first virtual network of fluid power research and education centers worldwide; and she serves as a scientific board member.

Ivantysynova is co-author of a book titled "Hydrostatic Pumps and Motors" (Academia Books International, 2001; German version, 1993), and she has had more than 200 papers published in technical journals and international conference proceedings. She is editor-in-chief of the *International Journal of Fluid Power.*

An ASME Fellow, Ivantysynova has been a member of the Fluid Power Systems and Technology Division's Executive Committee since 2002. She served on the Program Committee (2009, 2011–12, 2014) and as co-chair/organizer (2013) for the Symposium on Fluid Power and Motion Control (FPMC); and she is chair of the Industry Sponsorship Committee for FPMC 2015. Ivantysynova received Best Paper awards at ASME conferences in 2006, 2009 and 2011.

She is also a Fellow of SAE International. Among her extensive list of honors, Ivantysynova was selected as a member of the Innovators Hall of Fame (2013–14) by Purdue's Office of Technology Commercialization; received the Joseph Bramah Medal (2009) from the Institution of Mechanical Engineers; received Best Paper awards (2011 and 2014) at the JFPS (Japan Fluid Power System Society) International Symposium on Fluid Power; and received Backe medals (2006, 2008, 2012 and 2014) for best paper at the FPNI Ph.D. Symposium.

Ivantysynova earned her master's degree and Ph.D. in mechanical engineering from Slovak Technical University in Bratislava, Czechoslovakia (now Slovakia), in 1979 and 1983, respectively. She received a doctor honoris causa from the university in 2010.

Allan Kraus Thermal Management Medal

MARTA RENCZ

Conferral at the Electronic and Photonic Packaging Division Reception, 2015 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.

MARTA RENCZ, Dr. phil. habil., Dr. Sci., professor, BME–the Budapest University of Technology and Economics, Hungary, *for the methodology of structure function based in situ and ex situ characterization of thermal interface materials and thermal characterization of semiconductor device packages, which has become an industry standard for the measurement of junction-to-case thermal resistance; and for structure function based test methods that led to the development of successful industrial products.*

Dr. Rencz joined BME–the Budapest University of Technology and Economics, Hungary, in 1973 and held various teaching and research positions. Since 2005 she is a professor in the department of electron devices.

Her research interests in modeling devices of integrated circuits led to modeling the thermal and electro-thermal behavior of circuits and systems, with resultant interests in the thermal characterization of electronics materials and systems as well.

In 1997 Rencz co-founded and served as CEO of MicReD Ltd, a spin-off company of BME. The structure function based die attach testing methodology that Rencz introduced to the international thermal management community and the T3Ster thermal transient tester the company developed under her leadership became broadly accepted worldwide, and later became the JEDEC standard methodology for testing the junction-to-case thermal resistance. Since MicReD was acquired by Mentor Graphics in 2008, Rencz has served as research and development director.

She has authored/co-authored over 300 scientific papers, more than half in the field of thermal measurements and evaluation in electronics. Rencz has given numerous lectures including invited/keynote talks at various international conferences. She is founder and current chair of the steering board for the THERMINIC Workshop.

Rencz regularly reviews papers for ASME journals and conferences, and she has given talks at several Society-sponsored conferences and workshops.

Rencz is a member of IEEE.

Her honors include the Harvey Rosten Award for Excellence (2001) at IEEE's SEMI-THERM Symposium; a Design Contest Award (2001) at DATE–the Design, Automation and Test in Europe event; and a Best Paper Award (2006) from *IEEE Transactions*.

Rencz earned three degrees from BME: a university doctoral degree in microelectronics in 1980, a Ph.D. in 1995 and a habilitation in 2004. In 2005 she earned a Dr. Sci. degree from the MTA–the Hungarian Academy of Science. Rencz received a doctor honoris causa from the Tallinn University of Technology, Estonia, in 2013.

Frank Kreith Energy Award

MICHAEL WEBBER

Conferral at the President's Luncheon,
2015 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.

MICHAEL WEBBER, Ph.D., associate professor/deputy director, The University of Texas at Austin, *for excellence in energy research including the energy-water nexus; and for leadership in promoting energy literacy including the creation of a massive open online course and a television special.*

As deputy director of the Energy Institute, co-director of the Clean Energy Incubator, Josey centennial fellow in Energy Resources and associate professor of mechanical engineering, Dr. Webber trains the next generation of energy leaders at The University of Texas (UT) at Austin through research and education at the convergence of engineering, policy and commercialization.

Webber has been with UT Austin since 2006. Previously he was an associate engineer at RAND Corporation (2004–06) and senior scientist at Pranalytica, Inc. (2000–04), both in Santa Monica, Calif.

His areas of research cover a wide range of energy topics with particular emphasis on grid modeling, and the nexus of energy and water. Utilizing a mix of methods, such as optimization and unit commitment and dispatch models, Webber's efforts have yielded a plethora of new findings. Entities such as the U.S. Senate Energy and Natural Resources Committee, the Department of Energy, and nongovernmental organizations such as UNESCO have featured his research in their policy-making decisions. He is one of the originators of Pecan Street Inc, a public-private partnership in Austin, Texas, that is running the nation's largest smart grid experiment.

Webber has authored more than 300 publications and serves on the advisory board for *Scientific American*. He has given more than 200 lectures, speeches and invited talk in the last few years alone. His television special, "Energy at the Movies," is currently in national syndication on PBS stations; and a suite of energy literacy tools titled Energy 101, including videos, online courses and an interactive e-book, is available globally. He holds four patents and has two applications pending.

An ASME Fellow, Webber has an extensive record of service with ASME, from organizing tracks/sessions for various conferences and publishing in ASME journals to serving as founding vice chair (2010–13) of the Energy-Water Nexus Interdisciplinary Council. He is also a quarterly contributor for the Tech Buzz Energy column in the Society's *Mechanical Engineering* magazine.

Webber is a member of the American Association for the Advancement of Science and the American Chemical Society.

His extensive list of honors includes a Marshall Memorial Fellowship (2007) from the German Marshall Fund of the United States and an Industrial Ecology Faculty Fellowship (2009) from AT&T; and he was recognized by UT Austin for exceptional teaching on four separate occasions.

Webber earned a B.S. in aerospace engineering (high honors) and a B.A. in liberal arts (high and special honors) from UT Austin in 1995. He earned his master's degree and Ph.D. in mechanical engineering from Stanford University, California, in 1996 and 2001, respectively.

Bernard F. Langer Nuclear Codes and Standards Award

THOMAS J. VOGAN

Conferred at the Committee on Nuclear Air and Gas Treatment Meeting, Columbus, Ohio, July 2015

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.

THOMAS J. VOGAN, C.P.M., P.E., senior manager, Sargent & Lundy LLC, Chicago, *for long-term contributions to ASME including service as chair of the Executive Committee and the Standards Committee on Nuclear Air and Gas Treatment, and for dedicated mentoring of junior committee members.*

Mr. Vogan has been with Sargent & Lundy LLC since 1989 and is currently a senior manager in the Chicago office. Throughout his career at Sargent & Lundy, Vogan has supported and led engineering and design efforts on a number of nuclear and fossil plants, both domestically and internationally. He has also been instrumental in developing internal standards and processes to enhance the firm's mechanical engineering capabilities to meet the ever-changing rules and regulations impacting the nuclear power industry.

Previously Vogan worked at Florida Power and Light (1974–89) supporting the design and initial operation of the St. Lucie and Turkey Point nuclear plants. Earlier he was with Westinghouse (1968–74) at the Bettis Atomic Power Laboratory (West Mifflin, Pa.) providing engineering support for naval plant development and operations.

An ASME member, Vogan has been involved in Nuclear Codes and Standards activities since 1978. Initially a member of working groups, he subsequently served as a Standards Committee member on both the Committee on Nuclear Air and Gas Treatment (CONAGT) and the Committee on Operations and Maintenance of Nuclear Power Plants. He served three terms as chair of CONAGT and two terms as chair of the Executive Committee. Currently Vogan serves as a member of the Board on Nuclear Codes and Standards. He received an ASME Certificate of Appreciation.

Vogan is also a member of the Institute for Supply Management and the American Institute of Chemical Engineers.

Vogan earned his bachelor's degree in chemical engineering from Carnegie Mellon University, Pittsburgh, in 1968. He is a registered professional engineer in nine states and is a certified purchasing manager.

Gustus L. Larson Memorial Award

NIKHIL ASHOK KORATKAR

Conferral at the Members and Students Luncheon,
2015 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.

NIKHIL ASHOK KORATKAR, Ph.D., John A. Clark and Edward T. Crossan chair professor in engineering, Rensselaer Polytechnic Institute (Troy, N.Y.), *for outstanding achievements in mechanical engineering within 10 to 20 years following graduation.*

Dr. Koratkar has been a member of the faculty at Rensselaer Polytechnic Institute (RPI) in Troy, N.Y., since 2001. Initially an assistant professor in the department of mechanical, aerospace and nuclear engineering, he was promoted to associate professor in 2006 and professor in 2009. In 2011 he was also appointed a professor in the materials science and engineering department. Koratkar was named the John A. Clark and Edward T. Crossan professor of engineering in 2012.

Koratkar's research has focused on the synthesis, characterization and application of nanoscale material systems. This includes graphene, carbon nanotubes, transition metal dichalcogenides, hexagonal boron nitride as well as metal and silicon nanostructures produced by a variety of techniques such as mechanical exfoliation, chemical vapor deposition, and oblique angle sputter and e-beam deposition. He is studying the fundamental mechanical, electrical, thermal, magnetic and optical properties of these 1-D and 2-D materials, and developing a variety of composites, coatings and device applications of these low dimensional materials.

His work in nanostructured materials for lithium-ion batteries has resulted in a startup company, EnerMat Technologies, with the aim of commercializing graphene electrodes for next-generation energy storage solutions.

Koratkar has published more than 140 archival journal papers (citation range: 5,000-7,000; h-index range: 38-48) including five in Nature series journals. He is the author of the book titled "Graphene in Composite Materials–Synthesis, Characterization and Applications" (DEStech Publications, 2013), and co-author of four book chapters. Koratkar has served as editor of the journal *Carbon* since 2010. He has given keynote and invited talks at several international conferences.

An ASME member, Koratkar is an Associate Fellow of the American Institute of Aeronautics and Astronautics, and a member of the Materials Research Society.

His honors include a CAREER Award (2004) from the National Science Foundation, an Excellence in Research Award (2004) from RPI's School of Engineering, an Early Career Award (2005) from RPI, and the SES Research Young Investigator Award of the Nanocarbon Division of The Electrochemical Society (2009).

Koratkar earned his bachelor's degree in aerospace engineering from the Indian Institute of Technology–Bombay in 1995. He earned his master's degree and Ph.D. in aerospace engineering from the University of Maryland, College Park, in 1998 and 2000, respectively.

H.R. Lissner Medal

JAMES ANTHONY ASHTON-MILLER

Conferred at the Summer Biomechanics, Bioengineering and Biotransport Conference, Snowbird, Utah, June 2015

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

JAMES ANTHONY ASHTON-MILLER, Dr. Philos., Albert Schultz collegiate research professor and distinguished research scientist, University of Michigan, Ann Arbor, *for outstanding research contributions in the biomechanics of injuries, particularly neuromuscular mechanisms of fall-related injuries in the elderly, and strain-induced birth-related injuries and their sequelae in women.*

Dr. Ashton-Miller has been with the University of Michigan, Ann Arbor, since 1983. He is currently the Albert Schultz collegiate research professor and distinguished research scientist, associate vice president for research, and director of the Biomechanics Research Laboratory.

Ashton-Miller, his students and his colleagues use experimental and theoretical biomechanical approaches, advanced imaging, anatomic dissections and histology, clinical studies and inventions to better understand the mechanism of unintentional injuries. They have provided insights into why women are injured during childbirth, and why these injuries can cause lifelong pelvic floor problems such as incontinence and prolapse; identified a special form of repetitive loading as a cause of ACL (anterior cruciate ligament) fatigue failure and rupture; and identified risk factors that cause falls and, more importantly, fall-related injuries in the elderly. They have also identified factors that cause back pain, factors that cause idiopathic scoliosis to progress, and a flaw in the measurement of female sprinter reaction times at the 2008 Olympics.

Ashton-Miller serves on a National Collegiate Athletic Association panel concerned with baseball bat performance and safety, and an ASTM International panel concerned with improving building skylight safety standards to prevent fall-throughs that cause serious injury or death.

His research is supported by the National Institutes of Health (NIH) as well as half a dozen Fortune 500 companies. He has served as a peer reviewer on two NIH study sections for geriatric and rehabilitation sciences. He has graduated more than 30 doctoral students and a series of NIH Career Development Award (K08, K12 and K23) trainees.

Ashton-Miller has published more than 250 peer-reviewed papers and a dozen book chapters. He holds three patents.

An ASME Fellow, Ashton-Miller is also a Fellow of the American Society of Biomechanics (ASB), the American Institute for Biological and Medical Engineering, and the Gerontological Society of America where he is chair-elect of the Health Sciences section.

He is a member of the Association of Research Integrity Officers and the Council on Governmental Relations.

His honors include Cabaud Memorial awards (2011 and 2014) from the American Orthopaedic Society for Sports Medicine, the Dantek Award and Best Basic Science Presentation Award (2012) from the International Continence Society, the Borelli Award (2009) and Clinical Biomechanics Award (2003) from ASB, and five Best Paper awards (1997, 1998, 2003, 2007 and 2010) from the American Urogynecology Society.

Ashton-Miller earned his bachelor's degree in mechanical engineering, with honors, from the University of Newcastle upon Tyne (now Newcastle University), U.K., in 1972. He earned his master's degree in mechanical engineering in 1974 from the Massachusetts Institute of Technology, Cambridge. In 1982 he received his Dr. Philos. from the University of Oslo, Norway.

Machine Design Award

JORGE ANGELES

Conferred at the International Design Engineering Technical Conferences, Boston, August 2015

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

JORGE ANGELES, ing., Ph.D., James McGill professor of mechanical engineering, McGill University, Montreal, *for distinguished work on kinetostatic isotropy, qualitative synthesis and model-based design methods, with broad industrial collaboration, that has had a significant impact on the design of robotic and other mechanical systems such as linkages, cams, gears and clutches.*

Dr. Angeles joined the faculty at McGill University, Montreal, in 1984. Since 2003, he is the James McGill professor of mechanical engineering. Prior to joining McGill, he was a member of the faculty at the Universidad Nacional Autónoma de México (UNAM) in Mexico City (1973-84). Throughout his career, Angeles has been making ingenious and groundbreaking contributions to the design of mechanical and mechatronic systems while teaching at all levels and mentoring highly qualified personnel.

Angeles is known for his broad, multidisciplinary background, and his work on novel designs of robotic mechanical systems and their drives. His early contributions can be traced back to two of his books: "Spatial Kinematic Chains: Analysis–Synthesis–Optimization" (Springer-Verlag, 1982) that introduced novel computational techniques for the synthesis of spatial linkages; and "Rational Kinematics" (Springer-Verlag, 1988) that laid the foundations for the axiomatic formulation of rigid-body rotations based on an invariant formulation. This subject is the cornerstone of mechanical design, especially in the realms of robotics, aerospace engineering, computer-aided design and finite element analysis.

