

2014 Honors & Awards

ASME

2014 Honors & Awards

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2014 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 2014 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 2014 International Mechanical Engineering Congress, November 14–20, in Montreal, Canada.

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Conferral at the Honors Assembly, 2014 International Mechanical Engineering Congress and Exposition

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

VAN C. MOW, Ph.D., Stanley Dicker professor of biomedical engineering and orthopaedic bioengineering, Columbia University, New York, for significant contributions to biomechanical and biomedical engineering, particularly seminal breakthroughs in understanding the biomechanics of human joints; for educating and mentoring engineering students; for broad and critical leadership of the nascent bioengineering profession; and for service to ASME and other professional societies.

Following a postdoctoral fellowship in applied mathematics at New York University's Courant Institute of Mathematical Sciences and a brief career at Bell Labs in New Jersey writing computer programs for the sonar submarine detection system off the East Coast, Dr. Mow returned to his alma mater, Rensselaer Polytechnic Institute (RPI) in Troy, N.Y., in 1969 as a faculty member in the mechanics department. Over the succeeding 45 years Mow became one of the most scientifically productive and well-recognized bioengineers.

At RPI (1969–86), Mow found a cornucopia of challenging and exciting engineering problems to study in the biology, medicine and physiology arena. He began his bioengineering research by concentrating on the



musculoskeletal system (where, for a mechanical engineer, analysis of forces and motion, and of stresses and strain are more essential and natural); and he developed rigorous constitutive laws that can be universally used for determining the complex deformational behaviors of soft-hydrated-charged biological tissues, such as articular cartilage, intervertebral discs and meniscus of the major joints of the body (e.g., ankles, hips, knees, shoulders, wrists and intervertebral discs of spines). The medical problems that motivated these studies stem from the need to understand the etiology of degenerative joint diseases, e.g., osteoarthritis, spinal degenerations and sports injuries. Mow then took a sabbatical leave from RPI (1977–78) to visit Harvard Medical School, Boston, to learn more about the biology, biochemistry and physiology of such tissues and joints, and the patho-physiology of those diseases.

Mow has been on the faculty at Columbia University, New York, since 1986 and is currently the Stanley Dicker professor of biomedical engineering and orthopaedic bioengineering. He founded the department of biomedical engineering at Columbia and served as inaugural chair (1995–2011). He also served as director of the Liu Ping Laboratory for Functional Tissue Engineering Research (2003–12).

He has published more than 300 full-length peer-reviewed papers and invited monograph chapters, and more than 400 meeting abstracts; and has edited seven bioengineering monographs. His current Google Scholar citation count stands at 30,450, with an h-index of 97.

An ASME Fellow, Mow has served in various positions including associate editor in 1979 of the then-new *Journal of Biomechanical Engineering*, and chair (1984–85) of the Bioengineering Division. In 2004 the Division established the Van C. Mow Medal in his honor. He received the Melville Medal in 1982, the H.R. Lissner Medal in 1987 and the Robert Henry Thurston Lecture Award in 1998.

Mow is also a Fellow of the Biomedical Engineering Society and the American Institute for Medical and Biological Engineering; an elected member of the National

Academy of Engineering, the Institute of Medicine of the National Academy of Sciences, and The World Academy of Sciences; an academician of the Academia Sinica (i.e., Academy of Sciences of the Republic of China); a member of the American Association for the Advancement of Science, the American Society for Engineering Education, the Chinese Speaking Orthopaedic Society, the International Society of Biorheology, the International Cartilage Repair Society and the Orthopaedic Research Society (first Ph.D. president, 1982); and an honorary member of the International Chinese Hard Tissue Society.

His extensive list of honors ranges from a NATO senior postdoctoral fellowship (1978) and Japan Society for the Promotion of Science fellowship (1986) to countless invitations throughout his career to deliver keynote, plenary or named lectures around the world. Recent recognitions include the Outstanding Basic Science Award (2008) from the Osteoarthritis Research Society International; and RPI's Davies Medal for Engineering Achievement (2006) and his inclusion among the Top 10 Mechanical Engineering Graduates at the department's centennial celebration (2008).

Mow earned three degrees at RPI: his bachelor's degree in aeronautical engineering in 1962, his master's degree in applied mechanics in 1963 and his Ph.D. in applied mechanics (minor in applied mathematics) in 1966.

Honorary Membership

WARREN R. DeVRIES

Conferral at the Honors Assembly, 2014 International Mechanical Engineering Congress and Exposition

WARREN R. DeVRIES, Ph.D., professor of mechanical engineering, University of Maryland, Baltimore County, for distinctive contributions to engineering education and research as a professor; for dedication to advancing the frontiers of discovery and innovation through public service; and for striving to advance the recognition of engineering's contributions to humankind through leadership in professional societies.



Dr. DeVries has been a leader in the drive for excellence in engineering education; and is well-known for his pioneering research in manufacturing processes and systems, his public service and his contributions to professional societies.

DeVries is currently a professor of mechanical engineering at the University of Maryland, Baltimore County (UMBC). He most recently served as dean of the College of Engineering and Information Technology at UMBC (2006–14). In this position, he worked with faculty and staff to build on UMBC's reputation for integration of education and research covering the whole spectrum of innovation, from discovery of new knowledge and creativity to the first commercial step of a small technology business. He also focused on

giving students a multidisciplinary education to prepare them to be competitive in today's global economy, and on partnerships with government and industry to create new opportunities.

Prior to joining UMBC in 2006, DeVries was director of the National Science Foundation's (NSF) Division of Design, Manufacture and Industrial Innovation (Arling-

ton, Va.), where he led a staff of 15 and managed an annual budget of \$65 million. The division, through its funding, enabled discovery, learning and innovation in universities; and managed the NSF's role in the governmentwide Small Business Innovation Research and Small Business Technology Transfer programs. DeVries was on assignment to the NSF from Iowa State University, Ames, where, from 1996 to 2002, he was chair of the department of mechanical engineering.

Earlier, DeVries spent two years at the NSF as a program director for Manufacturing Machines and Equipment (1994–96); and he held faculty positions at Rensselaer Polytechnic Institute in Troy, N.Y. (1982–96), the University of Michigan, Ann Arbor (1977–82) and the University of Wisconsin–Madison (1975–77).

His research and educational expertise is in design and manufacturing systems and processes. For more than 25 years DeVries was either the principal investigator or key technical resource for contracts and grants totaling \$3.5 million from government and industry sources.

DeVries has authored/co-authored numerous technical papers. His publications include two textbooks: "Analysis of Material Removal Processes" (Springer-Verlag, 1992); and "Microcomputer Applications in Manufacturing" (John Wiley and Sons, 1989), which he co-authored with Galip Ulsoy.

An ASME Fellow, DeVries is currently the Society's secretary and treasurer. Previously he served on the 12-person Board of Governors; and, as senior vice president of the Council for Engineering, led the team of volunteers and staff responsible for ASME's technical programs. He received an Outstanding Service Award from the Manufacturing Engineering Division in 1997, and the Society's Charles Russ Richards Memorial Award in 2005 and Dedicated Service Award in 2006.

DeVries is also a Fellow of the Society of Manufacturing Engineers (SME), where he was an international director, served on the board of directors, and was president (1997) of the North American Manufacturing Research Institution of SME. His other professional memberships include the American Society for Engineering Education and the Society of Women Engineers.

Among his honors, DeVries received SME's Outstanding Young Manufacturing Engineer award (1983), Albert M. Sargent Progress Award (2007) and University LEAD Award (1987); and a Distinguished Service citation (2004) from the University of Wisconsin–Madison's College of Engineering.