In the early 1990s Angeles and his co-workers introduced novel algorithmic approaches to the design of cams, as opposed to the graphical methods of the pre-computer era. This work was summarized in two books: "Optimization of Cam Mechanisms" (Kluwer Academic Publishers, 1991) that is devoted to planar mechanisms; and "Cam Synthesis" (Kluwer Academic Publishers, 1993), which introduced a unified formulation of the cam synthesis problem, encompassing planar, spherical and spatial mechanisms.

Angeles' publications include four other books, more than 200 journal papers and íneарly 300 publications in conference proceedings. He holds three patents.

An ASME Fellow, Angeles is recognized within the ASME community for his in-depth knowledge of kinematics and design. He was associate editor (2018–10) of the *Journal of Mechanisms and Robotics*, which was launched in February 2009; and later served as special editor (2013–14). Earlier he was a member of the Management Committee of the IEEE/ASME Transactions on Mechatronics (2002–06) and was associate editor of ASME's Journal of Mechanical Design (1993–94). He received the Design Engineering Division's Mechanisms and Robotics Award in 2000.

Angeles is also a Fellow of the Mexican Academy of Science, the Canadian Society for Mechanical Engineering, the Royal Society, IEEE and The Canadian Academy of Engineering. He is a member of the Canadian Committee for the Theory of Machines and Mechanisms, the Ordre des ingénieurs du Québec, VDI–the Association of German Engineers, the Sociedad Mexicana de Ingeniería Mecánica, and the International Society for the Interaction of Mechanics and Mathematics.

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Among his honors, Angeles received a Research Excellence Award (2010) from McGill University's Faculty of Engineering; was named Honorary Member (one of 12) of IFToMM, the International Federation for the Promotion of Mechanism and Machine Science (2004); and received a Research Award (1991-92) from the Alexander von Humboldt Foundation.

Angeles received his mechanical–electrical engineer's diploma and his master's degree in mechanical engineering from UNAM in 1969 and 1970, respectively. In 1973 he earned his Ph.D. in applied mechanics from Stanford University, California. He received a doctorate honoris causa from the University of Guanajuato, Mexico, in 2011. Angeles is a registered engineer (mechanical–electrical) in Mexico.

Charles T. Main Student Leadership Awards

JONATHAN JENNINGS – GOLD
CALEB AMY – SILVER

Conferral at the Members and Students Luncheon,
2015 International Mechanical Engineering Congress and Exposition

THE CHARLES T. MAIN AWARD was established in 1919 to recognize, at the Society-wide 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

JONATHAN JENNINGS, undergraduate student, University of Missouri, Columbia, *for outstanding contributions to ASME including past service as president of the University of Missouri Student Section and current service at the national level as chair of the Student Section Enterprise Committee for Region 2.*

Mr. Jennings is a senior at the University of Missouri (MU), Columbia, and expects to graduate in May 2016 with a bachelor's degree in mechanical engineering. An ASME member, Jennings has served in various capacities in MU's Student Section including social chair (2012–13), president (2013–14) and Build Team captain (2013–15). He also served as vice chair of communications for the District C (renamed Region 2) Student District Operating Board (2012–14). As Student Section Enterprise Committee chair for Region 2 (2014–16), Jennings is responsible for the organization, communication and participation of all ASME Student Sections in 14 1/2 states and three Canadian provinces. He has participated in the Society's Student Leadership Seminar, Student Professional Development Conference, International Mechanical Engineering Congress and Exposition, and the Innovative Additive Manufacturing 3D Challenge and Student Design Competition.

Jennings is also a member of the MU chapter of the American Institute of Aeronautics and Astronautics (AIAA), and has served in various positions including president (2013–14).

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He is founder/president of a chapter of Students for the Exploration and Development of Space (SEDS) at MU. He recently assumed a national position with SEDS; he is project manager–University Student Rocketry Challenge. Among other university activities, Jennings is student ambassador for Citizens for Space Exploration and student storm trooper for March Storm. These are citizen advisory committees that travel to Washington, D.C., to speak with their state representations about space policy.

Among his honors, Jennings made the Dean's Honor Roll at MU (spring 2014); his AIAA team was named runner-up for the Experimental Sounding Rocket Association's R. Gilbert Moore Innovation Award (2014) and earned 4th place at the Intercollegiate Rocket Engineering Competition for the third consecutive year; and he received the ASME Foundation's F.W. "Beich" Beichley Scholarship for the 2015–16 academic year.

SILVER

CALEB AMY, graduate student and research assistant, Georgia Institute of Technology, Atlanta, *for dedicated service to ASME ranging from treasurer and chair of the Student Section at the University of Central Florida to vice chair and chair of the Student Region 5 Board.*

In 2011 Mr. Amy started his engineering education at the University of Central Florida (UCF), Orlando, where he quickly became involved in ASME and other extracurricular activities. By his second semester he was an intern at Lockheed Martin, where he learned to create drawings for engineering designs and worked in a machine shop. A year later, while continuing to intern, he began conducting undergraduate research on the mechanical design of several components for Dr. Subith Vasu's Gas Dynamics Lab. He subsequently began interning at Siemens to focus on energy related engineering through work on gas turbines. At Siemens he helped design and model components for advanced engines, and managed models and drawings for field-issue instrumentation. At UCF he served as a peer mentor for incoming provost scholars, mentoring seven students during the 2013–14 school year and six students in the 2014–15 school year.

Amy maintained a 4.0 GPA and graduated from UCF, on schedule, in May 2015 with a bachelor's degree in mechanical engineering, with a minor in math. In August 2015 he started the M.S./Ph.D. program at the Georgia Institute of Technology, Atlanta. He also took on the position of graduate research assistant, under Dr. Asegun Henry, to research advanced working fluids for solar thermal towers for power generation.

An ASME member, Amy served in various positions in UCF's Student Section. He was a member of the Student Design Competition team and the Fundraising Committee (2011–12); Student Section treasurer (2012–13) and chair (2013–14); and chair of the Human Power Vehicle Challenge–East (2014). Among his District F/Region 5 activities, Amy attended the Student Leadership Training Conference (2013) and the Student Professional Development Conference (2012–14); and he presented leadership sessions. He served as vice chair of the Student District Operating Board (2012–14) and was chair of the Student Region 5 Board (2014–15).

Among his honors, Amy received UCF's Provost Scholarship (2011), ASME Foundation scholarships (2013, 2014 and 2015) and a Georgia Tech President's Fellowship (2015).

Amy recently passed the fundamentals of engineering exam, part of the process to become a registered professional engineer.

McDonald Mentoring Award

CARLOS L. LASARTE V

Conferral at the Members and Students Luncheon,
2015 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.

CARLOS L. LASARTE V, managing director and technical advisor, Combustión, Energía y Ambiente, S.A., Panamá, *for dedicated service to ASME including mentoring both professional and student members, laying the foundation for the Latin America and Caribbean District, serving as Student Sections Committee representative and District I leader, and developing several programs to benefit the membership.*

Mr. Lasarte has 33 years of professional experience and is an expert in the area of corrosion, particularly the inspection and failure analysis of boilers. Throughout his career he has mentored many individuals and groups, been a committed ASME ambassador and a valued member of the professional community.

Lasarte has been with Combustión, Energía y Ambiente, S.A., since 1997, originally in Venezuela and now in Panamá, and is currently managing director and technical advisor. Previously he was steam generation manager of Combustion Engineering Services at ASEA Brown Boveri (1994–97); supervisor of the corrosion and material section and corrosion engineer at PEQUIVEN (El Tablazo Complex), a Venezuelan petrochemical company (1990–94); a corrosion engineer at the ESTIZULIA polystyrene plant (1987–90); and labs supervisor at Electricidad de Caracas, a power station in Venezuela (1981–87).

Among his other career efforts, Lasarte is an accredited loss adjuster on the Venezuelan Insurance Superintendency, and is licensed by INPSASEL as an occupational safety and health professional for boiler inspectors since 2004 and 2007, respectively. He served as designer, academic director and instructor at the Argentinean Institute of Siderurgy/National Technological University's 100 percent online diploma program on the integral inspection of in-service boiler conditions (September 2014–January 2015). For The National Board of Boiler and Pressure Vessel Inspectors, he served as independent consultant–Latin American, collaborating on the translation of the National Board Inspection Code (December 2012–14). Lasarte has also served as coordinator for a number of boiler user meetings (in Venezuela and Colombia), as well as workshops on reliability-centered maintenance and on the design, operation and installation of piping systems (in Venezuela).

An ASME Fellow, Lasarte is chair (2011–17) of Boiler and Pressure Vessel (Spanish translation) Code Sections VI–Care and Operation of Heating Boilers and VII–Care of Power Boilers. Since 2002 he has been an authorized instructor for courses in Spanish through the ASME Continuous Education Institute. Previous ASME service includes chair of the Affinity Group on Boilers (2011–14), Venezuelan Local Group chair (2008–14), senior representative on the Student Sections Committee for District I (2010–13), District I leader (2005–07) and Region XIII advisor for Latin America (1997–05). He was also principal member (2004–06) and alternate member (2003–04) of the Nominating

Committee–Member Affairs for Region XIII; chair and founder of the Technical Chapter on Operation and Maintenance of Boilers for the Latin America and Caribbean District (Power Division); and ASME Venezuela correspondent (1996–99). Among his numerous Society honors, Lasarte received a Dedicated Service Award in

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2011 and the Outstanding Program Award for Best Affinity Group Program in 2012–13; and he was recognized for outstanding service as Student Section advisor and as Student Sections Committee representative for District I in 2012 and 2013, respectively.

A member of the National Fire Protection Association, Lasarte has been a nonvoting member of the Technical Committee on Fundamentals of Combustion Systems Hazards (BCS-FUN) since March 2010. He is also a member of NACE International, the Venezuelan Industrial Chamber, the Venezuelan Petroleum Chamber and CAVECON–the Venezuela Chamber of Consultants.

Lasarte earned his bachelor's degree in chemical engineering from the Universidad Central de Venezuela, Caracas, in 1981. He earned his master's degree in material science, with a corrosion specialization, from the Aldo Dacco Center at the University of Ferrara, Italy, in 1986.

Melville Medal

PARNIA MOHAMMADI
LIPING LIU
PRADEEP SHARMA

Conferral at the President's Luncheon,
2015 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.

PARNIA MOHAMMADI, Ph.D., senior mechanical specialist, S&B Engineers and Constructors, Ltd., Houston; LIPING LIU, Ph.D., associate professor, Rutgers University (Piscataway, N.J.); and PRADEEP SHARMA, CPhys, Ph.D., M.D. Anderson professor and chair of mechanical engineering, University of Houston, *for the paper titled "A Theory of Flexoelectric Membranes and Effective Properties of Heterogeneous Membranes."*

Dr. Mohammadi received her Ph.D. in mechanical engineering from the University of Houston in 2012. She did her dissertation in the area of theoretical and computational mechanics of nanostructures and nanomaterials. In addition to her Ph.D., Mohammadi holds a bachelor's degree and a master's degree in mechanical engineering, earned in 1999 and 2002, respectively, from Shiraz University, Iran. Her research at Shiraz University was in the area of solid mechanics with a focus on finite element methods.

Following her Ph.D., Mohammadi spent three years at Baker Hughes Inc. R&D, Houston. Initially a research, design and development engineer and later a research scientist at Baker Hughes, she was mainly involved in drilling and evaluation research, new product development, and sensor design and optimization. She performed a large amount of complex modeling and simulations in various fields, including structural mechanics, magnetic and acoustic, to analyze design concepts for different drilling and wireline tools.

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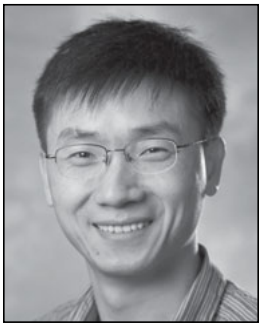
Mohammadi is currently working as a senior mechanical specialist at S&B Engineers and Constructors, Ltd., Houston. She performs mechanical design, engineering and analysis of various types of midstream and downstream oil and gas process equipment.

She spent many years as a mechanical design engineer at various oil and gas consultant companies including Petrochemical Industries Design and Engineering Company and S&B Engineers and Constructors prior to her Ph.D. Her career also includes one year of teaching experience as a lecturer at Iran Azad University, where she offered various courses to engineering students.

Mohammadi is a member of ASME and the Society of Petroleum Engineers.

Her honors include an Innovations in Nanotechnology and Nanosciences Fellowship at the University of Houston under the National Science Foundation's Graduate STEM Fellows in K-12 Education (GK-12) Program.



Dr. Liu is an associate professor in the department of mathematics and the department of mechanical and aerospace engineering at Rutgers University (Piscataway, N.J.).

Prior to joining the faculty at Rutgers, Liu was an assistant professor at the University of Houston (2008–11). Earlier he was a postdoctoral scholar at the California Institute of Technology, Pasadena.

Liu's research focuses on continuum mechanics, multiscale-multiphysics analysis and microstructured heterogeneous media. His achievements include: a constructive proof of the longstanding Eshelby conjectures (independent of Kang and Milton's work); discovery of a new class of microstructures, namely E-inclusions, which have the same remarkable Eshelby uniformity property as ellipsoidal inclusions; a new and simple method to derive the Hashin-Shtrikman bounds for multiphase composites and construction of new optimal microstructures that have greatly expanded the knowledge on the optimal bounds for multiphase composites; and the establishment of continuum theories for thermoelectric materials and magneto-electric-elastic materials. He has authored/co-authored more than 35 journal papers.

A member of ASME, Liu served as conference presenter, session chair or session organizer for a number of conferences. He was honored as Professor of the Year by the ASME Student Section at the University of Houston in 2010.

Liu is also a member of the Society of Engineering Science (SES) and the Society for Industrial and Applied Mathematics.

His honors include the Best Dissertation Award (2008) from the University of Minnesota's College of Science and Engineering, a Young Investigator Program Award (2012) from the Air Force Office of Scientific Research, the Eshelby Award for Young Faculty (2013) by prominent mechanicians, a CAREER Award (2014) from the National Science Foundation and a Young Investigator Medal (2015) from SES.

Liu earned a bachelor of engineering in mechanics and engineering science from Beijing (also Peking) University in 2000. He earned his Ph.D. in aerospace engineering and mechanics from the University of Minnesota, Minneapolis, in 2006.

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Dr. Sharma joined the department of mechanical engineering at the University of Houston (UH) as an assistant professor in January 2004. He is currently the M.D. Anderson professor and chair of mechanical engineering, and he also has a joint appointment in the department of physics.

Prior to joining the faculty at UH, Sharma was a research scientist at General Electric R&D (Schenectady, N.Y.) for three years.

His research is in the broadly defined areas of solid mechanics, theoretical and computational materials science, and biophysics. He is one of the co-creators of The Science Behind Harry Potter, a National Science Foundation-funded program to revitalize science education in schools.

Sharma has authored/co-authored nearly 80 peer-reviewed journal papers, and he serves on the editorial board of several journals. He is the founding editor (2007) of the iMechanica Journal Club.

An ASME Fellow, Sharma has been a member of the Applied Mechanics Division's (AMD) Executive Committee since 2012. He currently serves as AMD track chair for the 2015 International Mechanical Engineering Congress and Exposition, and as an associate editor of the *Journal of Applied Mechanics*. He previously served as chair of the Elasticity Technical Committee. He received AMD's Thomas J.R. Hughes Young Investigator Award in 2009 and the Faculty of the Year Award from the University of Houston Student Section (2010).

Sharma is a member and current president of the Society of Engineering Science. He is also a member of the American Physical Society and the Materials Research Society.

His honors include the Young Investigator Award (2005) from the Office of Naval Research, the New Investigators Program Award (2005) from the Texas Space Grants Consortium, two Excellence in Research and Scholarship awards (2005 and 2011) and a Teaching Award (2013) from UH, and a Fulbright Award (2013).

Sharma earned his bachelor's and his master's degree in mechanical engineering from the University of Baroda, India, in 1995. In 2000 he earned his Ph.D. in mechanical engineering from the University of Maryland, College Park. He is a chartered physicist in the U.K.

M. Eugene Merchant Manufacturing Medal of ASME/SME

DAVID DORNFELD

Conferral at the Honors Assembly,
2015 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.

DAVID DORNFELD, Ph.D., Will C. Hall family professor of engineering and chair, mechanical engineering, University of California, Berkeley, *for outstanding contributions to manufacturing research and its implementation in industry through the pioneering development of life cycle analysis tools to quantify the environmental impacts of the manufacturing supply chain; and for leadership in U.S. research in sustainable manufacturing.*

Dr. Dornfeld is a leader in the international manufacturing research community. His innovative research contributions, spanning a broad area of advanced manufacturing science and engineering, have been implemented in industry to improve productivity and quality of life.

Since 1997 Dornfeld has been a member of the faculty of the University of California (UC), Berkeley and is currently professor of manufacturing engineering. He also holds the Will C. Hall family chair in engineering; serves as chair of the mechanical engineering department; and is special division deputy, Engineering Division, Lawrence Berkeley National Laboratory.

Previously Dornfeld served UC Berkeley as associate dean for Interdisciplinary Studies (2001–08) and director of the Engineering Systems Research Center (1989–98) in the College of Engineering. In 1982 and 1992, respectively, he was directeur de Recherche Associé, École Nationale Supérieure des Mines de Paris; and invited professor, École Nationale Supérieure de'Arts et Métiers, Paris.

Dornfeld is director of the Laboratory for Manufacturing and Sustainability (lmas.berkeley.edu), which conducts research in green and sustainable manufacturing. Efforts include monitoring and analysis of manufacturing processes; precision manufacturing; and intelligent sensors, machine interoperability and data analytics for process monitoring and optimization. His seminal contributions include the development of life cycle analysis tools which enable the prediction of the environmental impacts of manufacturing and product development, from raw material input to water and energy inputs, to manufacturing costs and disposal costs.

He has published over 400 papers, authored three research monographs and contributed chapters to several books; and he has seven patents based on his work.

He consults on green and sustainable manufacturing, mechanical design, manufacturing productivity, sensors, automation and process modeling and the associated intellectual property issues. He writes a blog on green manufacturing at http://green-manufacturing.blogspot.com/.

Dornfeld is a member of the editorial board of the *Journal of Machining Science and Technology,* a member of the international advisory board of the *Journal of Mechanical Science and Technology,* co-editor of the *International Journal of Precision Engineering and Manufacturing* and co-editor-in-chief of the *International Journal of Precision Engineering and Manufacturing–Green Technology.*

An ASME Fellow, Dornfeld is a member of the ASME Press Advisory Committee and general chair of the 2015 ASME International Mechanical Engineering Education

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M. Eugene Merchant Manufacturing Medal of ASME/SME (cont.)

Leadership Summit. He is past chair of the Production Engineering Division and editor emeritus of the *Journal of Manufacturing Science and Engineering* (*Journal of Engineering for Industry* pre–1996). He received the Blackall Machine Tool and Gage Award in 1986 and the William T. Ennor Manufacturing Technology Award in 2010.

Dornfeld is a member of the National Academy of Engineering; a Fellow of SME/Robotics International and CIRP–The International Academy for Production Engineering; a member of the American Society for Precision Engineering; and an international member of the Japan Society for Precision Engineering (JSPE).

Among his other honors, Dornfeld received SME's Outstanding Young Manufacturing Engineer Award (1982) and Frederick W. Taylor Research Medal (2004), JSPE's Takagi Award for Research on Planarization CMP and its Application Technologies (2005), the Association for Manufacturing Technology's Charles F. Carter Jr. Advancing Manufacturing Award (2011), the North American Manufacturing Research Institution of SME's Outstanding Lifetime Service Award (2013) and the International Symposium of Flexible Automation's Hideo Hanafusa Outstanding Investigator Award in Flexible Automation (2014).

Dornfeld earned his bachelor's degree with honors, his master's degree and his Ph.D. in mechanical engineering from the University of Wisconsin–Madison in 1972, 1973 and 1976, respectively.

Van C. Mow Medal

DAWN M. ELLIOTT

Conferred at the Summer Biomechanics, Bioengineering and Biotransport Conference, Snowbird, Utah, June 2015

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.

DAWN M. ELLIOTT, Ph.D., professor and chair of biomedical engineering, University of Delaware, Newark, *for significantly advancing the field of biomedical engineering through contributions in musculoskeletal tissue structure-function research, student mentorship with a focus on women, and leadership in the ASME Bioengineering Division including tireless efforts on the Summer Bioengineering Conference.*

Dr. Elliott has been professor and founding chair of biomedical engineering at the University of Delaware, Newark, since 2011. Previously she spent 12 years in the departments of orthopaedic surgery and bioengineering at the University of Pennsylvania, Philadelphia, where she was promoted to professor.

Her research investigates the changes that occur in load-bearing tissues (disc, meniscus and tendon) during development, with degeneration and injury, and following therapeutic interventions. Her multiscale approach integrates mechanical testing, mathematical modeling and imaging, from the entire joint-level to the tissue and the microscale.

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Elliott has published more than 150 papers, has an h-index of 34 and has been cited in over 2,800 articles (source: Thomas Reuters Web of Science, May 2015). She has been an invited speaker at numerous venues, both national and international.

An ASME Fellow, Elliott has been very active in the Bioengineering Division. She has been a reviewer for the *Journal of Biomechanical Engineering*, and a reviewer and session chair for the Summer Bioengineering Conference (SBC). She served as program chair for the 2009 SBC and conference chair for the 2012 SBC. Elliott also served on the Bioengineering Division's Executive Committee (2009–12) and was chair of the Solid Mechanics Committee (2007–10).

A Fellow of the American Institute for Medical and Biological Engineering, Elliott is also a member of the Orthopaedic Research Society (ORS), the Biomedical Engineering Society and the International Society for the Study of Lumbar Spine (ISSLS). She is on the Council of Chairs of Biomedical Engineering and has served on the National Institutes of Health's Musculoskeletal Tissue Engineering Study Section and other review panels. Elliott serves on the board of directors of The Perry Initiative, a nonprofit organization dedicated to increasing the role of women in engineering and medicine.

Her honors include ORS's Outstanding Achievement in Mentoring Award (2015), and ISSLS's Young Investigator Award (2003) and Best Paper awards (2008 and 2011).

Elliott earned her bachelor's degree in mechanical engineering from the University of Michigan, Ann Arbor, in 1988; and her master's degree in engineering mechanics at the University of Cincinnati in 1995. In 1999 she received her Ph.D. in biomedical engineering from Duke University (Durham, N.C.).

Nadai Medal

HUAJIAN GAO

Conferral at the Materials Division Reception,
2015 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.

HUAJIAN GAO, Ph.D., Walter H. Annenberg professor of engineering, Brown University (Providence, R.I.), *for groundbreaking contributions to hierarchical nanotwinned metals, energy storage materials, metallic glasses and diffusional creep of metal thin films.*

Dr. Gao has been teaching at Brown University (Providence, R.I.) as the Walter H. Annenberg professor of engineering since 2006. Previously he served as a director at the Max Planck Institute for Metals Research in Germany (2001–06); and as a faculty member at Stanford University, California (1988–2002), where he was promoted to associate professor with tenure in 1994 and to full professor in 2000.

Gao's research, which spans solid mechanics, nanomechanics and biomechanics, has been focused on the understanding of basic principles that control mechanical properties and behaviors of materials in both engineering and biological systems. He works on the mechanics of thin films and hierarchically struc-

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tured materials, biological and bio-inspired materials, nanostructured and nanotwinned materials, cell adhesion, cell-nanomaterials interactions, energy storage systems and metallic glasses.

Gao has more than 400 publications to his credit and is co-editor-in-chief of the *Journal of the Mechanics and Physics of Solids*. He has delivered numerous distinguished and keynote lectures at various universities, research institutes and scientific forums.

An ASME Fellow, Gao has been a member of the Applied Mechanics Division's (AMD) Executive Committee since 2010 and is currently serving as chair (2015). He has served as an organizer/co-organizer of numerous ASME symposiums, and was a member of the AMD's Elasticity Committee. He received the Society's Melville Medal, Robert Henry Thurston Lecture Award and Charles Russ Richards Memorial Award in 2004, 2009 and 2011, respectively; and AMD's Young Investigator Award (now the Thomas J.R. Hughes Young Investigators Award) in 1999.

Gao is a member of the National Academy of Engineering; a Fellow of the Institute of Physics; and a member of the American Geophysical Union and the Materials Research Society.

His extensive list of honors also includes a John Simon Guggenheim Fellowship (1995), the Rodney Hill Prize in Solid Mechanics (2012) from the International Union of Theoretical and Applied Mechanics, and the William Prager Medal (2015) from the Society of Engineering Science.

Gao received his bachelor's degree in engineering mechanics from Xi'an Jiaotong University, China, in 1982. He earned his master's and Ph.D. degrees in engineering science from Harvard University (Cambridge, Mass.) in 1984 and 1988, respectively.

Sia Nemat-Nasser Early Career Award

YONG ZHU

Conferral at the Materials Division Reception,
2015 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.

YONG ZHU, Ph.D., associate professor, North Carolina State University (Raleigh, N.C.), *for outstanding contributions to the mechanics of nanomaterials including interfacial mechanics with applications to nanomaterial-enabled stretchable electronics.*

Dr. Zhu is an associate professor of mechanical engineering and aerospace engineering at North Carolina State University (Raleigh, N.C.). He holds joint appointments in the departments of materials science and engineering, and biomedical engineering. Prior to joining NC State in 2007, he was a postdoctoral research associate at The University of Texas at Austin.

Zhu's research is focused on mechanics of nanomaterials and their device applications such as stretchable electronics. Among his notable contributions, Zhu has been a pioneer in developing microelectromechanical systems (MEMS) for in situ electron

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microscopy mechanical testing of nanomaterials, which offer electronic measurement of load while enabling the simultaneous acquisition of atomic structures. He has made contributions in understanding the size effects and deformation mechanisms of semiconductor, metal and ceramic nanowires. Of note is his work in the field of stretchable electronics using nanomaterials. Zhu has worked on the interfacial mechanics between nanomaterials (e.g., nanowires and graphene) and polymer substrate, and has creatively used the bucking principle to achieve different types of stretchable nanostructures. His work provides valuable insight and design guidelines for nanomaterial-enabled stretchable electronics.

He has published 50 peer-reviewed journal papers and four book chapters, and has given more than 30 invited presentations. He has also served as a reviewer for numerous journals in the fields of solid mechanics, materials science, nanotechnology and MEMS.

An ASME member, Zhu has been a member of the Materials Division's Multifunctional Materials Committee since 2008 and served as vice chair (2011–12) and chair (2012–13). He has served on the Applied Mechanics Division's Experimental Mechanics Committee since 2012. Zhu has organized/co-organized several ASME symposia on Nanostructured Materials, Mechanics of Adhesion and Friction, Multiphysics Simulations and Experiments for Solids, and Applied Mechanics and Materials.

Zhu is also a member of the Society for Experimental Mechanics (SEM); the Materials Research Society; the Society of Engineering Science; Sigma Xi, the Scientific Research Society; and Tau Beta Pi, the Engineering Honor Society.

Among his honors, Zhu received the Alcoa Foundation Engineering Research Achievement Award (2015) from the College of Engineering at NC State, the JSA Young Investigator Award (2013) from SEM, a Faculty Research Award (2012) from the NC State Chapter of Sigma Xi, and a Best Poster Award (2006) from the Gordon Research Conference on Thin Film and Small Scale Mechanical Behavior.

Zhu earned his bachelor's degree in mechanics and mechanical engineering from the University of Science and Technology of China, Hefei, in 1999. He earned his master's degree and Ph.D. in mechanical engineering from Northwestern University (Evanston, Ill.) in 2001 and 2005, respectively.

Burt L. Newkirk Award

DAVID BURRIS

Conferred at the STLE Tribology Frontiers Conference, Denver, October 2015

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.

DAVID BURRIS, Ph.D., associate professor, University of Delaware, Newark, *for outstanding experimental and theoretical contributions in the area of cartilage tribology and contact mechanics.*

Dr. Burris received his bachelor's degree, master's degree and Ph.D. in mechanical engineering from the University of Florida, Gainesville, in 2003, 2006 and 2007, respectively. He spent six months as a postdoctoral associate at the University of Florida before joining the faculty at the University of Delaware (UD), Newark, where he started the Materials Tribology Laboratory. Initially an assistant professor in the mechanical engineering department at UD, Burris was promoted to associate professor in 2014.

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Since joining UD in 2008, Burris has become a recognized leader in multiscale and in situ measurements, cartilage tribology and wind turbine drivetrain reliability. His accomplishments include articular cartilage research that has provided novel engineering insights into the physical degradation mechanisms of articular tissue, thus providing an understanding of the origins of osteoarthritis and the material properties necessary to develop artificial replacements. He has also made significant contributions to the field of solid lubricants and developed better measurement approaches for friction and wear.

Burris has authored/co-authored more than 50 archival publications including 28 peer-reviewed articles published in a range of top journals since January 2008. He has delivered 17 invited talks and 40 conference presentations including one on cartilage tribology at the 2014 Gordon Research Conference on Tribology. He served as an editorial director for *Tribology and Lubrication Technology* and an associate editor for *Tribology Transactions,* and he currently serves as associate editor for *Biotribology*. He holds four patents and has two applications pending.

Burris and his group have been highly involved in the premier tribology conferences: the Society of Tribologists and Lubrication Engineers (STLE) Annual Meeting, the ASME/STLE International Joint Tribology Conference and the STLE Tribology Frontiers Conference. His students have given 24 oral presentations in the last six years, and he has served as a session/conference planner for these meetings.

An ASME member, Burris received the Marshall B. Peterson Award in 2008 and the Pi Tau Sigma Gold Medal in 2010.

Burris is also a member of STLE, and he was elected to the board of directors in 2015. Earlier, as chair of the Young Tribologist Committee, he helped build the future tribology community through organized events for early career tribologists, and merit-based competitions for awards and travel support. He received STLE's Walter D. Hodson Award in 2009.

Among his other honors, Burris received the Air Force Office of Scientific Research's Young Investigator Award (2010) and the University of Florida's Outstanding Young Alumnus Award (2011); and he was nominated (2011 and 2013) for UD's Excellence in Undergraduate Advisement and Mentoring Award.