DeVries received his bachelor's degree in letters and engineering from Calvin College (Grand Rapids, Mich.) in 1971. He earned three degrees in mechanical engineering from UW–Madison: his bachelor's, with honors, in 1971; his master's in 1973; and his Ph.D., with minors in statistics, and electrical and computer engineering, in 1975.

ROBERT E. NICKELL

Conferral at the Honors Assembly, 2014 International Mechanical Engineering Congress and Exposition

ROBERT E. NICKELL, Ph.D., consultant, Applied Science & Technology, San Diego, for significant contributions to the development of finite element methods for assessing material fatigue in nuclear reactor pressure vessels and piping, and the development of detonation chambers for the disposal of chemical weapons.



Dr. Nickell has made significant contributions to the engineering profession throughout a career that is approaching five decades. Early on, he developed finite element software for the analysis of solid propellant rocket motors and related structural systems (Rohm & Haas Company, 1967-68), and did research on finite element analysis applied to fluid mechanics and dynamic buckling of structures subjected to explosive loadings (Bell Telephone Laboratories, 1968– 71; Brown University, 1971–73; and Sandia National Laboratories, 1973–77). Since 1977 he has been a private consultant through Applied Science & Technology in San Diego.

Beginning in the late 1980s, Nickell has been consulting for EPRI on technical issues related to

extending the operating lifetime of commercial nuclear power plants. In addition, he consults for the National Nuclear Security Administration on a wide variety of projects related to the technical maturity of technologies used in maintaining the U.S. nuclear weapons stockpile.

Nickell is currently providing consulting services to Kobe Steel, Ltd. on the design and operation of controlled detonation chambers for the destruction of chemical weapons; projects include Port Kanda in Japan (World War II weapons), Poelkapelle in Belgium (World War I weapons) and U.S. stockpile weapons. Through the law firm of Morgan, Lewis & Bockius LLP, he is providing technical expert services in the areas of environmental fatigue, embrittlement of reactor pressure vessel internals and nickel-alloy steam generator components related to Atomic Safety and Licensing Board license renewal hearings on Indian Point Units 2 and 3. Nickell is also providing consulting services, through Hopper Engineering Associates, on subsurface knife-edge corrosion of offshore oil and gas platforms in the Cook Inlet of Alaska. Among recently completed efforts, Nickell was a consultant for the California Public Utilities Commission on the San Bruno gas pipeline explosion.

He has authored/co-authored more than 100 papers in refereed journals, and is past technical editor of the ASME *Journal of Pressure Vessel Technology*.

An ASME Fellow, Nickell is currently serving his third term as chair of the ASME Pension Plan Trustees. He served on the Society's Board of Governors (1992–94), as the Society's 118th president (1999–2000), and as its secretary/treasurer (2001–04). He is past chair of the Pressure Vessels and Piping Division's Executive Committee (1979–80); and past chair of various Society boards, councils and committees. Nickell has also been involved in various Boiler and Pressure Vessel Code activities during the past 40 years. Until 2012 he was founding chair of the Task Group on Impulsively Loaded Vessel, which reports to the Working Group on High Pressure Vessels of Section VIII of the ASME Code. He was also the founding chair and continues as a member of the ASME Code Section III Subgroup NUPACK, which has developed rules for the construction of containment systems for nuclear spent fuel and high-level waste transport packaging. He also serves on the ASME Code Section XI Special Working Group on Nuclear Plant Aging Management for commercial nuclear power plants.

Nickell was elected to the National Academy of Engineering in 2007; and has served as secretary (2008–10), vice chair (2010–12) and chair (2012–14) of Section 10–Mechanical Engineering. He is also a Fellow of the American Association for the Advancement of Science; and a member of the American Society of Civil Engineers, the American Nuclear Society and ASTM International.

Among his other honors, Nickell received the Naval Structural Mechanics Award (1972) from the Office of Naval Research/American Institute of Aeronautics and Astronautics.

Nickell earned three degrees in engineering science from the University of California, Berkeley: his bachelor's degree in 1963, his master's degree in 1964 and his Ph.D. in 1967.

Honorary Membership

POL D. SPANOS

Conferral at the Honors Assembly, 2014 International Mechanical Engineering Congress and Exposition

POL D. SPANOS, P.E., Ph.D., L.B. Ryon endowed chair in engineering, Rice University, Houston, for seminal contributions to the dynamic analysis and design of diverse mechanical systems; for effective pedagogies that have advanced engineering education; and for achievements resulting from a resolute commitment to societal improvement through engineering innovation.

Dr. Spanos is one of the world's leading experts on the dynamics and vibrations of structural and mechanical systems. He joined the faculty at Rice University, Houston, in 1984. Since 1988 he holds the L.B. Ryon endowed chair in engineering. Previously he was on the faculty at The University of Texas at Austin (1977–84).

Spanos' emphasis in the area of dynamics and vibrations has been on probabilistic, nonlinear and signal-processing aspects, with applications to structural engineering, aerospace engineering, offshore engineering, biomechanics and composite materials. His research group has created sophisticated computational models that have been applied to diverse themes including vibration and aseismic protection of



structures and equipment; estimation of seismic spectra; wind loads simulation; vehicle and robot dynamics; certification of payloads in space shuttle and space station missions; flow-induced vibrations of offshore rigs, marine risers and pipelines; directional oil-well drilling; and signal processing for electrocardiograms, electroencephalograms and bone mechanics. His work has been supported by government entities including NASA, the National Science Foundation, the Department of Energy, the Office of Naval Research, the Air Force Office of Scientific Research and the Defense Advanced Research Projects Agency; and by industrial consortia.

He has supervised the theses of more than 80 master's students and the dissertations of more than 50 doctoral students, and he has provided postgraduation mentorship and support. An advocate of continuing education and training for practicing engineers, Spanos has organized and presented short courses worldwide.

Spanos is quite frequently involved in forensic engineering matters serving as master-of-the-court and technical expert for the federal courts.

He has published more than 300 technical papers in archival journals, conference proceedings and industrial reports; and has authored or edited 18 books. He is editor-in-chief of the *International Journal of Non-Linear Mechanics* and the *Journal of Probabilistic Engineering Mechanics*.

An ASME Fellow, Spanos served as secretary and chair of the Executive Committee of the Applied Mechanics Division, and was a reviewer and an associate editor for journals of several divisions. He has organized mini-symposia and technical sessions for countless meetings and conferences. He received the Society's Pi Tau Sigma Gold Medal in 1982, the Gustus L. Larson Memorial Award in 1991 and the Charles Russ Richards Memorial Award in 2012; and he was recognized for his contributions as a distinguished lecturer (1997–2003).

Spanos is also a Fellow of the American Society of Civil Engineers (ASCE), the American Academy of Mechanics, the Houston Philosophical Society and the Humboldt Association; a member of the National Academy of Engineering and the American Academy of Arts and Sciences; a foreign member of Academia Europae and the Indian National Academy of Engineering; and a corresponding member of the Academy of Athens, the National Academy of Greece.

His honors include the Alexander von Humboldt Foundation's Senior Research Award (1985); a coveted Chang Jiang chair at Tongji University, Shanghai, from the Chinese government (2013); Rice University's George R. Brown Award for Superior Teaching (1995 and 1996); and ASCE's Huber Research Prize (1989), Alfred M. Freudenthal Medal (1992), Nathan M. Newmark Medal (1999) and Theodore von Karman Medal (2003).

Spanos received his diploma in mechanical engineering and engineering science from the National Technical University of Athens, Greece, in 1973. He earned his master's degree in civil engineering (dynamics); and his Ph.D. in applied mechanics, with minors in applied mathematics and business economics, from the California Institute of Technology, Pasadena, in 1974 and 1976, respectively. He is a registered professional engineer in Texas, and a licensed mechanical engineer and civil engineer in Greece.