Old Guard Early Career Award

TWISHANSH MEHTA

Conferral at the Members and Students Luncheon,
2015 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.

TWISHANSH MEHTA, EIT, PMP, manager, supermarket refrigeration, Loblaw Companies Limited (Brampton, Ontario), *for continuous service to ASME, from student through professional member, including numerous section, district and society-level positions; for career accomplishments including technical, management and leadership roles; and for inspiring volunteers through a passion for mentoring and developing engineering leaders.*

Mr. Mehta is the manager of supermarket refrigeration at Loblaw Companies Limited (Brampton, Ontario), the largest food retailer in Canada, where he supports the retail construction and maintenance groups with technical expertise and management of the retail refrigeration category. His responsibilities include the oversight of manufacturers and contractors, the management of equipment and installation specifications, and the communication between technical functions and operational functions of the organization. In addition to his daily responsibilities Mehta oversaw the engineering and installation of a first-of-its-kind refrigeration system at the organization's flagship store, served as the lead business user in his unit's implementation of an enterprise software solution, and has managed multiple pilot projects of new technologies and energy management strategies.

Mehta has been active member of ASME since 2006, when he joined the Student Section at the University of Toronto. He served the Student Section as professional development officer (2007), vice chair (2008) and chair (2009). He was an officer on the District B Student District Operating Board (2008–10), was District B student representative on the Student Sections Committee (2009–10) and was vice chair and chair on the Student District Operating Board Operations Committee (2009–10). He later served on the Global Communities Operating Board (2011–12) and was Knowledge and Community Sector representative for the Student and Early Career Sector Task Force (2012). Mehta also served in various positions on the District B Operating Board (2010–2013) and in the Ontario Section (2010–13), and he was a member (2013–15) of the Student and Early Career Development (SECD) Council. Among his current roles, Mehta is chair of the Community Development Team under the SECD Council, and he serves on the Student Programming and the Early Career Programming committees. He has received numerous certificates of recognition for his volunteer services. In 2009 Mehta received a Charles T. Main Student Section Award Honorable Mention.

His honors include Queen Elizabeth II Aiming for the Top Tuition Scholarships (2004–06) from the government of Ontario, a Millennium Excellence Award (2006) from the Canada Millennium Scholarship Foundation, the Gordon Cressy Award (2009) from the University of Toronto, and a New Faces Award (2014) from DiscoverE as a New Faces of Engineering runner-up.

Mehta earned a bachelor's in mechanical engineering, with a minor in bioengineering, from the University of Toronto in 2009. He is currently pursuing a master's degree in engineering management and leadership at Purdue University (West Lafayette, Ind.), which he anticipates earning in 2018. Through the Project Management Institute, Mehta is a certified project management professional. He is also a registered engineer-in-training in the Canadian province of Ontario.

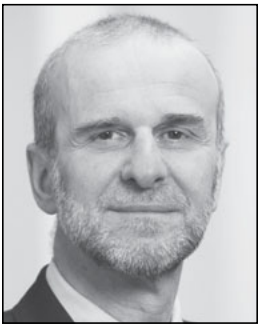
Rufus Oldenburger Medal

MANFRED MORARI

Conferred at the Dynamic Systems and Control Conference, Columbus, Ohio, October 2015

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.

MANFRED MORARI, Ph.D., professor, ETH Zurich, *for pioneering theoretical contributions to process control, hybrid system analysis and model predictive control; and for practical applications to chemical process control, biomedical engineering and automotive systems.*



Dr. Morari has been a professor in the department of information technology and electrical engineering at ETH Zurich since 1994. He served as head of the department (2009–12) and head of the Automatic Control Laboratory (1994–2008). In 2007 he was the Russell Severance Springer visiting professor of mechanical engineering and the MacKay visiting professor of electrical engineering and computer sciences at the University of California, Berkeley.

Prior to joining the faculty at ETH Zurich, Morari was the Ross McCollum-William H. Corcoran professor of chemical engineering and executive officer for control and dynamical systems at the California Institute of Technology, Pasadena. Earlier he was on the faculty at the University of Wisconsin–Madison (1977–83).

Morari's interests are in hybrid systems with applications in the automotive, electrical power, biomedical and process engineering domains. His research is internationally recognized, and the analysis techniques and software developed in his group are used in universities and industry throughout the world.

He is the author/co-author of more than 450 publications including journal and conference papers, and the book titled "Robust Process Control" (Prentice Hall, 1989). Morari is included in the list of most highly cited researchers in engineering (ISIHighlyCited.com). According to ISI, he has ~21,500 citations and an h-index of 68; Google Scholar shows ~46,500 with an h-index of 91. Morari has delivered invited keynote addresses at virtually all prestigious international meetings. He presented the Nyquist Lecture at ASME's 2012 Dynamic Systems and Control Conference.

Morari is a member of the National Academy of Engineering; an International Fellow of the Royal Academy of Engineering (U.K.); and a Fellow of the International Federation of Automatic Control (IFAC), the American Institute of Chemical Engineers (AIChE) and IEEE.

Among his other honors, Morari received AIChE's Allan P. Colburn Award for Excellence in Publications (1984), Professional Progress Award (1995) and CAST (Computing and Systems Technology) Division Award (2002); IEEE's Control Systems Field Award (2005) and the Hendrik W. Bode Lecture Prize (2010) from the IEEE Control Systems Society; the John Ragazzini Award (2007) and the Richard E. Bellman Control Heritage Award (2011) from the American Automatic Control Council; and the High Impact Paper Award (2013) from IFAC. He was honored with a special issue of *Computers & Chemical Engineering* in 2014.

Morari received his diploma in chemical engineering from ETH Zurich in 1974. In 1977 he earned his Ph.D. in chemical engineering from the University of Minnesota, Minneapolis. Morari received a doctor honoris causa from Babes-Bolyai University, Romania, in 2003.

Performance Test Codes Medal

THOMAS C. HEIL

Conferral at the Performance Test Codes 4 Committee Meeting,
Juno Beach, Fl., January 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.

THOMAS C. HEIL, *for outstanding contributions to performance test codes, particularly for the testing of steam generators and related auxiliaries; and for developing computational methods and software for determining results, including test uncertainty, from the test data.*

Mr. Heil attended the University of South Carolina (USC) on a Naval ROTC scholarship. Upon graduation from USC in 1960 with a bachelor's degree in mechanical engineering, he served as a first lieutenant in the U.S. Marine Corps and was primarily a platoon leader of engineering and heavy equipment platoons.

In 1963, following completion of his term in the Marine Corps, Heil joined The Babcock & Wilcox Company (B&W) in Barberton, Ohio. Following a brief period in the functional engineering area, learning how boilers operate and also designing them, Heil spent four years in the field service department starting up all sizes of boilers, conducting tests and solving problems. He returned to the engineering department, initially to functional engineering and then as a contract supervisor in project management before assuming the position of advisory engineer in design engineering. There he led the performance analysis group, and his responsibilities included the development of boiler heat transfer calculation procedures, the development of related computer programs, and the formulation and analysis of boiler performance test results including impact on design. Although Heil retired from B&W in 2002, he stays active in ASME performance test code (PTC) work.

Heil has published a number of papers on topics including boiler design and diagnostic testing. He also participated in co-authoring and maintaining Chapter 10, Principles of Combustion, in B&W's book titled "Steam–Its Generation and Use" (editions 40, 41 and 42 released in 1992, 2005 and July 2015, respectively). Over the years he also developed training material that B&W continues to use today.

An ASME Fellow, Heil has served on a multitude of ASME PTC committees, particularly on combustion and heat transfer, over a span of nearly 35 years. His testing and design experience led him to join PTC 4.1, Steam Generating Units, when it was reactivated in 1981 with the purpose of replacing the existing 1964 code. Following this, the PTC 4.3, Air Heater Code, was reactivated; and he recently led a significant update of this code for publication in 2015. Heil currently serves as vice chair of PTC 4, Fired Steam Generators; chair of PTC 4.3; and as an alternate on the PTC Standards Committee. He received a Dedicated Service Award in 1994.

Among his other honors, Heil received B&W's Engineering Honors Award in 1993.

Pi Tau Sigma Gold Medal

NEIL P. DASGUPTA

Conferral at the Members and Students Luncheon,
2015 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.

NEIL P. DASGUPTA, Ph.D., assistant professor, University of Michigan, Ann Arbor, *for outstanding achievements in mechanical engineering within 10 years of graduation.*

Dr. Dasgupta is an assistant professor in the department of mechanical engineering at the University of Michigan (U-M), Ann Arbor. He is also a faculty affiliate of the University of Michigan Energy Institute and Applied Physics Program, and the faculty advisor to the University of Michigan Solar Car Team. Prior to joining U-M in 2014, Dasgupta was a postdoctoral fellow in the department of chemistry at the University of California, Berkeley.

Dasgupta performs research at the intersection of nanotechnology, energy science and manufacturing. His goal is to develop scalable, low-cost techniques for the synthesis, patterning and assembly of nanostructures on a variety of surfaces to address complex energy-related environmental challenges. Applications include solar cells, batteries, catalysts and artificial photosynthesis. His research is highly interdisciplinary, drawing from influences in mechanical engineering, materials science, electrical engineering, physics and chemistry.

Dasgupta's research group uses a variety of tools for top-down and bottom-up materials synthesis including atomic layer deposition (ALD), vapor-phase and solution-based nanowire growth, and self-assembly. Particular focus is on the atomically precise modification of surfaces and interfaces to fabricate complex, 3-D hierarchical material structures with deterministic control of feature size, position and orientation. The group also uses a wide range of nanocharacterization tools including scanning probe microscopy, high-resolution electron microscopy, optical and X-ray spectroscopy, and chemical analysis techniques to probe nanomaterial structure and composition. These heterogeneous material systems exhibit tunable properties including optical absorption, surface wettability, electronic conductivity, catalytic activity, wear resistance and permeability of fluids. The group emphasizes manufacturability in the design of surface modifications, and develops novel instruments and processes for scalable and low-cost material fabrication in collaboration with several industrial partners.

He has authored/co-authored 21 peer-reviewed journal articles, seven peer-reviewed papers in conference proceedings and 37 conference abstracts. He holds five U.S. patents and has three applications pending.

An ASME member, Dasgupta is also a member of the Materials Research Society; the American Vacuum Society (AVS); the American Chemical Society; and Tau Beta Pi, the Engineering Honor Society.

His honors include a Postdoctoral Research Award (SunShot Fellowship) from the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy (2012–13); a Student Award for Best Presentation of Graduate Research in ALD from the AVS (2011); and an endowed (J. Hewes Crispin and Majorie Holmes Crispin) Stanford Graduate Fellowship (2005–08).

Dasgupta earned his bachelor's degree in mechanical engineering from the University of Illinois at Urbana-Champaign in 2005. He earned his master's degree in civil and environmental engineering, and his Ph.D. in mechanical engineering with a minor in materials science and engineering from Stanford University, California, in 2006 and 2011, respectively.

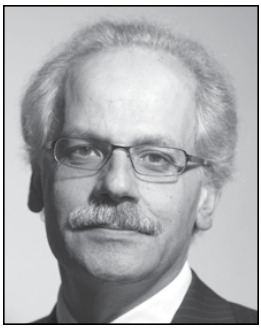
James Harry Potter Gold Medal

AHMED F. GHONIEM

Conferral at the President's Luncheon,
2015 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.

AHMED F. GHONIEM, Ph.D., Ronald C. Crane (1972) professor of mechanical engineering, Massachusetts Institute of Technology, Cambridge, *for outstanding work on reducing the environmental impact of fossil fuels through efficiency improvement and CO2 capture, including system-level analysis of thermodynamic cycles, component-level computational fluid dynamics and experimental diagnostics of combustion, and microscale analysis of oxy-combustion and gasification fundamentals.*



Dr. Ghoniem is the Ronald C. Crane (1972) professor of mechanical engineering at the Massachusetts Institute of Technology (MIT), Cambridge, and director of the Center for Energy and Propulsion Research. With MIT since 1983, Ghoniem has more than 30 years of professional experience in the field of computations, combustion and energy conversion. His accomplishments include seminal contributions in computational fluid dynamics and its application to combustion and thermochemistry; combustion dynamics and control and their application to propulsion and power generation; and fundamentals-driven innovations in technologies to reduce CO2 emission in power plants and the utilization of renewable energy. Ghoniem has supervised more than 100 graduate and postdoctoral students.

His research has been supported by federal agencies (including NSF, DOE, ONR, ARO, DARPA, AFOSR and NIST), industrial corporations (including BP, ENEL, GE, Aramco, Bosch, Ford, Shell and Siemens) and international collaborations. He has consulted for government organizations and industrial corporations.

Ghoniem's publications include more than 320 peer-reviewed journals articles and conference proceeding papers on computational methods, clean combustion, thermochemical and electrothermochemical processes for carbon capture, solar thermal energy and biofuels, examining fundamentals of multiscale computational approaches, turbulent reactive flow, fluidization and supercritical fluids transport and mixing, oxy-fuel combustion, gasification and reforming, and high-temperature membrane reactor for CO_2 reduction and reuse. He holds two patents and has six applications pending.

An ASME Fellow, Ghoniem is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA) and a member of The Combustion Institute.

His honors range from a Ministry of Higher Education (Egypt) Scholarship (1968–73) to a KAUST Investigator Award (2008–13) from King Abdullah University of Science and Technology, Saudi Arabia; and include a National Science Foundation Research Initiation Award (1984), a NASA Certificate of Recognition (1985), SAE International's Ralph R. Teetor Educational Award (1987) and an AIAA Certificate of Appreciation (1990).

Ghoniem earned three degrees in mechanical engineering: his bachelor's and master's degrees from Cairo University in 1973 and 1975, respectively; and his Ph.D. from the University of California, Berkeley in 1980.

Dixy Lee Ray Award

KAUFUI VINCENT WONG

Conferral at the President's Luncheon,
2015 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.

KAUFUI VINCENT WONG, P.E., Ph.D., professor, University of Miami, Coral Gables, *for timely contributions that have expanded the environmental engineering knowledge base including original research using the second law of thermodynamics to evaluate system impact on the environment, early papers on the energy-water-food nexus, and a patent for an innovative boom to protect the environment against oil spills.*

Dr. Wong earned his bachelor's degree in mechanical engineering, with honors, from the University of Malaya (Kuala Lumpur, Malaysia) in 1973. He was awarded his master's degree in mechanical engineering and his Ph.D. in mechanical and aerospace engineering from Case Western Reserve University, Cleveland, in 1975 and 1977, respectively. He worked as a professional engineer in the power industry in Malaysia for a few years before he was recruited as an assistant professor at the University of Miami (UM) in Coral Gables, Fla.

Wong has been teaching at UM since 1979. He was promoted to associate professor and subsequently to full professor by 1996. Throughout his career Wong has performed research in the energy and environmental field, and he has taught multiple generations of students about energy conservation and the three clean sources of energy that have no fuel costs—wind, water and the sun.

In his first of three textbooks, "Thermodynamics for Engineers" (CRS Press, 2000), Wong explained his lasting contribution to sustainability and the environment—the second law ratio to measure thermal environmental impact—a process to achieve sustainability and energy conservation by designing energy systems so that the second law ratio is as near to zero as practical for minimal environmental impact.