Barnett-Uzgiris Product Safety Design Award

DONALD S. BLOSWICK

Conferred at the International Design and Engineering Technical Conferences, Buffalo, N.Y., August 2014

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.

DONALD S. BLOSWICK, CPE, P.E., Ph.D., professor, The University of Utah, Salt Lake City, for significant contributions to safety and rehabilitation education and the mentoring of tomorrow's engineers through outstanding classroom teaching, highly supportive and productive advising, and the creation of various educational programs.

Barnett-Uzgiris Product Safety Design Award (cont.)

Dr. Bloswick is a professor in the department of mechanical engineering at The University of Utah, Salt Lake City, where he teaches and directs research in the areas of ergonomics, safety, occupational biomechanics and rehabilitation engineering. He is also director of The Ergonomics and Safety Program and Occupational Injury Prevention Research Program at The Rocky Mountain Center for Occupational and Environmental Health; and holds adjunct appointments in the university's department of family and preventive medicine, department of bioengineering, division of physical therapy and division of occupational therapy.



Bloswick is a registered professional engineer and certified professional ergonomist with 10 years of full-

time industrial experience prior to entering academia. For the past 30 years he has served as an ergonomic and safety trainer and consultant to industry, the Occupational Safety and Health Administration, and the legal community throughout the United States.

His research interests relate to industrial ergonomics, occupational biomechanics, rehabilitation ergonomics, and ergonomic applications and workplace designs for workers with disabilities. He is particularly interested in the design and development of safe and reliable rehabilitation and recreational systems for persons with disabilities.

Bloswick has co-authored 27 book chapters, more than 40 articles in referred journals and more than 80 papers in conference proceedings. He holds four patents relating to the design of rehabilitation and assist systems for persons with disabilities.

An ASME Fellow, Bloswick initially joined the Society as a student in 1968 and has been a member of the Utah Chapter since 1986.

Bloswick is a senior member of the Institute of Industrial Engineers; a member of the American Society for Engineering Education, American Society of Safety Engineers, International Society of Biomechanics, American Society of Biomechanics and the Human Factors and Ergonomics Society; and an associate member of the American Conference of Government Industrial Hygienists.

His honors include an Outstanding Teacher Award (2009) and Outstanding Patent Award (1997) from The University of Utah's College of Engineering, a Meritorious Achievement Award (2006) from the American Industrial Hygiene Association's Utah Section and the United Cerebral Palsy Association's Award for Contributions to Rehabilitation (1994).

Bloswick earned four degrees: a bachelor's degree in mechanical engineering from Michigan State University, East Lansing, in 1969; a master's degree in industrial engineering from Texas A&M University, College Station, in 1971; a master's degree in human relations from The University of Oklahoma, Norman, in 1978; and a Ph.D. in industrial and operations engineering from the University of Michigan, Ann Arbor, in 1986.

Bergles-Rohsenow Young Investigator Award in Heat Transfer

JONATHAN A. MALEN

Conferral at the Heat Transfer Luncheon, 2014 International Mechanical Engineering Congress and Exposition

THE BERGLES-ROHSENOW YOUNG INVESTIGATOR AWARD IN HEAT TRANS-FER, 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.

JONATHAN A. MALEN, Ph.D., assistant professor, Carnegie Mellon University, Pittsburgh, for the development of a new approach to studying thermal transport that experimentally identifies phonon mean free path dependent contributions to thermal conductivity in an effort to better understand size effects and non-Fourier thermal transport in nanomaterials and devices.



Dr. Malen joined the faculty at Carnegie Mellon University, Pittsburgh, as an assistant professor in July 2009. He has established an experimental research program on nanoscale thermal transport in energy conversion materials and an educational thrust in the fundamental physics that underlie the properties of matter.

Since the performance of solar cells, light-emitting diodes and thermoelectrics depends on operating temperatures and thermal transport properties, Malen's research group experimentally studies the nanoscale thermal transport properties of the energy conversion materials ranging from organic-inorganic hybrids to advanced semiconductors. The group is

interested in how interactions between phonons (lattice vibrations that carry heat), electrons and molecules contribute to macroscopic thermal transport; its objective is to contribute in the development of new materials and devices that improve energy conversion efficiency and better manage heat that is a damaging byproduct of operation.

A major activity in Malen's lab has been the development of instrumentation to measure thermal transport at the nanoscale. With novel materials now being designed at nanometer lengthscales to manipulate the transport of phonons, electrons and photons, textbook values of thermal conductivity and measurements based on macroscale instrumentation are no longer applicable. Hence, the group has developed a nondestructive laser-based method called frequency domain thermoreflectance (FDTR) that can resolve thermal conductivity of nanometer films and thermal resistance at interfaces that span just a few atoms. They have used highfidelity FDTR measurements paired with solid-state physics to explain the origins of thermal transport in a variety of advanced materials.

An ASME member, Malen has attended and presented at multiple ASME conferences, and chaired several sessions. He is a recent member of the Heat Transfer Division's K-9 Committee on Nanoscale Thermal Transport and helped organize the AIAA (American Institute of Aeronautics and Astronautics)/ASME Joint Conference on Thermophysics and Heat Transfer. In 2008 he received the Best Presentation award at ASME's Energy Nanotechnology International Conference.

Malen is also a member of the Materials Research Society and the American Physical Society, and he routinely participates in and chairs symposia for these communities.

His honors include a National Science Foundation CAREER Award (2012), the American Chemical Society Petroleum Research Fund's Doctoral New Investigator Award (2011), Young Investigator awards from the Air Force Office of Scientific (continued)

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

Research (2010) and Army Research Office (2014), a National Defense Science and Engineering Graduate fellowship (2005–08) and the University of Michigan's James B. Angell Scholar award (1999).

Malen received his bachelor's degree from the University of Michigan, Ann Arbor, in 2000; and his master's degree in nuclear engineering in 2003 from the Massachusetts Institute of Technology, Cambridge, where he studied transport at the macroscopic reactor scale under the advisory of Dr. Neil E. Todreas. He spent one year as an intern at the Lawrence Livermore National Laboratory, California (2003-04). In 2009 he earned his Ph.D. in mechanical engineering from the University of California, Berkeley under the co-advisory of Drs. Arun Majumdar and Rachel A. Segalman. He investigated thermoelectricity in single molecule junctions in an effort to learn more about electronic transport in molecular electronics and organic-inorganic hybrid materials.

Blackall Machine Tool and Gage Award

MINGYANG LI LIE TANG ROBERT G. LANDERS MING C. LEU

Conferred at the Manufacturing Science and Engineering Conference, Detroit, June 2014

THE BLACKALL MACHINE TOOL AND GAGE AWARD was established in 1954 for the best paper or papers clearly concerned with or related to the design or application of machine tools, gages or dimensional measuring instruments.

MINGYANG LI, graduate research assistant, department of mechanical and aerospace engineering, Missouri University of Science and Technology, Rolla; LIE TANG, Ph.D., control specialist, Quality Manufacturing Systems, Inc. (La Vergne, Tenn.); ROBERT G. LANDERS, Ph.D., professor of mechanical engineering, Missouri University of Science and Technology, Rolla; and MING C. LEU, Ph.D., Keith and Pat Bailey Missouri distinguished professor, department of mechanical and aerospace engineering, Missouri University of Science and Technology, Rolla, for the two-part paper titled "Extrusion Process Modeling for Aqueous-Based Ceramic Pastes–Part 1: Constitutive Model, and Part 2: Experimental Verification."

Mr. Li earned his bachelor's degree in thermal energy and power engineering from Tsinghua University, Beijing, in 2005. In 2009 he earned his master's degree in engineering thermal physics from Beijing Jiaotong University. While there, he worked on the boiler heating surface reform computation for the Wantan and Tuoketuo power plants; this project, which focused on reducing coal consumption and pollution, successfully helped the power companies save millions of dollars per year.

Li joined the Virtual Reality and Additive Manufacturing Laboratory at Missouri University of Science and Technology, Rolla, in the fall of 2010 as a Ph.D. candidate and graduate research assistant in the



department of mechanical and aerospace engineering. He is a member of the freezeform extrusion fabrication (FEF) group. His research, which is focused on the modeling and simulation of the FEF process, has advanced the knowledge on the physics of the dynamics of this additive manufacturing method. Li's current research on the heat transfer and freezing time in the FEF process will be helpful in developing a parts build strategy to reduce the fabrication time and increase dimensional accuracy.



Dr. Tang earned his Ph.D. in mechanical engineering from Missouri University of Science and Technology, Rolla, in 2009. His research interests include modeling and control of mechatronics systems, for example, electro-hydraulic systems, multi-axis computer numerical control machines and hydrogen fuel cells; and rapid prototyping processes such as laser metal deposition and ceramic freeze extrusion fabrication.

He has published more than 30 journal and conference papers, and two book chapters.

Tang is currently a control specialist at Quality Manufacturing Systems, Inc. (La Vergne, Tenn.). His major responsibilities include control system development for mail-order pharmacies and pharmacy automation system development.

Tang also holds a bachelor's degree and a master's degree in electrical engineering, earned in 2001 and 2005, respectively, from Hohai University (Nanjing, China).



Dr. Landers is currently a professor of mechanical engineering and associate chair for graduate affairs in the department of mechanical and aerospace engineering at Missouri University of Science and Technology (Missouri S&T), Rolla. He has been a member of the faculty since 2000.

His research and teaching interests are in the areas of modeling, analysis, monitoring and control of manufacturing processes (metal cutting, friction stir welding, laser metal deposition and freeze extrusion fabrication); control of alternative energy systems (hydrogen fuel cells and advanced batteries) and electro-hydraulic systems; and digital control applications.

Landers has been the principal investigator for research that has received more than \$2.5 million in

funding from the National Science Foundation, the U.S. Department of Energy, the Air Force Research Laboratory, the U.S. Department of Education, SME, the Missouri Research Board and various companies.

He has authored/co-authored more than 130 refereed technical publications including 54 journal articles and five book chapters.

An ASME Fellow, Landers currently is secretary of the Society's Dynamic Systems and Control Division (DSCD), serves on the Program Committee for the DSC Conference and is an associate editor of the *Journal of Manufacturing Science and Engineering*. He has served the DSCD and the Manufacturing Engineering Division in various capacities since 1997 and 2002, respectively. He was associate editor of the *Journal of Dynamic Systems, Measurement, and Control* (2009–12); and has been a reviewer for a number of ASME journals and conferences.

Landers is a senior member of IEEE and SME. He is also a member of the American Society for Engineering Education; the North American Manufacturing Research Institution; and Pi Tau Sigma, the International Mechanical Engineering Honor Society.

Among his honors are nine research and teaching awards from Missouri S&T including two Faculty Excellence awards (2005, 2007); and SME's M. Eugene Merchant Outstanding Young Manufacturing Engineer Award (2004).

Landers earned three degrees in mechanical engineering: his bachelor's from the University of Oklahoma, Norman, in 1990; his master's from Carnegie Mellon University, Pittsburgh, in 1992; and his Ph.D. from the University of Michigan, Ann Arbor, in 1997.

Dr. Leu is the Keith and Pat Bailey Missouri distinguished professor in the department of mechanical and aerospace engineering at Missouri University of Science and Technology (Missouri S&T), Rolla. He is also director of the Center for Aerospace Manufacturing Technologies and the Intelligent Systems Center at Missouri S&T.

Before joining Missouri S&T, Leu was program director for manufacturing processes and equipment (1996-99) at the National Science Foundation (NSF) in Arlington, Va. For this appointment he was on leave from the New Jersey Institute of Technology (NJIT), Newark, where he was state chair professor in manufacturing productivity since joining NJIT in 1987. Earlier Leu was on the faculty of the School of Mechani-



cal and Aerospace Engineering at Cornell University (Ithaca, N.Y.).

His research interests include computer-aided design/computer-aided manufacturing, geometric modeling, virtual prototyping, rapid prototyping and additive manufacturing.

He has authored more than 350 refereed publications in technical journals and conference proceedings, written nine book chapters and been granted four U.S. patents.

An ASME Fellow, Leu is Advisory Committee co-chair for the ASME/Institute of Systems, Control and Information Engineers' 2014 International Symposium on Flexible Automation (ISFA). He has served in leadership capacities for numerous conferences and symposia; and was vice president of manufacturing (1999–2002) and chair of the Manufacturing Engineering Division (1989–90). He received a Dedicated Service Award in 2004.

Leu is a Fellow of CIRP–The International Academy of Production Engineering. He is also a member of SME; the American Society for Engineering Education; Sigma Xi, the Scientific Research Society; Tau Beta Pi, the Engineering Honor Society; and the Honor Society of Phi Kappa Phi.

His honors include the South Sea Textile, Inc. Fellowship (1970–72) from National Taiwan University; the Earle C. Anthony Scholarship (1977–80) from the University of California, Berkeley; the Wood Award (1981) from the Forest Products Research Society; Ralph R. Teetor Education Award (1985) from SAE; the NSF's Presidential Young Investigator Award (1985), NJIT's Harlan J. Perlis Research Award (1993); the Computer and Automated Systems Association of SME's University Lead Award (1994); the Midwest Chinese American Science and Technology Association's Outstanding Scholar Award (2006) and ISFA's Hideo Hanafusa Outstanding Investigator Award (2008).

Leu earned three degrees in mechanical engineering: his bachelor's from National Taiwan University, Taipei, in 1972; his master's from The Pennsylvania State University, University Park, in 1977; and his Ph.D. from the University of California, Berkeley, in 1981.

Per Bruel Gold Medal for Noise Control and Acoustics

ANDREW N. NORRIS

Conferral at the President's Luncheon, 2014 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.

ANDREW N. NORRIS, Ph.D., distinguished professor, Rutgers University (Piscataway, N.J.), for pioneering theoretical and applied work in acoustic wave propagation and scattering, homogenization, poromechanics and acoustic cloaking that has led to the development of improved geologic exploration and acclaimed theoretical tools for the development of acoustic metamaterials.



Dr. Norris is an internationally recognized expert in the modeling of acoustic and elastic wave phenomena. During his 35-year research career he has worked on topics including ultrasonic nondestructive evaluation for detecting cracks, modeling of underground sound for geophysical prospecting and structural acoustics for naval applications; and he has provided consulting services to industry on acoustics and structural dynamics. Norris enjoys tackling problems that combine physics, engineering science, applied mathematics and numerical simulation. His current interests are in developing fundamental models for mechanical metamaterials that exhibit extraordinary wave bearing properties.

Norris is currently distinguished professor of mechanical and aerospace engineering in the School of Engineering at Rutgers University (Piscataway, N.J.). He joined the faculty at Rutgers in 1985, following postdoctoral positions at Northwestern University (Evanston, Ill.) and at Exxon Research and Engineering Co.'s Corporate Research Science Laboratories (Annandale, N.J.).

He has authored/co-authored more than 160 papers in refereed journals; is editorin-chief of the journal *Wave Motion*; and is a member of the board of editors of several journals including the *Journal of the Acoustical Society of America, Mathematics and Mechanics of Solids* and the *Journal of Elasticity*. He has given various invited talks including a plenary talk at PHONONICS 2011, the first International Conference on Phononic Crystals, Metamaterials and Optomechanics.