Wong's publications include over 80 journal articles and more than 115 refereed conference papers. In 2014 he published 18 papers, 12 as sole author, without the aid of research funding. Six of his papers related to the environment, including a couple of the first articles on the energy-water-food nexus, were published in ASME's *Journal of Energy Resources Technology*. He holds two patents, one for a flow-slowing oil boom to collect spilled oil and protect the environment; and the second for a filter to be used by firefighters to suppress debris when water levels are low in rivers, canals, lakes and ponds.

An ASME Fellow, Wong has served the Society in numerous capacities. Currently he is chair of the Edward F. Obert Award Committee (2010–16), associate editor for the Journal of Energy Resources Technology (2010–16), chair of the Technical Communities Globalization Medal Committee (2011–15) and a member of the Calvin Rice Medal Committee (2011–15). Previously he served as chair of the Technical Communities Operating Board (TCOB) Honors Committee (2012–14); and vice chair of the TCOB committees on Honors and Awards, and Administration and Finance (2011–12). He also served as an executive member and deputy group leader of the ASME Energy Conversion Group (2012–14) and was a member of the Energy Committee

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(2009–14). He received a Curriculum Innovation Honorable Mention Award in 1990 and a Best Paper Award from the Advanced Energy Systems Division in 2006.

Wong is an Associate Fellow of the American Institute for Aeronautics and Astronautics; a life member of the American Geophysical Union and the Water Environment Federation; a member of the American Society for Engineering Education, and Sigma Xi, the Scientific Research Society; and an honorary member of Pi Tau Sigma, the International Mechanical Engineering Honor Society. He served as an ABET mechanical engineering evaluator (2000–03).

Among his honors, Wong received an Outstanding Service Award (1997) from UM's Graduate School; is listed in Marquis' *Who's Who in North America* and *Who's Who in the World* (1983–present); and was a nominee (2002) for the National Academy of Engineering's Bernard M. Gordon Prize for Innovation in Engineering and Technology Education.

Wong is a registered professional engineer in Florida.

Charles Russ Richards Memorial Award

XIANG ZHANG

Conferral at the Members and Students Luncheon,
2015 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.

XIANG ZHANG, Ph.D., Ernest S. Kuh endowed chair professor, University of California, Berkeley, *for outstanding achievements in mechanical engineering for 20 years or more following graduation.*

Dr. Zhang is the Ernest S. Kuh endowed chair professor of mechanical engineering at the University of California (UC), Berkeley. He is also director of the Center for Scalable and Integrated Nanomanufacturing, a Nanoscale Science and Engineering Center sponsored by the National Science Foundation (NSF); director of the Materials Sciences Division at the Lawrence Berkeley National Laboratory (LBNL); and a member of the Kavli Energy NanoScience Institute at UC Berkeley.

Through the Zhang Lab, he and his members pursue solid experimental work in addition to theoretical modeling with a focus on the interaction of light with nanostructures that leads to exotic electromagnetic properties, which could be applied to the fields of metamaterials, plasmonics, electronics, photonics, energy, acoustics, imaging, sensing and biology.

Zhang's groundbreaking demonstrations of optical metamaterials include the first magnetic response of metamaterials at far-infrared frequencies, which opened the door to the worldwide pursuit of optical metamaterials. He pioneered a new field in engineering – metamaterials composite – which uses the structure design to achieve acoustic and optical properties that do not exist in nature. Using metamaterials com-

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posite, he was the first to overcome the fundamental limit of diffraction, solving a 200-year-old problem and bringing about a shift in engineering materials design and applications. Based on this breakthrough, Zhang created the first optical superlens, the first 3-D bulk metamaterials with a negative optical refractive index and the first optical invisibility cloak.

He also pioneered a new nanofabrication technology and coined the term plasmonic lithography. With its ability to reach down to 10 nanometer scale, this technology will provide an effective solution for nanoscale manufacturing, which is critical for electronics manufacturing and the magnetic storage industry. Recently Zhang and other LBNL researchers developed a technique for effectively controlling pulses of light in closely packed nanoscale waveguides, an essential requirement for high-performance optical communications and chip-scale quantum computing.

Zhang's research has been frequently featured by international media including BBC, CNN, ABC, *The New York Times* and *The Wall Street Journal*; and his achievements have been recognized by *R&D Magazine, Discover* magazine and *Time* magazine.

Prior to joining the UC Berkeley faculty in 2004, Zhang was an associate professor and professor at the University of California, Los Angeles (1999–2004); and an assistant professor at The Pennsylvania State University, University Park (1996–99).

Zhang has authored/co-authored more than 240 journal papers including over 30 in Science and Nature series; has given more than 270 keynote, plenary and invited talks at international conferences and institutions; and served on the editorial board of a number of publications. He holds two patents.

An ASME Fellow, Zhang has been a member of the ASME Nanotechnology Institute since 2003. He served on the Organizing Committee for the 2009 ASME Micro and Nano Technology Forum and gave a talk at a Nanomanufacturing Symposium in 2002. He received the Society's Nancy DeLoye Fitzroy and Roland V. Fitzroy Medal in 2014.

Zhang is a member of the National Academy of Engineering and the Academia Sinica (Republic of China); a Fellow of the American Physical Society, the American Association for the Advancement of Science, The Optical Society and SPIE, the International Society for Optics and Photonics Engineers; and a member of the Materials Research Society (MRS).

His other honors include Stanford University's William C. Reynolds Memorial Lectureship (2012), MRS's Fred Kavli Distinguished Lectureship in Nanoscience (2011), Rohsenow Lecturer at the Massachusetts Institute of Technology (2009), a Young Investigator Award (1999) from the Office of Naval Research and a CAREER Award (1997) from the NSF. In 2011 he was a Distinguished Visiting Scientist at the University of Toronto's Institute of Optical Sciences.

Zhang earned a bachelor's degree and a master's degree in solid state physics from Nanjing University, China, in 1985 and 1988, respectively. He earned a master's degree in mechanical engineering from the University of Minnesota, Minneapolis, in 1992; and a Ph.D. in mechanical engineering from UC Berkeley in 1996.

Ralph Coats Roe Medal

FREEMAN A. HRABOWSKI III

Conferral at the Honors Assembly,
2015 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.

FREEMAN A. HRABOWSKI III, Ph.D., president, University of Maryland, Baltimore County, *for tireless efforts as a global advocate for science, technology, engineering and mathematics, engaging the general public, lawmakers, funding agencies and foundations to create opportunities for minorities in STEM fields to achieve the socioeconomic and intellectual integration essential for innovative, democratic societies.*

Dr. Hrabowski has been serving as president of the University of Maryland, Baltimore County (UMBC) since 1992. His research and publications focus on science and math education, with special emphasis on minority participation and performance. He chaired the National Academies' committee that produced the 2010 report titled Expanding Underrepresented Minority Participation: America's Science and Technology Talent at the Crossroads. In 2012 President Obama named Hrabowski chair of the newly created President's Advisory Commission on Educational Excellence for African Americans.

Hrabowski serves as a consultant to the National Science Foundation, the National Institutes of Health, the National Academies, and universities and school systems nationally. He also serves on the boards of the Alfred P. Sloan Foundation, the France-Merrick Foundation, the Marguerite Casey Foundation (chair), T. Rowe Price Group, Urban Institute, McCormick & Company and the Baltimore Equitable Society. Previously he served on the boards of the Carnegie Foundation for the Advancement of Teaching and the Maryland Humanities Council.

With philanthropist Robert Meyerhoff, Hrabowski co-founded the Meyerhoff Scholars Program at UMBC in 1988. The program, recognized as a national model, is open to all high-achieving students committed to pursuing advanced degrees and research careers in science and engineering, and advancing underrepresented minorities in these fields. Based on program outcomes, Hrabowski has authored numerous articles and co-authored two books, "Beating the Odds: Raising Academically Successful African American Males" and "Overcoming the Odds: Raising Academically Successful African American Young Women" (Oxford University Press; 1998 and 2002, respectively). Recently, he authored "Holding Fast to Dreams: Empowering Youth from the Civil Rights Crusade to STEM Achievement" (Beacon Press; May 5, 2015).

Among his numerous honors and awards, Hrabowski was named one of the 100 Most Influential People in the World by *TIME* magazine (2012) and one of America's Best Leaders by *U.S. News & World Report* (2008); was among the inaugural inductees into the *U.S. News & World Report*'s STEM Solutions Leadership Hall of Fame (2012); and received TIAA-CREF's Theodore M. Hesburgh Award for Leadership Excellence (2011), the Carnegie Corporation of New York's Academic Leadership Award (2011) and the Heinz Family Foundation's Heinz Award in the human condition category (2012). In 2011 Hrabowski and UMBC were featured on CBS's "60 Minutes." UMBC has been recognized as a model for academic innovation and inclusive excellence by such publications as *U.S. News & World Report*, which, for the past six years (2009–14) ranked UMBC the No. 1 up-and-coming university in the nation.

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Hrabowski was elected to the American Academy of Arts and Sciences, and the American Philosophical Society; and he is a Fellow of the American Association for the Advancement of Science.

Hrabowski graduated from Hampton Institute (now Hampton University), Virginia, in 1969 with highest honors in mathematics. He received his master's degree in mathematics and his Ph.D. in higher education administration and statistics from the University of Illinois at Urbana-Champaign in 1970 and 1974, respectively. Hrabowski holds honorary degrees from more than 20 institutions.

Safety Codes and Standards Medal

BRADLEY D. CLOSSON

Conferred at the B30 Committee Meeting,
Salt Lake City, September 2015

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.

BRADLEY D. CLOSSON, principal, CRAFT Forensic Services (Bonita, Calif.), *for more than 25 years of outstanding leadership in the proposal and development process for numerous safety standards including service as vice chair and chair of the B30 Safety Standards Committee for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks and Slings.*

As principal of CRAFT Forensic Services (Bonita, Calif.), Mr. Closson provides material handling accident investigation, reconstruction and litigation services. Previously, as vice president of NACB Technical Services in San Diego (1992–2004), he provided material handling safety consultation services and lifting equipment safety and compliance inspections. Earlier Closson worked for National Steel and Shipbuilding Company (1979–92), also in San Diego, and was responsible for managing the daily operation and inspection of the facility's material handling equipment to ensure compliance with applicable codes and ASME standards.

Closson served in various surface warfare capacities in the U.S. Navy between 1971 and 1979, and he earned the Navy Commendation Medal in 1977.

Closson has been a member of the California OSHA Advisory Board on Material Handling Regulations since 1991. He was a federally accredited maritime crane inspector and signatory authority as well as a licensed crane inspector in California, Nevada and Washington (1992–2004). He has helped develop various training publications and given numerous ASME standards related presentations throughout his career.

A member of ASME, Closson has been serving on the B30 Safety Standards Committee for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks and Slings since 1988. Currently chair (2014–17), he was vice chair of the B30 Committee (2002–08) and has served on various B30 subcommittees. Closson is also a member of the Board on Safety Codes and Standards (1994–2015) and served as its vice president (2003–06).

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He is a member of the U.S. Technical Advisory Group to the International Organization for Standardization (ISO)/Technical Committee (TC) 96–Cranes; and ISO/TC 8–Ships and Marine Technology/SC4–Outfitting and Deck Machinery. Among Closson's prior ASME service, he was chair of the ASME Board on Hearings and Appeals (2011–14) and a member of the P30 Committee–Planning for the Use of Cranes, Derricks, Hoists, Cableways, Aerial Devices and Lifting Accessories (2010–14). He received the Society's Dedicated Service Award in 2011.

Closson is also a member of the American Society of Safety Engineers, the American Society of Naval Engineers, the American Society of Civil Engineers, the Association of Crane and Rigging Professionals, the Society of Naval Architects and Marine Engineers, and SAE International.

Closson earned his bachelor's degree in naval engineering from the U.S. Naval Academy (Annapolis, Md.) in 1971.

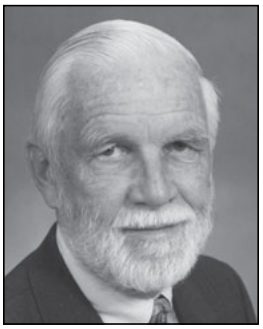
R. Tom Sawyer Award

LEE S. LANGSTON

Conferred at ASME Turbo Expo 2015,
Montreal, June 2015

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.

LEE S. LANGSTON, Ph.D., professor emeritus, University of Connecticut, Storrs, *for technical leadership in advancing turbine aerodynamics and heat transfer, particularly pioneering research in three-dimensional flows within a turbine cascade; and for exceptional lifelong service and advocacy of IGTI.*



Dr. Langston began his career in 1964 as a research engineer at Pratt and Whitney Aircraft (East Hartford, Conn.), where he worked on fuel cells, heat pipes and jet engines. His endeavors also included high altitude research during mountain climbing activities in various parts of the world.

In 1977 Langston joined the mechanical engineering faculty at the University of Connecticut (UConn), Storrs, as associate professor. He rose to the rank of professor in 1983, served as interim dean of the School of Engineering from 1997 to 1998, and became professor emeritus in 2003. He has taught undergraduate and graduate courses in heat transfer and fluid mechanics.

Langston's research activities have included the measurement, understanding and prediction of secondary flow in gas turbines. His research on turbine blade cascade and end wall interactions, known collectively as the Langston cascade, is widely regarded and heavily cited by the gas turbine research community. He has consulted with and won financial grants from various private and government entities.

Langston has authored more than 75 scholarly journal publications and given numerous invited lectures. He holds one patent.

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An ASME Fellow, Langston served IGTI as a member of the board of directors (1990–96, 2005–07 and 2012–14) and as vice president (1997–2000). He was on ASME's National Nominating Committee (2003–05). Since 2009 Langston has been serving on the Society's Technical Committee on Publications and Communications; and he is currently a corresponding member of the History and Heritage Committee. He served as editor of the *Journal of Engineering for Gas Turbines and Power* (2001–06) and, in recent years, has written a quarterly column and an annual review of the gas turbine industry for *Mechanical Engineering* magazine. He received an ASME Dedicated Service Award in 1995.

Langston is a member of Sigma XI, the Scientific Research Society; Tau Beta Pi, the Engineering Honor Society; Pi Tau Sigma, the National Mechanical Engineering Society; the American Society for Engineering Education; and the Connecticut Academy of Science and Engineering.

His honors include various fellowships; and he was inducted into the UConn School of Engineering's Academy of Distinguished Engineers in 2010.

Langston earned three degrees in mechanical engineering: his bachelor's degree, with honors, from UConn in 1959; and his master's degree and Ph.D. from Stanford University, California, in 1960 and 1964, respectively.

Milton C. Shaw Manufacturing Research Medal

Y. LAWRENCE YAO

Conferred at the Manufacturing Science and Engineering Conference, Charlotte, N.C., June 2015

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

Y. LAWRENCE YAO, Ph.D., professor, Columbia University, New York, *for scholarly and pioneering work in advanced manufacturing, particularly model-based optimization of the transient laser machining process, microscale laser shock peening and anisotropic/heterogeneous material response, process synthesis for the laser forming of doubly curved shapes and autogenous laser brazing of dissimilar metals.*

Dr. Yao is a professor in the department of mechanical engineering at Columbia University, New York, where he directs the Advanced Manufacturing Laboratory. He joined Columbia University in 1994 and served as department chair of mechanical engineering from 2005 to 2011.