An ASME member, Norris has participated in the Society's International Mechanical Engineering Congress and Exposition. He received the Noise Control and Acoustics Division's Rayleigh Lecture Award in 2011.

Norris is a Fellow of the Acoustical Society of America and the Institute of Mathematics and Applications, and a member of the European Mechanics Society.

His honors include scholarships and prizes from University College, Dublin (1976, 1977); selection as a visiting scientist at the Laboratoire de Mécanique Physique, Université se Bordeaux, France (2008–13); and a number of fellowships including, most recently, a Fulbright Fellowship (2013).

Norris earned his bachelor's and master's degrees in mathematical physics from University College, Dublin, in 1977 and 1978, respectively. He earned his Ph.D. in engineering sciences and applied mathematics at Northwestern University in 1981.

JOHN W. CIPOLLA

Conferral at the Members and Students Luncheon, 2014 International Mechanical Engineering Congress and Exposition

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.

JOHN W. CIPOLLA, Ph.D., Donald W. Smith professor of mechanical engineering and College of Engineering distinguished professor, Northeastern University, Boston, for inspired leadership and devoted service in the activities of the ASME Center for Education including the Mechanical Engineering Department Heads Committee and the Committee on Engineering Accreditation; and for effective teaching, research and administration at the university level.

Dr. Cipolla received his bachelor's degree in mechanical engineering from Drexel University, Philadelphia, in 1965; and his master's degree and Ph.D. in engineering from Brown University (Providence, R.I.) in 1967 and 1970, respectively. He held a National Science Foundation postdoctoral fellowship at the University of Milan and spent a further postdoctoral year at the Max-Planck-Institut für Strömungsforschung (Göttingen, Germany) before joining the faculty at Northeastern University, Boston, in 1971.

At Northeastern, Cipolla was appointed chair of the department of mechanical engineering in 1991; he implemented the merger with the department of industrial engineering in 1995 and served as chair of the combined department until 2003, when he was



appointed vice provost for graduate education. Cipolla returned to the full-time teaching faculty in 2004 as Donald W. Smith professor of mechanical engineering; and, in 2007, he received the added appointment of College of Engineering distinguished professor.

Cipolla's research has been in the areas of the kinetic theory of gases and plasmas, radiative transfer and aerosol mechanics. He has published more than 30 journal articles and given nearly 40 conference presentations.

An ASME Fellow, Cipolla has been active in the Society, first as a student member at Drexel and later as faculty advisor to the Student Section at Northeastern. He served on the Society's General Awards Committee (chair 2000–03); the Committee on Honors (chair 2009–11); the Mechanical Engineering Department Heads Committee (secretary 2000–01, vice chair 2001–03 and chair 2003–04); and the Committee on Engineering Accreditation (secretary 2006, chair elect 2007–08 and chair 2008–09). He was also a member of the board of directors on Engineering Education (2003–05, 2007–09). He received a Dedicated Service Award in 2011.

Cipolla has been an ABET/mechanical engineering program evaluator since 2000 and currently serves on the organization's board of directors. He is a member of the American Society for Engineering Education and Sigma Xi, the Scientific Research Society.

Among his honors, Cipolla received the Carl R. Hurtig Distinguished Professor Award (2007) from Northeastern University's College of Engineering, and he was voted Outstanding ME Faculty Member by the mechanical engineering student body (1988 and 1990).

LALLIT ANAND

Conferral at the Applied Mechanics Dinner, 2014 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.

LALLIT ANAND, Ph.D., Warren and Towneley Rohsenow professor of mechanical engineering, Massachusetts Institute of Technology, Cambridge, for seminal contributions to the formulation of constitutive theories for the plastic response of a variety of engineering solids including polycrystalline metals, metallic glasses, glassy polymers and granular materials.



Dr. Anand is an alumnus of the Indian Institute of Technology (IIT), Kharagpur, where he earned his B.Tech. (Hons.) in mechanical engineering in 1970. After earning his master's degree and Ph.D. from Brown University (Providence, R.I.) in 1972 and 1975, respectively, he joined the United States Steel Corporation's Edgar C. Bain Laboratory for Fundamental Research (Monroeville, Pa.) and served as a research scientist until 1981.

Anand joined the faculty at the Massachusetts Institute of Technology (MIT), Cambridge, as an assistant professor in 1982, and he currently serves as the Warren and Towneley Rohsenow professor of mechanical engineering.

Previously he served as the head of the mechanics area at MIT (2008–13); was Aditya Birla chair and visiting professor in the department of mechanical engineering at the Indian Institute of Science, Bangalore (2012); and was the program director for the National Science Foundation's (NSF) Mechanics of Materials and Manufacturing Processes programs (1989–91).

Anand teaches subjects related to solid mechanics, mechanics of materials and continuum mechanics. His primary research has been in the area of plasticity, and he is widely known for his constitutive theories for the large deformation inelastic response of a variety of engineering solids.

He has published more than 100 archival journal papers, and he co-authored a book titled "The Mechanics and Thermodynamics of Continua" (Cambridge University Press, N.Y., 2010). He has served as a member of the board of editors of the *International Journal of Plasticity* since its inaugural publication in 1985. He previously served on the editorial board of *Computational Mechanics* (1991–2004).

An ASME Fellow, Anand served on the Executive Committee of the Applied Mechanics Division (1994–99, chair 1999). He was an associate editor of the *Journal of Engineering Materials and Technology* (1993–95).

Anand is a member of The Metallurgical Society of AIME (The American Institute of Mining, Metallurgical and Petroleum Engineers), ASM International, the Materials Research Society, the Society of Engineering Science and The American Academy of Mechanics.

His honors include an Outstanding Service Citation (1991) from the NSF, the Eric Reissner Medal (1992) from the International Society for Computational Engineering & Sciences, the Khan International Plasticity Medal (2007) from the *International Journal of Plasticity* and a Distinguished Alumnus Award (2011) from IIT, Kharagpur. The *International Journal of Plasticity* published a special issue in his honor in August 2010 (Volume 26, Issue 8).

William T. Ennor Manufacturing Technology Award

PLACID MATHEW FERREIRA

Conferral at the Members and Students Luncheon, 2014 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.

PLACID MATHEW FERREIRA, Ph.D., department head and Tungchao Julia Lu professor of mechanical science and engineering, University of Illinois at Urbana-Champaign, for innovations in precision machine tools and metrology that led to new software calibration and self-calibration techniques, and minimum zone tolerance verification methods; for novel parallel kinematic stages for micro and nanoscale applications, and novel processes for micro and nanoscale manufacturing; and for new provably correct and scalable algorithms for the control of flexibly automated manufacturing systems.

Dr. Ferreira joined the faculty at the University of Illinois at Urbana-Champaign in 1987 as an assistant professor in the department of mechanical and industrial engineering. He was promoted to associate professor in 1993 and professor in 1998; and, from 1999 to 2002, he was associate head for graduate programs. He was the Grayce Wicall Gauthier professor of mechanical science and engineering from 2003 to 2013.

Ferreira has been head of the department of mechanical science and engineering since 2009, after serving as director of the Center for Nanoscale Chemical-Electrical-Mechanical Manufacturing Systems (Nano-CEMMS), a National Science Foundation (NSF)-funded Nanoscale Science and Engineering Center. He was named the inaugural Tungchao Julia



Lu professor of mechanical science and engineering in 2014.

He has taught and developed courses in production planning and control, computer-aided manufacturing, numerical control and programmable automation, advanced manufacturing planning and nanoscale manufacturing. He has mentored around 50 master's and 15 Ph.D. students who have gone on to successful careers in industry, research or academe.