Prior to joining the faculty at Columbia, Yao was a lecturer/senior lecturer at the University of New South Wales, Sydney (1989–1994).

Yao has made outstanding contributions to advanced manufacturing over the last 25 years through innovative synthesis, prediction and analysis research in nontraditional manufacturing processes and systems. He has pioneered research in many areas of laser materials processing including laser assisted removal, shaping, joining and property modification of various materials. Application areas of his innovations include renewable energy, biomedical and art

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restoration; as well as novel robotics in health care. His research has been funded by the National Science Foundation, the National Institutes of Health, the National Institute of Standards and Technology, and major companies.

His group has published more than 250 technical papers and was honored with five Best Paper awards. Yao has edited eight books and co-authored three book chapters. He holds 11 patents and has two applications pending.

An ASME Fellow, Yao has been serving as editor of the *Journal of Manufacturing Science and Engineering* since July 2012; earlier he was an associate editor (2001–06) responsible for the area of nontraditional manufacturing. Yao previously served as treasurer/secretary (2007–08), program chair (2008–09), vice chair (2009–10) and chair (2010–11) of the Manufacturing Engineering Division (MED). He was also MED's representative (2009–10) and alternate representative (2010–11) on the Society's Manufacturing Technology Group. He received the Blackall Machine Tool and Gage Award in 2006, and MED presented him with a Dedicated Service Award in 2014.

Yao is also a Fellow of the Society of Manufacturing Engineers (SME) and the Laser Institute of America. He served as president of the North American Manufacturing Research Institution (NAMRI) of SME (2009–10).

Among his other honors, Yao received a Fulbright Senior Scholar Fellowship (2011–12); a Faculty Excellence Award (2010) and the Janette and Armen Avanessians Diversity Award (2009) from Columbia University's School of Engineering and Applied Science; and an Outstanding Paper Award from NAMRI (2000).

Yao earned three degrees in mechanical engineering: his bachelor's degree with honors from Shanghai Jiao Tong University, China, in 1982; and his master's degree and Ph.D. from the University of Wisconsin–Madison in 1984 and 1988, respectively.

Ben C. Sparks Medal

CARL D. SORENSEN
CHRISTOPHER A. MATTSON

Conferred at Education Leadership Summit, Newport Beach, Calif., March 2015

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.

CARL D. SORENSEN, Ph.D., professor of mechanical engineering, Brigham Young University (Provo, Utah); and CHRISTOPHER A. MATTSON, Ph.D., associate professor of mechanical engineering, Brigham Young University (Provo, Utah) *for outstanding contributions through the BYU Capstone, an industry-sponsored design/build program for Brigham Young University undergraduate students, which has helped provide a new generation of Renaissance engineers with a global perspective to solve economic, environmental, cultural and societal challenges.*

Dr. Sorensen has been active in engineering design education throughout his career. He was one of three faculty members who developed the Capstone program at Brigham Young University (BYU) in Provo, Utah, in 1989; and has served as co-director, instructor and coach. As a Capstone instructor, Sorensen has supervised nearly 550 industry-sponsored projects. He has coached students on nearly 20 projects in industries such as automotive products, aerospace manufacturing, integrated

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circuit manufacturing, raw material production, amusement park rides and products for the developing world. Resultant products from many of these design projects have been implemented by the sponsors, resulting in savings of millions of dollars. More importantly, the students who worked on these projects have gone on to successful careers; many have become leaders in engineering design.

At BYU, Sorensen is currently a professor of mechanical engineering. During his tenure, he has served as a faculty member in the manufacturing engineering department; and as a visiting professor at the Kanazawa Institute of Technology, Japan, where he developed the design curriculum for freshman and sophomore engineering students.

Using design principles in his research, Sorensen has developed the technology for applying friction stir welding to steels and stainless steels. He holds seven patents in friction stir welding technology. He also helped develop the friction forging process used to create high-performance edges for various types of knives.

An ASME member, Sorensen has authored papers and coordinated paper reviews for the International Design and Engineering Technical Conferences. He has also advised students who have submitted entries for the Old Guard Competitions, the Mechanism and Robot Design Competition, and the Human Powered Vehicle Challenge.

Sorensen is also a member of TMS–The Minerals, Metals and Materials Society; ASM International; the American Society for Engineering Education (ASEE); and Sigma Xi, the Scientific Research Society. For ASEE, he developed the Advances in Capstone Education Conference.

Among his honors, Sorensen received the National Science Foundation's Alexander Schwarzkopf Prize for Technological Innovation (2010), and BYU's B. Keith Duffin Teaching and Learning Fellowship (2007–10) and Ira A. Fulton College of Engineering and Technology Outstanding Faculty Award (2008).

Sorensen earned his bachelor's degree in physics from BYU in 1981 and his Ph.D. in materials science from the Massachusetts Institute of Technology, Cambridge, in 1985.

Dr. Mattson is an associate professor of mechanical engineering at Brigham Young University (BYU) in Provo, Utah. He became involved in the Capstone program at BYU in 2007, and has served as co-director (2007–09, 2012–14) and coach (2010–11). A Fulbright scholar (2014–15), Mattson is on sabbatical at Loughborough University (Leicestershire, U.K.). His research at the Loughborough Design School is aimed at advancing understanding in the area of design for the developing world with a focus on development sustainability.

Prior to joining the faculty at BYU in 2006, Mattson was the global director of engineering design and research at ATL Technology (Springville, Utah) and a member of the company's executive committee. He led the design of numerous electromechanical products; these products have been used by over 24 million people around the world. He also established and managed ATL Technology's Silicon Valley office (1999–2000) and 25-person Engineering Design Center in mainland China (2004–06).

Mattson's research on engineering design has been published in various international journals, and he has given conference presentations and invited lectures in the U.S. and abroad. He holds three patents.

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A member of ASME, Mattson is an associate editor for the *Journal of Mechanical Design*. He has organized special sessions on Design for the Developing World at International Design and Engineering Technical Conferences (2011-15).

Mattson is also a member of the American Institute of Aeronautics and Astronautics (AIAA); and Sigma Xi, the Scientific Research Society.

His honors include a Technical Committee Service Award (2004) and an Outstanding Service Award (2010) from AIAA's Multidisciplinary Design Optimization Technical Committee, a National Science Foundation CAREER Award (2010), a Presidential Early Career Award for Scientists and Engineers (2012), and BYU's Class of 1949 Young Faculty Award (2013).

Mattson earned three degrees in mechanical engineering: his bachelor's and master's degrees at BYU in 1999 and 2001, respectively; and his Ph.D. at Rensselaer Polytechnic Institute (Troy, N.Y.) in 2003.

Ruth and Joel Spira Outstanding Design Educator Award

ALICE M. AGOGINO

Conferred at the International Design Engineering Technical Conferences, Boston, August 2015

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.

ALICE M. AGOGINO, Ph.D., Roscoe and Elizabeth Hughes professor of mechanical engineering, University of California, Berkeley, *for tireless efforts in furthering engineering design education including curriculum changes that blend cutting-edge design topics with state-of-the-art educational practices; promoting wide-ranging interaction between industry and students; performing game-changing design research; and mentoring the next generation of designers, educators, researchers and engineers.*

Dr. Agogino is the Roscoe and Elizabeth Hughes professor of mechanical engineering and is affiliated faculty at the Haas School of Business at the University of California (UC), Berkeley. She also serves as chair of the Graduate Group in Development Engineering in the Blum Center for Developing Economies and the Product Design Master of Engineering Program of the Fung Institute for Engineering Leadership. She directs research in the BEST (Berkeley Energy and Sustainability/Expert Systems/Emergent Space Technologies) Lab, co-directs the Berkeley Institute of Design, and works with approximately 50 San Francisco Bay Area companies and nonprofits on research and educational projects in product design and sustainability.

Agogino previously served as chair of the UC Berkeley Academic Senate, associate dean of engineering and director of the Instructional Technology Program. She also

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served as director for the Synthesis Engineering Education Coalition and continues as principal investigator for theDesignExchange community portal. She has supervised 130 master's projects/theses, 41 doctoral dissertations and numerous undergraduate researchers.

Prior to joining the faculty at UC Berkeley in 1984, Agogino worked in industry for Dow Chemical, General Electric and SRI International.

Agogino has authored more than 250 peer-reviewed publications and serves on the editorial board of a number of journals. She has served on various committees and has given numerous invited talks.

An ASME Fellow, Agogino served as chair of the Santa Clara Valley (Calif.) Section (1979–80) and was a member of the Program Committee for the Design for Manufacturing Conference (1997). She also served on the board of directors for the Center for Education (2004–06) and was a member of the Fellows Review Committee (2008–10). She received two Best Paper awards at ASME conferences (1991, 2004).

Agogino is also a Fellow of the American Association for the Advancement of Science (AAAS) and the Association for Women in Science; a member of the National Academy of Engineering and senior member of IEEE; and a member of the Association for the Advancement of Artificial Intelligence, the American Society for Engineering Education, Engineers for a Sustainable World and the Society of Women Engineers.

Among her numerous teaching, mentoring, best paper and research awards, Agogino received AAAS's Lifetime Mentor Award (2012), UC Berkeley Pi Tau Sigma's Professor of the Year award (2011), the UC Berkeley Chancellor's Award for Advancing Institutional Excellence (2006), the National Science Foundation Director's Award for Distinguished Teaching Scholars (2004) and IEEE's Helen Plants Award for Best Nontraditional Session at the Frontiers in Education Conference (1998).

Agogino earned her bachelor's degree in mechanical engineering from the University of New Mexico, Albuquerque, in 1975. In 1978 she earned her master's degree in mechanical engineering from UC Berkeley. She earned her Ph.D. in engineering–economic systems (renamed management science and engineering) from Stanford University, California, in 1984.

Spirit of St. Louis Medal

DEWEY H. HODGES

Conferral at the President's Luncheon,
2015 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.

DEWEY H. HODGES, Ph.D., professor of aerospace engineering, Georgia Institute of Technology, Atlanta, for the development of the theory and methodology for modeling the dynamics and aeroelasticity of composite helicopter rotor blades, highly flexible slender aircraft wings and wind turbine blades; and its implementation in the VABS software used extensively in research and industry.

Dr. Hodges has been a professor of aerospace engineering at the Georgia Institute of Technology, Atlanta, since 1986. In recent years his research group has been devel-

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oping methods for accurate analysis and stress recovery in composite beams, including helicopter rotor blades, and in plates and shells. The computer programs VABS (for composite beams) and VAPAS (for composite plates and shells) are in use around the world to facilitate the accurate modeling and accurate stress recovery of internally complex structural members using generalized forms of standard reduced-order models for beams, plates and shells. The code NATASHA was developed by Hodges' group for nonlinear aeroelasticity analysis of high-altitude long-endurance aircraft, and it was selected by the Defense Advanced Research Projects Agency for use by contractors in its Vulture program. Hodges has advised 32 Ph.D. graduates and 36 master's graduates during his 29 years at Georgia Tech.

Before joining Georgia Tech, Hodges was a research scientist at the U.S. Army Aeroflightdynamics Directorate (1970–86) located at NASA's Ames Research Center (near Mountain View, Calif.). During this time he also served as a lecturer at Stanford University, California; and, in 1984, was a guest research scientist at the DLR–the German Aerospace Center in Braunschweig.

Hodges has published five books and 200 journal papers in the fields of rotorcraft dynamics, structural dynamics, aeroelasticity, structural mechanics and stability, computational mechanics and optimal control. He holds two U.S. patents. Hodges serves on the editorial boards for the *Journal of Fluids and Structures, the Journal of Mechanics of Materials and Structures,* and *Nonlinear Dynamics.* Previously he was associate editor of the *AIAA Journal, Vertica* and the *Journal of Engineering Mechanics*; and he served on the editorial board of the *International Journal of Solids and Structures*.

An ASME Fellow, Hodges was a track organizer for the International Mechanical Engineering Congress and Exposition in 2014 and 2015. He has reviewed dozens of papers for Society journals over the last 40 years.

Hodges is also a Fellow of the American Institute of Aeronautics and Astronautics (AIAA), the American Helicopter Society (AHS) and the American Academy of Mechanics.

Among his other honors, Hodges received the U.S. Army's Research and Development Achievement Award (1979) and Director's Award for Technological Achievement (1984); Sigma Xi's Thesis Advisor awards (1990, 1995 and 2003) and Sustained Research Award (2011); AIAA's Ashley Award for Aeroelasticity (2013); and AHS's Alexander Nikolsky Honorary Lectureship (2014).

Hodges received his bachelor's degree with high honors in aerospace engineering from the University of Tennessee, Knoxville, in 1969. He earned his master's degree and Ph.D. in aeronautical and astronautical engineering from Stanford University in 1970 and 1973, respectively.

Outstanding Student Section Advisor Award

SELIN ARSLAN

Conferral at the Members and Students Luncheon,
2015 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.

SELIN ARSLAN, Ph.D., assistant professor, Lawrence Technological University (Southfield, Mich.), *for outstanding service as faculty advisor for the ASME Student Section at Lawrence Technological University including diligence and dedication that revitalized the section; and for making a positive difference in students' lives, both in and outside the classroom.*

Dr. Arslan is an assistant professor in the A. Leon Linton mechanical engineering department at Lawrence Technological University (LTU) in Southfield, Mich. She was with Columbia University, N.Y., prior to joining the LTU faculty in 2010.

In addition to her teaching responsibilities at LTU, Arslan has been advising bachelor's, master's and doctoral level research projects, and serving as the lead faculty researcher on industry sponsored projects. Arslan has been the director of the Master of Science in Mechanical Engineering Program since fall 2013. When she assumed the directorship there were 42 students enrolled in the program; through her diligence, enrollment has increased to nearly 180 students. She also serves as a representative on the Faculty Senate, Engineering Faculty Council and Graduate Council.

Arslan is the author of 30 technical publications, and she has presented at various conferences.

As ASME member, Arslan has been the Student Section advisor of the ASME Student Section at LTU since spring 2011. Through her tireless efforts the once dormant section has been revitalized. She has guided student officers on hosting various activities including guest speakers, factory tours and workshops. Arslan has worked closely with the local Detroit Section to hold joint events on campus, and has worked with the LTU department chair and faculty members to secure support for ASME Student Section activities. She takes a personal interest in students' career choices and carefully advises them down a path aligned well with their interests and skills. For the Society's International Mechanical Engineering Congress and Exposition, Arslan has served as a reviewer and technical session co-chair since 2010 and 2011, respectively.

Arslan is a member of SAE International and, since spring 2015, is the faculty advisor of the FormulaSAE team. She is also a member of the Society of Women Engineers.

Her honors include two Extraordinary Teaching Assistant awards (2002 and 2003) from Columbia University's Fu Foundation School of Engineering and Applied Science; and she is the recipient of LTU's 2014 Faculty Member of the Year–The Mary E. and Richard E. Marburger Excellence in Achievement Award.

Arslan earned four degrees: a bachelor's degree in mechanical engineering from Middle East Technical University (Ankara, Turkey) in 2000; an M.S. in mechanical and aerospace engineering from Rutgers University (Piscataway, N.J.) in 2002; and an M.Phil. and a Ph.D. in mechanical engineering from Columbia University in 2004 and 2011, respectively.