Ferreira has made noteworthy contributions in multiple manufacturing technology areas including precision metrology and machine tools, novel kinematic stages for micro and nanoscale manufacturing applications, micro and nano fabrication, and manufacturing systems modeling and control. His work continues to produce significant economic benefits in the industrial setting.

He is the co-founder of SFM Technology (www.sfmtech.com), a startup that creates productivity-enhancing, enterprise-level, engineering design automation and integration tools for the electronics industry.

Ferreira has published about 100 articles in peer-reviewed journals and an additional 60 papers in leading conference proceedings, and he has given several keynote and plenary lectures. He holds five patents, with three pending.

An ASME Fellow, Ferreira has been a reviewer for the *Journal of Manufacturing Science and Engineering*. He organized a symposium and co-edited a volume on "Accuracy, Dynamics and Control of Machine Tools" in 1990.

Ferreira is also a Fellow of the Society of Manufacturing Engineers (SME) and a senior member of the North American Manufacturing Research Institution (NAMRI) of SME. *(continued)*

William T. Ennor Manufacturing Technology Award (cont.)

His honors include Engineering Council awards for Excellence in Advising (1997 and 2008) and the Anderson Consulting Award for Excellence in Advising (1990) from Illinois' College of Engineering; NAMRI/SME's Outstanding Paper Award (first runner-up) at the 2012 Conference; a NSF Presidential Young Investigator Award (1991); SME's Outstanding Young Manufacturing Engineer Award (1990); and various merit scholarships and certificates for academics in India.

Ferreira earned his B.E. in mechanical engineering (honors, distinction and rank) at Bombay University, India, in 1980; his M.Tech. in mechanical engineering at the Indian Institute of Technology, Bombay, in 1982; and his Ph.D. in industrial engineering at Purdue University (West Lafayette, Ind.) in 1987.

Nancy DeLoye Fitzroy and Roland V. Fitzroy Medal

XIANG ZHANG

Conferral at the Honors Assembly, 2014 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.

XIANG ZHANG, Ph.D., Ernest S. Kuh endowed chair professor, University of California, Berkeley, for pioneering contributions in metamaterials and the creation of the first optical superlens to overcome the fundamental diffraction limit in imaging; and for the invention of plasmonic lithography technology to advance nanoscale manufacturing, which is important for microelectronics and data storage applications.



A distinguished researcher, Dr. Zhang is a pioneer in metamaterials and a world leader in nanomanufacturing.

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

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). Earlier he was an assistant professor at The Pennsyl-

vania State University, University Park (1996–99).

Zhang's transformative research in optical meta-materials, nano-optics and photonics has had a profound impact on optical science and technology. His 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.

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

Zhang 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 composite, 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.

Zhang's research has been frequently featured by international media including BBC, CNN, ABC, *The New York Times* and *The Wall Street Journal*. In 2008 *Time* magazine selected his negative refraction breakthrough as one of the Top 10 Scientific Discoveries and one of the Best 50 Inventions of 2008. The superlens was among *Discover* magazine's Top 100 Science Stories of 2007 and *R&D Magazine*'s Top 25 Most Innovative Products of 2006.

Zhang has authored/co-authored more than 240 journal papers including over 30 in *Science* and *Nature* series; and he has given more than 270 keynote, plenary and invited talks at international conferences and institutions.

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.

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 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 CAREER Award (1997) from the NSF, and a Young Investigator Award (1999) from the Office of Naval Research. 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.

EFSTATHIOS E. MICHAELIDES

Conferred at the Fluids Engineering Division Summer Meeting, Chicago, August 2014

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.

EFSTATHIOS E. MICHAELIDES, P.E., Ph.D., W.A. Tex Moncrief chair of engineering, Texas Christian University, Fort Worth, for pioneering analytical and numerical work on the transient flow and transient convection of particles, bubbles and drops; and for communicating those results to the multiphase flow community through highly regarded publications.



Dr. Michaelides is the W.A. Tex Moncrief chair of engineering at Texas Christian University, Fort Worth. Previously he was chair of the department of mechanical engineering at The University of Texas at San Antonio (2007-11), where he also held the Robert F. McDermott distinguished chair in engineering and was the director of the National Science Foundationsupported Center on Simulation, Visualization and Real Time Computing.

Earlier he was the founding chair of the department of mechanical and energy engineering at the University of North Texas, Denton (2006–07); and the Leo S. Weil professor of mechanical engineering (1998–2007), director of the South-Central Regional Center of the National Institute for Global Environmental Change

(2002–07), associate dean for graduate studies and research in the School of Engineering (1992–2003) and head of the mechanical engineering department (1990–92) at Tulane University, New Orleans. Between 1980 and 1989 he was on the faculty of the University of Delaware, Newark, where he also served as acting chair of the mechanical engineering department (1985–87).

Michaelides has published more than 130 journal articles in the field of transient flow and transient convection of particles, bubbles and drops; and he has presented more than 150 papers at engineering conferences. His book titled "Particles, Bubbles and Drops–Their Motion, Heat and Mass Transfer" (World Scientific Publishers, N.J., 2006) is often cited by researchers in this field. He holds one patent.

He was elected to the governing board (1998–2004) for the International Conference on Multiphase Flows (ICMF). He chaired the 4th ICMF, held in New Orleans in 2001, and was vice chair of the 5th ICMF, held in Yokohama, Japan, in 2004.

An ASME Fellow, Michaelides has been a member of the Fluids Engineering Division's (FED) advisory board since 2007. He previously served as chair of the FED (2005–06) and as a member of the Executive Committee (2002–07); chair of the Multiphase Flow Technical Committee (1996–98) and associate technical editor of the *Journal of Fluids Engineering* (1987–93). He has edited/co-edited 17 ASME conference proceeding volumes. He received the Freeman Scholar Award in 2002.

Michaelides is a member of the American Institute of Aeronautics and Astronautics, the American Institute of Physics and the American Society for Engineering Education (ASEE). He served as president of the ASEE-Gulf-South Region (1992–93).

His honors include Tulane University's Pi Tau Sigma/ASME Excellence in Teaching awards (1991, 2001 and 2004) and Outstanding Research Award (2003), the Society of Tulane Engineers' Excellence in Teaching Award (1995) and ASEE's Centennial

Award (1993); and he was a lecturer at the von Karman Institute for Fluid Dynamics, Belgium (2003).

Michaelides earned his bachelor's degree in engineering and economics from Oxford University, U.K., in 1977; and his M.S. and Ph.D. in engineering from Brown University (Providence, R.I.) in 1979 and 1980, respectively. He received an honorary M.A. degree from Oxford University in 1983. Michaelides is a registered professional engineer in Louisiana and Texas.

Freeman Scholar Award

STEVEN CECCIO

Conferred at the Fluids Engineering Division Summer Meeting, Chicago, August 2014

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

STEVEN CECCIO, Ph.D., chair, naval architecture and marine engineering; and professor, naval architecture and marine engineering, mechanical engineering and applied mechanics, University of Michigan, Ann Arbor, *for the paper titled "Skin Friction Reduction in External Flows."*

Dr. Ceccio is the chair of naval architecture and marine engineering; and a professor of naval architecture and marine engineering, mechanical engineering and applied mechanics at the University of Michigan (U-M), Ann Arbor. He is also the director of the Naval Engineering Education Center, which is supported by the Naval Sea Systems Command.

Ceccio joined the faculty at U-M as an assistant professor in mechanical engineering in 1990 after completing postdoctoral studies at the California Institute of Technology, Pasadena. He was promoted to associate professor, with tenure, in 1996 and professor in 2003. He served as an associate vice president for research at U-M from 2004 to 2009.