J. Hall Taylor Medal

PETER A. MOLVIE

Conferred at the BPV I Power Boiler Committee Meeting,
Atlanta, November 2015

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.

PETER A. MOLVIE, P.E., manager, codes and standards, Cleaver-Brooks, Milwaukee, *for distinguished leadership and professionalism in the advancement and recognition of ASME codes and standards for pressure equipment, and for significant contributions to the development and standardization of power and heating boiler equipment design and construction.*

Mr. Molvie has been the manager of codes and standards at Cleaver-Brooks in Milwaukee since 1989. For this world renowned provider of boiler room products and systems, Molvie is responsible for divisional ASME H (heating boilers), S (power boilers) and U (pressure vessels) accreditation programs at multiple plant locations. His duties include internal auditing of ASME quality programs, supervision of product engineering staff relative to ASME compliance, interpreting ASME and National Board Inspection Code (NBIC) requirements, and serving as the company's liaison with ASME, The National Board of Boiler and Pressure Vessel Inspectors, jurisdictional authorities, representatives and customers on ASME-related matters. For the past ten years Molvie has also been responsible for senior product development engineering efforts.

Prior to joining Cleaver-Brooks, Molvie was engineering manager at Holman Boiler Works, Dallas (1980–89), where he was responsible for all engineering for small boiler manufacturing. His duties involved design of package boilers, heat recovery boilers and pressure vessels under ASME H, S and U accreditation. He was also responsible for repair and alteration design engineering under NBIC R accreditation. Earlier, as an energy audit engineer at Donahue & Associates in Madison, Wisc. (1979–80), Molvie performed energy audits of small businesses, schools and light industry. For National Valve & Manufacturing, Pittsburgh (1976–79), he was a field engineer for the erection of power piping systems on fossil utility boilers.

Molvie authored a number of publications and has given presentations to the National Board and the Wisconsin Boiler Inspector's Association, and at industry conferences.

An ASME Fellow, Molvie has participated on ASME Boiler and Pressure Vessel (BPV) committees since joining Cleaver-Brooks. He has been a member of the Standards Committee for Section I, Power Boilers since 1991; and a member of the Subgroup on Design (BPV I) since 1991 where he served as secretary (1995–2005) and chair (2005–13). He has also been a member of the Standards Committee for Section IV, Heating Boilers since 1991, and served as vice chair (1995–2001) and chair (2001–10). He joined the Section IV Subgroup on Welded Boilers in 1994 and served as chair (1994–2001); and has been a member of the Section IV Subgroup on Care and Operation of Heating Boilers since 1997. Since 2010 Molvie has been a member of the Task Group on Modernization (BPV I), and he served on the Parts (BPV I, IV and VIII) Task Group (2008–10). Previously he was a member (2000–10) of the BPV Main Committee (subsequently the Technical Oversight Management Committee).

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J. Hall Taylor Medal (cont.)

Molvie is an associate member of the Canadian Standards Association (CSA) B51 BPV and Piping Code Committee, a member of the CSA B51 Subcommittee on Boilers and Related Components, and a member of the Advisory Committee of The National Board of Boiler and Pressure Vessel Inspectors.

In 1976, through a five-year cooperative program, Molvie earned concurrent degrees: a bachelor's in physics from Marietta College, Ohio; and a bachelor's in mechanical engineering from Columbia University, N.Y. He is a registered professional engineer in Wisconsin.

Robert Henry Thurston Lecture Award

HORACIO D. ESPINOSA

Conferral at the Thurston Lecture,
2015 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.

HORACIO D. ESPINOSA, Ph.D., James and Nancy Farley professor of manufacturing and entrepreneurship; director, Institute for Cellular Engineering Technologies; and director, Theoretical and Applied Mechanics Program, Northwestern University (Evanston, Ill.), *for sustained innovation in experimental micro and nano mechanics and its application to multiscale material characterization, from in situ electron microscopy to wave propagation experiments.*

Dr. Espinosa is the James and Nancy Farley professor of manufacturing and entrepreneurship, director of the Institute for Cellular Engineering Technologies and director of the Theoretical and Applied Mechanics Program at the McCormick School of Engineering and Applied Sciences at Northwestern University (Evanston, Ill.). Prior to joining the faculty at Northwestern in 2000, he was with Purdue University (West Lafayette, Ind.).

Espinosa has made contributions in the areas of dynamic failure of advanced materials, and micro and nanomechanics. He pioneered novel experiments to identify mechanisms of deformation and failure of materials across multiple length and time scales. He achieved worldwide recognition for his contributions to size effects and scaling of mechanical properties in submicron freestanding thin films, carbon nanotubes, nanowires and biomaterials. Espinosa was one of the first to develop microelectromechanical systems for in situ electron microscopy mechanical testing of nanomaterials. He also pioneered robust carbon-based nanoelectromechanical systems and the world's first design of an atomic force microscopy probe with microfluidics, the so-called nanofountain probe, for patterning of nanoparticles and biomolecules. More recently he extended this technology to applications in stem cell research including single cell access and analysis studies.

He currently serves on two committees of the National Academies, the U.S. National Committee on Theoretical and Applied Mechanics, and the Army Research Lab Panel on Materials Science and Engineering. *(continued)*

Espinosa has published more than 200 technical papers. He is founding principal editor of *MRS Communications* and co-editor of the Wiley Book Series on Micro and Nanotechnologies, and he serves on editorial boards for several journals.

An ASME Fellow, Espinosa has been an active member by serving as associate editor of the *Journal of Applied Mechanics,* organizing several symposia and disseminating his group's research at ASME annual meetings. He received a Certificate of Appreciation from the Materials Division in 1996 and from the Electronic and Photonic Packaging Division in 2001.

Espinosa is a member of the Russian Academy of Engineering and the European Academy of Sciences and Arts; a Fellow of the Society for Experimental Mechanics (SEM), the American Association for the Advancement of Science and the American Academy of Mechanics (AAM); and a member of the Society of Engineering Science (SES), the Materials Research Society and IEEE.

Among his other honors, Espinosa received a National Science Foundation CAREER Award (1996); an Office of Naval Research Young Investigator Award (1997); a Junior Award (2002) from AAM; a Junior Medal (2007) from SES; and SEM's M. Hetenyi Award (2005), B.J. Lazan Award (2008) and Sia-Nemat Nasser Medal (2013). He was the 2012 president of SES.

Espinosa earned a six-year professional degree in civil engineering, magna cum laude, from Northeast National University, Argentina, in 1981. In 1987 he earned a master's degree in structural engineering from Polytechnic University of Milan. He went on to earn three degrees from Brown University (Providence, R.I.): a master's in solid mechanics, a master's in applied mathematics and a Ph.D. in solid mechanics in 1989, 1990 and 1992, respectively.

Timoshenko Medal

MICHAEL ORTIZ

Conferral at the Applied Mechanics Dinner,
2015 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.

MICHAEL ORTIZ, Ph.D., Frank and Ora Lee Marble professor of aeronautics and mechanical engineering, California Institute of Technology, Pasadena, *for seminal, groundbreaking and creative contributions, particularly the creation of the quasicontinuum method, the formulation of an incremental variational principle to predict dislocation substructures, the development of modeling fragmentation with cohesive models, and the formulation of integrators for elastoplastic materials and variational time integrators.*

Dr. Ortiz has been on the faculty at the California Institute of Technology, Pasadena, since 1995. He is currently the Frank and Ora Lee Marble professor of aeronautics and mechanical engineering. From 2008 to 2013 he served as the director of Caltech's Department of Energy/Predictive Science Academic Alliance Program's Center on High-Energy Density Dynamic Response of Materials.

Prior to joining Caltech, Ortiz held faculty positions in the division of engineering (1984–95) at Brown University (Providence, R.I.), where he carried out research activities in the fields of mechanics of materials and computational solid mechanics.

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Ortiz has made seminal contributions including the development of the quasicontinuum method, the introduction of a new way of formulating inelastic behavior, the formulation of an incremental variational principle that leads to the appearance of dislocation substructures, and the development of computational models to assess the impact performance of dynamic failure of brittle materials.

He has served on the University of California Office of the President's Science and Technology Panel; the Los Alamos National Laboratory T-Division (Theoretical) Review Committee; the Lawrence Livermore National Laboratory (LLNL) Predictive Science Panel; the Sandia National Laboratories Engineering Sciences External Review Panel; the LLNL Chemistry, Materials, Earth and Life Sciences Directorate Review Committee; the LLNL Engineering Directorate Review Committee; and the National Research Council Panel for the Evaluation of Quantification of Margins and Uncertainties.

Ortiz has published more than 250 journal articles covering both fundamental and applied contributions in materials modeling and computational solid mechanics. He is associate editor of the *Journal for the Mechanics and Physics of Solids* and the *Archive for Rational Mechanics and Analysis*, and he previously served as editor of the *Journal of Engineering Mechanics*. He was distinguished speaker for the Midwest Mechanics Seminar (1995–96) and Southwest Mechanics Lecture Series (1998).

A member of ASME, Ortiz was secretary of the Applied Mechanics Division's Executive Committee (1984–86) and served on the editorial board of the *Journal of Applied Mechanics* (1995–2001).

Ortiz is a member of the National Academy of Engineering; a Fellow of the U.S. Association for Computational Mechanics (USACM), the American Academy of Arts and Sciences and the International Association for Computational Mechanics (IACM); a Hans Fischer Senior Fellow of the Institute of Advanced Studies of the Technical University of Munich; and a corresponding member of the Spanish Academy of Engineering.

Among his other honors, Ortiz received an Alexander von Humboldt Research Award for Senior U.S. Scientists (2002), IACM's Computational Mechanics Awards for Research (2002), USACM's Computational Structural Mechanics Award (2007), the ISI Highly Cited Researcher Award (2000), the International Union of Theoretical and Applied Mechanics' inaugural Rodney Hill Prize (2008) and the 2011 Award from SEMNI–the Spanish Association for Numerical Methods in Engineering.

Ortiz earned three degrees in civil engineering: his bachelor's degree from the Polytechnic University of Madrid, Spain, in 1977; and his master's degree and Ph.D. from the University of California, Berkeley in 1978 and 1982, respectively.

Yeram S. Touloukian Award

MIKHAIL A. ANISIMOV

Conferred at the 19th Symposium on Thermophysical Properties, Boulder, Colo., June 2015

THE YERAM S. TOULOUKIAN AWARD, a triennial award established in 1997 and initially bestowed in 2000, recognizes outstanding technical contributions in the field of thermophysical properties.

MIKHAIL A. ANISIMOV, Ph.D., professor, University of Maryland, College Park, *for the performance of crucial experiments and introduction of new concepts including isomorphism, non-asymptotic critical behavior, complete scaling and competing length scales; and for deepening the understanding of phase behavior, criticality and thermophysical properties of complex fluids, liquid crystals, polymer solutions, supercooled water and crude oils.*

Dr. Anisimov is a professor in the department of chemical and biomolecular engineering and in the Institute for Physical Science and Technology at the University of Maryland (UMD), College Park. He has been at UMD since 1994. Among prior academic appointments, Anisimov served as professor and chair of the Moscow State Academy of Oil and Gas' department of physics, and department head of the Russian Academy of Sciences' Institute for Oil and Gas Research.

His field of research is thermodynamics of fluids, liquid crystals, polymers, surfactant solutions and other soft-matter materials. His research group at UMD is one of the leading authorities, nationally and internationally, in the field of critical phenomena and phase transitions. The group's major engineering contribution is the development of equations of state, and the measurements and correlations of thermophysical properties of fluids. The research group also developed a method for the monitoring of asphaltene aggregation in crude oil for the petroleum industry. Among more recent activities is the prediction of the properties of supercooled water, which is important for applied atmospheric science and cryobiology. Anisimov is currently leading a project for the development of a new international guideline for the properties of cold and supercooled water.

Anisimov has authored/co-authored four books, two in English and two in Russian; 14 book chapters and review articles; and more than 400 journal and encyclopedia articles, conference proceedings and reports. He holds one patent.

Since 1995 Anisimov has served on ASME's Subcommittee on the Properties of Steam and as a member of the U.S. National Committee to the International Association for the Properties of Water and Steam. He has been a prominent session organizer at six of the triennial symposia on Thermophysical Properties.

Anisimov is a Fellow of the American Association for the Advancement of Science, the International Academy of Refrigeration, the American Institute of Chemical Engineers and the American Physical Society. He is also a foreign member of the Russian Academy of Engineering, the Russian Academy of Natural Sciences and the Ukrainian branch of the International Academy of Refrigeration.

His honors include a University of Maryland Board of Regents' Faculty Award (2015), UMD's Poole and Kent Teaching Award for Senior Faculty (2007); and a Foundation for Science and Technology Award from Gunma University, Japan (2006).

Anisimov received his engineer diploma in chemical engineering from Grozny Petroleum Institute, Russia, in 1964. He earned his Ph.D. in physical chemistry from Moscow State University in 1969.

Yeram S. Touloukian Award

DAVID G. CAHILL

Conferred at the 19th Symposium on Thermophysical Properties, Boulder, Colo., June 2015

THE YERAM S. TOULOUKIAN AWARD, a triennial award established in 1997 and initially bestowed in 2000, recognizes outstanding technical contributions in the field of thermophysical properties.

DAVID G. CAHILL, Ph.D., Donald Biggar Willett professor of engineering, and department head of materials science and engineering, University of Illinois at Urbana-Champaign, *for sustained, pioneering contributions to heat conduction metrology including the 3-omega and optical pump-probe methods, which are pervasive in laboratories worldwide; and for landmark contributions on the minimum and ultralow thermal conductivities of solids.*

Dr. Cahill is the Donald Biggar Willett professor of engineering, and department head of materials science and engineering at the University of Illinois at Urbana-Champaign. He was named Willett professor of engineering in 2005 and has led the department of materials science and engineering since 2010.

Prior to joining the faculty at Illinois in 1991, Cahill spent two years at the IBM Thomas J. Watson Research Center (Yorktown Heights, N.Y.) as a postdoctoral research associate.

Cahill developed the 3-omega method for thermal conductivity measurements as a graduate student at Cornell University (Ithaca, N.Y.), and he applied this method to a wide variety of amorphous materials and strongly disordered crystals to establish the applicability of the model to minimum thermal conductivity. As an assistant professor at Illinois, Cahill extended the 3-omega method to thin layers and advanced the understanding of thermal conductivity of dielectric thin films and semiconductor superlattices. In 2001 he began work on pump-probe methods for studying thermal transport, e.g., time-domain thermoreflectance (TDTR). His analytical model of TDTR measurements in 2004 has enabled applications of TDTR to a rapidly expanding set of science and engineering problems on heat conduction at the nanoscale.

Cahill has authored/co-authored more than 250 publications. He is the lead author of two review articles titled "Nanoscale Thermal Transport," which were published in *Applied Physics Reviews* in 2003 and 2014. He served on the editorial advisory board of *Applied Physics Letters* and the *Journal of Applied Physics* (2010–14).

He is a Fellow of the American Physical Society, the Materials Research Society and the American Vacuum Society (AVS). Among his other honors, Cahill was the recipient of the International Thermal Conductivity Conference's Charles F. Lucks Award (1989) and AVS's Peter Mark Memorial Award (1998), and he was named a University Scholar by the University of Illinois (2000-03).