His research focuses on the fluid mechanics of

multiphase flows and high Reynolds number flows and includes flows in propulsors and turbomachinery; cavitating flows; vertical flows; friction drag reduction; the dynamics of liquid-gas, gas-solid and three-phase disperse flows; and the development of flow diagnostics. He has served as a consultant to government and industry.

Ceccio has led the nation's research initiatives into skin-friction drag reduction in external flows through fundamental and unique experimental studies of wallbounded turbulent flows to determine if and how laboratory-scale results can be extended to ocean-ship Reynolds numbers and length scales.

His publications include more than 90 papers in archival journals, more than 100 papers in refereed conference proceedings and three book chapters. He holds one patent.

An ASME Fellow, Ceccio has been a member of the Fluids Engineering Division's (FED's) Multiphase Flow Committee since 1992; he served as vice chair (1997–2000)



and chair (2000–02). He was a member of the FED's Awards Committee (2003–05), co-organizer/lead organizer for various symposiums between 1995 and 2005, and an associate editor of the *Journal of Fluids Engineering* (2002–05, 2006–10).

Ceccio is also a Fellow of the American Physical Society, and a member of the Society of Naval Architects and Marine Engineers and the American Society for Engineering Education.

Among his honors are a Department of Energy Young Scientist and Engineer Award–Defense Programs (1996), a U-M Teaching Award (1994) and various fellow-ships (1985-89).

Čeccio earned three degrees in mechanical engineering: his bachelor's degree, summa cum laude, from U-M in 1985; and his master's degree and Ph.D. from the California Institute of Technology in 1986 and 1990, respectively.

Y.C. Fung Young Investigator Award

W. DAVID MERRYMAN

Conferred at the Summer Bioengineering Conference, Boston, July 2014

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.

W. DAVID MERRYMAN, Ph.D., assistant professor of biomedical engineering, pharmacology, medicine and pediatrics, Vanderbilt University (Nashville, Tenn.), for singular achievements in the study of heart valve mechanobiology, in the teaching of biomechanics, and through tireless service to the profession including the ASME Bioengineering Division.



Dr. Merryman is an assistant professor in the departments of biomedical engineering, pharmacology, medicine and pediatrics at Vanderbilt University (Nashville, Tenn.). Since 2010, he has been serving as director of graduate recruiting for the department of biomedical engineering.

His laboratory has four areas of research focus – mechanobiology, GPCR (G protein-coupled receptor) targeted drug strategies, percutaneous interventions and mechanically tunable biomaterials – with the primary goals to elucidate the mechanisms leading to multiple cardiovascular diseases and to develop nonsurgical strategies to prevent or treat them, with particular focus on heart valves.

Previously Merryman was an assistant professor of biomedical engineering at The University of Alabama at Birmingham (2007–09). Earlier he was a research associate at the McGowan Institute for Regenerative Medicine and department of bioengineering at the University of Pittsburgh (2003–07), where he was an American Heart Association (AHA) predoctoral fellow.

Merryman is an active grant reviewer for the AHA, the National Science Foundation (NSF) and the National Institutes of Health (NIH); and he serves on the editorial board of the *Journal of Biomechanics* and *Future Cardiology*. He has authored/

co-authored 40 journal publications and two book chapters, and has given a number of invited talks including a talk on technologies for the heart at the National Academy of Engineering's (NAE's) 2014 US Frontiers of Engineering (USFOE) Symposium. He is co-inventor on three U.S. patents.

An ASME member, Merryman is a member of the Bioengineering Division's Solids Committee, and Cell and Tissue Committee. His active involvement in the Summer Bioengineering Conference (SBC) includes serving as theme leader for cardiovascular solid mechanics (2010–13); co-chairing conference sessions (2008–12); and giving 19 podium and four poster presentations since 2003. He earned Student Paper awards (third place) at the SBC in 2003 and 2008.

His honors include a CAREER Award (2011) from the NSF, a K25 Career Award (2008) from the NIH, a Scientist Development Grant (2008) from the AHA and an Early Career Award (2008) from the Wallace H. Coulter Foundation. He was an invited participant at the NAE's USFOE Symposium (2012) and the NIH National Graduate Student Research Festival (2006).

Merryman earned his bachelor's and master's degrees in engineering science from the University of Tennessee, Knoxville, in 2001 and 2002, respectively. He earned his Ph.D. in bioengineering from the University of Pittsburgh in 2007.

Gas Turbine Award

GRAHAM PULLAN ANNA M. YOUNG IVOR J. DAY EDWARD M. GREITZER ZOLTAN S. SPAKOVSZKY

Conferred at the ASME Turbo Expo 2014, Düsseldorf, Germany, June 2014

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.

GRAHAM PULLAN, Ph.D., MHI senior lecturer in turbomachinery, Whittle Laboratory, University of Cambridge, U.K.; ANNA M. YOUNG, Ph.D., Maudslay-Butler research fellow, Whittle Laboratory, University of Cambridge, U.K.; IVOR J. DAY, CEng, Ph.D., senior Rolls-Royce research fellow, Whittle Laboratory, University of Cambridge, U.K.; EDWARD M. GREITZER, Ph.D., H.N. Slater professor of aeronautics and astronautics, Massachusetts Institute of Technology, Cambridge; and ZOLTAN S. SPAKOVSZKY, Ph.D., professor of aeronautics, and astronautics, and Structure of Spike-Type Rotating Stall."

Dr. Pullan is MHI senior lecturer in turbomachinery at the Whittle Laboratory at the University of Cambridge, U.K. Since 2001, he is a fellow in engineering at Trinity Hall (Cambridge, U.K.).

Earlier Pullan was MHI lecturer in turbomachinery (2008–12) and Rolls-Royce turbine research fellow (2001–08) at the Whittle Laboratory; and he spent six months as a visiting associate professor at the Gas Turbine Laboratory at the Massachusetts Institute of Technology, Cambridge (2011).

His research interests are the aerodynamic design of turbomachinery and the development of computational tools, particularly accelerated computational fluid dynamics, to enhance the design process.



Pullan has been a session organizer for ASME Turbo Expo since 2004, and he served as vanguard chair in 2012 and 2013. He received Best Paper awards from the ASME IGTI's Turbomachinery Committee in 2011 and 2012.

His other honors include the 2013 Rolls-Royce Howse and Ruffles Award for Best Doctorate Paper.

Pullan earned his master of engineering degree and Ph.D. in engineering at the University of Cambridge in 1997 and 2001, respectively.



Dr. Young earned her master of engineering degree with honors from the University of Cambridge, U.K., in 2008. She completed her Ph.D. work on axial compressor stall in June 2012 under the supervision of Dr. Ivor J. Day.

Young is now the Maudslay-Butler research fellow at the University of Cambridge's Whittle Laboratory. Her current research is in two areas: the effect of tip-clearance on compressor performance and tidal power generation.

She is also a visiting scholar (2014) at Purdue University (West Lafayette, Ind.), where she works with Dr. Nicole Key on research sponsored by Rolls-Royce. Her honors include Best Paper awards from the

ASME IGTI's Turbomachinery Committee in 2011 and

2012, and the 2013 Rolls-Royce Howse and Ruffles Award for Best Doctorate Paper.



Dr. Day received his Ph.D. from the University of Cambridge, U.K., in 1976. After working in industry for 11 years, he returned to the Whittle Laboratory as a senior research fellow funded by Rolls-Royce.

Apart from the supervision of Ph.D. students, Day's work is predominantly experimental, with a focus on problems that are not yet amenable to computational fluid dynamics analysis. His work has covered such subjects as stall and surge in axial compressors, unsteady combustion, and rain ingestion and ejection in aeroengines.