Cahill earned his bachelor's degree in engineering physics from The Ohio State University, Columbus, in 1984. In 1989 he earned his Ph.D. in physics from Cornell University.

Worcester Reed Warner Medal

JOHN H. LAU

Conferral at the President's Luncheon,
2015 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.

JOHN H. LAU, Ph.D., senior technical advisor, ASM Pacific Technology, Hong Kong, *for outstanding contributions to the permanent literature of engineering through a sustained series of books, papers and lectures on mechanical, microelectronic and optoelectronic engineering, which established a new discipline known as the finite element analysis of microelectronic and optoelectronic components and systems.*

Dr. Lau has more than 35 years of research and development and manufacturing experience in mechanical, electrical and optical engineering-related industries. Since July 2014 he is senior technical advisor at ASM Pacific Technology, Hong Kong. Previously he was with the Industrial Technology Research Institute, Taiwan. Earlier affiliations include the Hong Kong University of Science and Technology; the Institute of Microelectronics, Singapore; and various companies in the U.S., where he contributed for more than 25 years.

Among Lau's achievements are two outstanding contributions in solder mechanics and manufacturing, an area he focused on between 1984 and 2006. He formed a new discipline known as nonlinear finite element analysis of solder mechanics, which many professors and research engineers have implemented to design more reliable products. Lau also influenced the adoption of lead-free solder manufacturing with his forward-looking research papers and books including "Electronics Manufacturing With Lead-Free, Halogen-Free and Conductive-Adhesive Materials" (McGraw-Hill, 2002), which set the industry standards. His work provided guidelines and parameters that helped the industry move to lead-free solder manufacturing safely and at a reasonable cost. In the area of solder mechanics and manufacturing Lau has published 14 books and 250 research papers, and he holds four U.S. patents.

Since 2006 Lau has provided useful information on design, materials and process guidelines, and thermal management and reliability in the area of 3D IC (integrated circuit) integration and packaging. His efforts have shaped the landscape of 3D IC integration and moved this new technology forward. He has contributed four books, 180 research papers and 10 U.S. patents in this area, and he has more than 10 patent applications pending. His efforts have had a great impact on the work of others, with many research engineers and professors citing his papers, and his books titled "3D IC Integration and Packaging" (McGraw-Hill, 2015), "Through-Silicon Vias for 3D Integration" (McGraw-Hill, 2014), "Reliability of RoHS-Compliant 2D and 3D IC Interconnects" (McGraw-Hill, 2010) and "Advanced MEMS Packaging" (McGraw-Hill, 2009).

Lau has given more than 280 technical workshops, short courses, seminars and keynote presentations worldwide, educating thousands of engineers in the process.

An ASME Fellow, Lau served on the editorial board of the *Journal of Electronic Packaging* (1989–99), was symposium organizer/chair of the Winter Annual Meeting (1987–2002) and was an ASME Distinguished Lecturer (2000–03). He received a Technical Achievement Award from the Electrical and Electronic Packaging Division in 1998 and a Best Paper Award from the *Journal of Electronic Packaging* in 2000.

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Lau is also a Fellow of IEEE and the International Microelectronics and Packaging Society.

Among his other honors, Lau received SME's Total Excellence in Electronics Manufacturing Award (2001); the Pan Wen Yuan Foundation's Distinguished Research Award (2011); the IEEE Components, Packaging and Manufacturing Technology Society's Manufacturing Award (1994), Outstanding Contribution Award (2000) and Field Award (2013); and numerous IEEE Best Paper awards.

Lau received his bachelor's degree in civil engineering from National Taiwan University, Taipei, in 1970. He earned three master's degrees: the first in structural mechanics from the University of British Columbia, Vancouver, in 1973; the next in engineering physics from the University of Wisconsin–Madison in 1974; and the last in management science from Fairleigh Dickinson University (Teaneck, N.J.) in 1981. Lau earned his Ph.D. in theoretical and applied mechanics from the University of Illinois at Urbana-Champaign in 1977.

George Westinghouse Gold Medal

KAREN A. THOLE

Conferral at the Honors Assembly,
2015 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.

KAREN A. THOLE, Ph.D., professor and department head, The Pennsylvania State University, University Park, *for outstanding contributions toward better cooling of gas turbine airfoils, particularly the discovery of a leading-edge fillet to reduce vortices in airfoil passages and the development of physics-based correlations used by industry for predicting microchannel cooling and film cooling.*

Dr. Thole has made significant contributions to the field of gas turbine heat transfer as a researcher, educator and administrator, and as a leader in her professional community. Her expertise is heat transfer and cooling of gas turbine airfoils through detailed experimental and computational studies.

Thole has been professor and head of the department of mechanical and nuclear engineering at The Pennsylvania State University, University Park, since 2006. At Penn State, she founded the Steady Thermal Aero Research Turbine Laboratory, which houses a unique test turbine facility and is a center of excellence in heat transfer for one of the major gas turbine manufacturers.

Prior to joining the faculty at Penn State, 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).

Her research accomplishments include the discovery of a novel fillet design, now used in turbine designs, to reduce heat transfer arising from vortices; and the devel-

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opment of physics-based correlations through the acquisition of detailed data for film cooling and microchannel cooling of turbine airfoils. She has also provided high quality, spatially resolved flowfield measurements in complex turbine passages that are regularly used for benchmarking computational fluid dynamics simulations.

Thole is a member of the NASA Advisory Council Aeronautics Committee.

She has published more than 200 archival journal and conference papers, and has supervised over 65 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 (2011–14) 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 (2007–13) and was a member of the Vision 2030 Committee (2008–11). She received IGTI Best Heat Transfer Paper awards in 2005, 2009 and 2013; and received ASME Distinguished Service awards in 2008 and 2015.

Thole is a member of the American Society for Engineering Education and the American Institute for Aeronautics and Astronautics.

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 the Society of Women Engineer'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.

George Westinghouse Silver Medal

ANGELA VIOLI

Conferral at the Members and Students Luncheon,
2015 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.

ANGELA VIOLI, Ph.D., professor, University of Michigan, Ann Arbor, *for career efforts that have focused on high-temperature chemically reacting systems, which are critical to widespread applications including energy utilization and advanced materials.*

Dr. Violi joined the faculty at the University of Michigan (U-M), Ann Arbor, in 2006. Initially an assistant professor in the department of mechanical engineering, she was promoted to associate professor with tenure in 2009. On Sept. 1, 2015, Violi was promoted to full professor. She holds a joint appointment in the departments of chemical engineering and biomedical engineering.

Previously Violi was with The University of Utah, Salt Lake City (1999–2005). Initially a postdoctoral researcher, she served as a research associate for the Department of Energy (DOE)-funded Center for the Simulation of Accidental Fires and Explosions and was an assistant research professor in the department of chemistry.

Her research areas have included novel fuels, jet fuel surrogates, nanoparticles from combustion sources and novel materials. The common intellectual thread among her activities is the application of multiscale modeling approaches, which are tailored for the specifics of each subject and coupled with pertinent longer scale processes and systems. Violi has received continuous funding from the DOE, the National Science Foundation (NSF), the Department of Defense and the Environmental Protection Agency.

She has published more than 60 peer-reviewed papers; and given over 50 invited talks, and 11 plenary/key lectures at national and international conferences. She has also organized and chaired conference sessions for various societies including the National Academy of Engineering.

An ASME member, Violi is also a member of the American Chemical Society, The Combustion Institute, the Materials Research Society and the American Institute of Chemical Engineers.

Her honors include a Faculty Recognition Award (2013) and the Henry Russel Award (2013) from U-M's Rackham Graduate School; a U-M College of Engineering Educational Excellence Award (2010) and Mechanical Engineering Departmental Award for Outstanding Achievements (2008); a NSF CAREER award (2007); The Combustion Institute's Bernard Lewis Fellowship (2000), the University of Utah's John Zink Award for Outstanding Achievement in Combustion Engineering (2000), and various merit and fellowship awards from the University of Naples Federico II (1991–2000).

Violi received her bachelor's degree, summa cum laude, and her Ph.D. in chemical engineering from the University of Naples Federico II, Italy, in 1994 and 1999, respectively.

Arthur L. Williston Medal

MATTHEW D. HILL

Conferral at the Members and Students Luncheon,
2015 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.

MATTHEW D. HILL, second lieutenant, U.S. Army, *for the paper titled "The Role of Robotic Technology in a Manned Mission to Mars."*

2nd Lt. Matthew D. Hill graduated with honors from the U.S. Military Academy (West Point, N.Y.) in May 2015 with a bachelor's degree in mechanical engineering. Upon graduation, he was commissioned into the U.S. Army as a second lieutenant and will serve as an engineer officer. Hill is currently attending the Engineer Basic Officer Leadership Course at Fort Leonard Wood, Mo., before continuing to Fort Belvoir, Va., to serve in the 12th Aviation Battalion.

While an undergraduate student, Hill worked on a capstone project called Improvised Armaments. His team, sponsored by the U.S. Army Armament Research Development and Engineering Center, created improvised devices for unique purposes. While a first class (senior) cadet, Hill served as both a company commander and a company executive officer. He has taken the fundamentals of engineering exam, part of the process to become a registered professional engineer in New York.

An ASME member, Hill plans to attend the 2015 International Mechanical Engineering Congress and Exposition.

Henry R. Worthington Medal

JINKOOK LEE

Conferral at the President's Luncheon,
2015 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.

JINKOOK LEE, Ph.D., fluid dynamic specialist, Eaton Aerospace Group, Cleveland, *for three decades of outstanding contributions to the design of commercial and military jet engine fuel pumps; and for the novel design, development and qualification of centrifugal fuel pumps for the most advanced and powerful jet engines.*

Dr. Lee has 35 years of hands-on experience in thermal fluids engineering. He specializes in design, and research and development in turbomachinery fields such as gas turbines for jet engines, inducers and impellers for industrial pumps, main engines and airframe fuel pumps for commercial and military aircraft, and cryogenic pumps for liquefied natural gas and liquefied propane gas for land-based and marine applications.

Lee has been with Eaton Aerospace Group in Cleveland since 1985 and is currently fluid dynamic specialist. Prior to joining Eaton, Lee served in various engineering positions at General Electric Aircraft Engine Group, Allis-Chalmers Corp. and United Technology Corporation.

Among Lee's significant contributions is his novel design, development and qualification of centrifugal jet engine fuel pumps for the most advanced and powerful engines such as GE9X for the Boeing 777X to be introduced to the world in the near future, GENX for Boeing 787, GE90-115B for Boeing 777, CFM56-7 for Boeing 737 and the BR700 series for regional jets. Lee's inducer design method earned a U.S patent (US 7455497 B2).

Lee authored a chapter on cryogenic pumps for liquefied gas service in the fourth edition of Pump Handbook (McGraw-Hill, 2008). He has published more than 15 refereed journal articles and conference papers, and has given invited talks at various universities.

An ASME Fellow, Lee is chair of the Fluids Engineering Division's (FED) Advisory Council (2014–15). He previously served FED as secretary (2010–11), chair of the Joint Summer Conference (2011–12), chair of the FED Executive Committee (2012–13), and past chair and treasurer (2013–14). He also served as associate editor of the *Journal of Fluids Engineering* (2003–06) and chair of the Fluids Applications and Systems Technical Committee (2004–06). He received FED's Fluid Machinery Design Award in 2004.

Lee received his bachelor's and master's degrees in mechanical engineering from Inha University (Incheon, South Korea) in 1975 and 1977, respectively. He received a master's degree in aerospace engineering from the University of Cincinnati in 1982 and his Ph.D. in mechanical engineering from Cleveland State University in 1991.

S.Y. Zamrik PVP Medal

L. IKE EZEKOYE

Conferred at the Pressure Vessels and Piping Conference, Boston, July 2015

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.

L. IKE EZEKOYE, P.E., Ph.D., consultant, *for providing numerous services to ASME including Codes and Standards, and the Pressure Vessels and Piping Division; for long-term contributions to the PVPD Operations, Applications and Components Technical Committee; and for significant contributions to the design, analysis and maintenance of valves in nuclear power plants worldwide.*

Dr. Ezekoye is a recognized authority on valves and related components. He began his engineering career at Rockwell Manufacturing Company (Barberton, Ohio), where he rose quickly from a valve design engineer for the power industry to a project engineer on valve applications. He advanced to the position of research engineer within the valve engineering research department, and Rockwell International subsequently moved him to the corporate headquarters research center in Pittsburgh. There, Ezekoye explored innovative valve design concepts and performed flow testing to determine their performance characteristics. His research also included simulating the behavior of check valves in postulated pipe break events in sodium reactors.

Ezekoye's efforts caught the attention of his Westinghouse collaborators, which resulted in him joining the Westinghouse Water Reactor Division, Pittsburgh, where he spent more than 30 years advancing the design and application of valves in nuclear power plants and the evaluation of valve failures.

Since retiring from Westinghouse in 2004, Ezekoye has been providing consulting services to Westinghouse Electric Company on valve design and applications associated with the launching of AP1000 nuclear power plants worldwide, as well as supporting existing commercial nuclear power plant upgrades and the resolution of equipment reliability issues. In this context, he has supported the Pressurized Water Reactor Owners Group's projects in the resolution of several Nuclear Regulatory Commission Generic Letters.

Ezekoye has published more than 100 technical papers and one book chapter, and has conducted seminars worldwide. He holds 12 U.S. patents and has authored numerous invention disclosures.

An ASME Fellow, Ezekoye has been very active in the Pressure Vessels and Piping Division (PVPD). He is currently a member of the Professional Development Committee. He has served as secretary, vice chair and chair of the Operations, Applications and Components Technical Committee; has organized, chaired and co-chaired many technical sessions; and conducted PVPD tutorials. Ezekoye has also served as a member of the PVPD Honors and Awards Committee and as an associate editor of the *Journal of Pressure Vessel Technology*. His honors include the Society's Dedicated Service Award (2004) and the S.S. Chen PVP Outstanding Service Award (2009).

Ezekoye received his bachelor's and master's degrees in mechanical engineering from Ohio University, Athens, in 1966 and 1967, respectively. He earned his Ph.D. in engineering and public policy from Carnegie Mellon University, Pittsburgh, in 1989. Ezekoye is a registered professional engineer in Pennsylvania.

Index of Honorees

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Mark N. Glauser
Matthew T. Halker
John O. Hallquist
Regina M. Hoffmann
Paul P. Jacob
Richard Jacobsen
Robert Jeffers
Jennifer R. Jewers Bowlin
Gregory M. Johnson
Marshall G. Jones,
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Theodore Katsanis
Joseph F. Kennell
Melanie M. Krasin
Howard K. Kuritzky
Walter W. Laity
Gordon C. Lau
Dona M. Lee
James W. Loomis
Matthew Mangan
Robert R. Mantz
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Frederick Schaerr
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Amip Shah
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Susan H. Skemp
Alvin L. Spicer
Robert Stakenborghs
Steve Stassel
Peter M. Sukraw
Ruthy & Keith Thayer
Reginald I. Vachon
Richard Velez
Nina Webb
James R. Welty
William J. Wepfer
Frank M. White
Ward O. Winer
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