Day has authored/co-authored articles for various publications and holds many patents.

A Fellow of ASME, Day is a member of the ASME IGTI's Turbomachinery Committee. He is the recipi-

ent of the Society's Gas Turbine Award for 1977, 1991, 1997, 2004 and 2005; the 2004 IGTI John P. Davis Award; and several IGTI Turbomachinery Committee Best Paper awards.

Day is also a Fellow of the Royal Academy of Engineering and the Institution of Mechanical Engineers. His other honors include the 2006 Rolls-Royce Sir Henry Royce Award for Technical Innovation and the 2013 Rolls-Royce Howse and Ruffles Award for Best Doctorate Paper.

In addition to his Ph.D., Day holds a bachelor's degree and a master's degree in mechanical engineering from the University of Natal, South Africa, earned in 1970 and 1972, respectively. He is a chartered engineer in the U.K. *(continued)*

Gas Turbine Award (cont.)

Dr. Greitzer is the H.N. Slater professor at the Massachusetts Institute of Technology (MIT), Cambridge, where he has served as director of the Gas Turbine Laboratory (1984–96), and associate head (1996–2002) and deputy head (2006–08) of the department of aeronautics and astronautics.

Prior to joining MIT in 1977, he was with the Pratt & Whitney Division of United Technologies Corporation (East Hartford, Conn.) and, more recently, was director of aeromechanical, chemical and fluid systems at United Technologies Research Center. As a three-time overseas fellow at the University of Cambridge, U.K., Greitzer has helped foster the longstanding collaboration between Cambridge and MIT.



His research interests include gas turbines, turbo-

machinery, aircraft-propulsion system integration, active control of fluid systems, vortex flows, and industry-university collaboration.

He has authored approximately 80 papers and is lead author of the book "Internal Flow: Concepts and Applications" (Cambridge University Press, 2007).

An ASME Fellow, Greitzer served on the ASME IGTI board of directors (1993–98, chair 1996–97). He also served as chair of IGTI's Turbomachinery Committee (1989–91), Honors and Awards Committee (2006-08) and Scholar Award Review Committee (1989–93, 2013). Greitzer is the recipient of ASME's Gas Turbine Award for 1975, 1977 and 1994; the 1980 Freeman Scholar Award; and the 2005 R. Tom Sawyer Award. He also received IGTI's Aircraft Engine Technology Award in 1995 and Scholar Award in 2007, as well as several Best Paper awards.

Greitzer is an Honorary Fellow of the American Institute of Aeronautics and Astronautics, a member of the National Academy of Engineering and an International Fellow of the Royal Academy of Engineering.

Among his other recognitions, Greitzer is an honorary professor at Beihang University, Beijing; and the recipient of MIT's Everett Moore Baker Memorial Teaching Award (2012) and the U.S. Air Force Exceptional Civilian Service Award (1996).

Greitzer earned his bachelor's degree in physics, master's degree in engineering and Ph.D. in mechanical engineering at Harvard University (Cambridge, Mass.) in 1962, 1964 and 1970, respectively.

Dr. Spakovszky is professor of aeronautics and astronautics, and director of the Gas Turbine Laboratory at the Massachusetts Institute of Technology (MIT), Cambridge. He is also a technical consultant to industry and government agencies.

His principal fields of interest include internal flows in turbomachinery, compressor aerodynamics and stability, dynamic system modeling of aircraft gas turbine engines, microscale gas bearing dynamics and aeroacoustics. He currently directs analytical and experimental research in these areas, and teaches graduate and undergraduate courses in thermodynamics, propulsion and fluid mechanics, and aeroacoustics.

An ASME Fellow, Spakovszky served as chair of the ASME IGTI Turbomachinery Committee and as an



associate editor for ASME's *Journal of Turbomachinery*. He has been a reviewer for the *Journal of Turbomachinery* and the *Journal of Tribology*, and a reviewer and session organizer for ASME Turbo Expo. The author/co-author of a large number of technical papers in refereed journals, Spakovszky has been awarded seven ASME IGTI Best Paper awards between 2000 and 2012, and the Society's Melville Medal in 2003.

Spakovszky is a member of the American Institute of Aeronautics and Astronautics, the American Society for Engineering Education and Sigma Xi.

His honors include the Ruth and Joel Spira Award for Excellence in Teaching (2009) from MIT's School of Engineering and several advising/teaching awards (2003, 2005 and 2008) from the department of aeronautics and astronautics; a NASA Group Achievement Award (2003); and ETH Zurich's Georg A Fischer Prize (1997).

Spakovszky received his Dipl. Ing. in mechanical engineering from ETH Zurich in 1997. He earned his master's and Ph.D. degrees in aeronautics and astronautics from MIT in 1999 and 2000, respectively.

Kate Gleason Award

URSULA M. BURNS

Conferral at the Honors Assembly, 2014 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.

URSULA M. BURNS, chairman and chief executive officer, Xerox (Norwalk, Conn.), for outstanding engineering and business leadership, and a distinguished career culminating in achieving the distinction of being the first black woman to lead a major U.S. corporation.



When Ms. Burns joined Xerox in 1980 as a mechanical engineering summer intern, the company was a leader in the global photocopying market. As she later assumed roles in product development and planning, Xerox was securing its leadership position in digital document technologies. From 1992 to 2000, Burns, at a pivotal point in the company's history, led several business teams including the company's color business and office network printing business.

In 2000 Burns was named senior vice president, Corporate Strategic Services, heading up manufacturing and supply chain operations. Alongside then-CEO Anne Mulcahy, Burns worked to restructure Xerox through its turnaround to emerge as a leader in color technology and document services. A key factor in the

company's evolution was its research and development of new products and technologies, and at the time Burns was responsible for leading global research as well as product development, marketing and delivery. In April 2007 Burns was named president of Xerox, expanding her leadership to also include the company's information technology organization, corporate strategy, human resources, corporate marketing and global accounts. At that time she was also elected a member of the company's board of directors.

Burns was named CEO in July 2009 and, shortly after, made the largest acquisition in Xerox history — the \$6.4 billion purchase of Affiliated Computer Services, catapulting the company's presence in the \$500 billion business services market and extending the company's reach into diverse areas of business process and IT outsourcing. On May 20, 2010, Burns became chairman of Xerox.

In addition to the Xerox board, Burns is a board director of American Express Corporation and Exxon Mobil Corporation. She also provides leadership counsel to community, educational and nonprofit organizations including FIRST (For Inspiration and Recognition of Science and Technology), the National Academy Foundation, the Massachusetts Institute of Technology and the U.S. Olympic Committee. She is a founding board director of Change the Equation, which focuses on improving the U.S. education system in science, technology, engineering and mathematics (STEM). In March 2010 President Barack Obama appointed Burns vice chair of the President's Export Council.

Among her extensive list of honors, Burns recently was recognized among *Savoy Magazine*'s Top 100 Most Influential Blacks in Corporate America (2014); was elected to the National Academy of Engineering (2013); received an i²e Leadership Award (2013) from Polytechnic Institute of New York University (NYU) and received a Lifetime Achievement Award from the Minority Corporate Counsel Association (2013). She has been recognized multiple times on *FORTUNE* magazine's list of the 50 Most Powerful Women in Business, *Forbes* magazine's list of 100 Women Who Run the World, CRN's list of the 25 Most Influential Executives as well as other prestigious listings/rankings.

Burns earned her bachelor's degree in mechanical engineering from Polytechnic Institute of NYU in 1980. In 1982 she earned her master's degree in mechanical engineering from Columbia University, New York. She received honorary degrees from several universities including a degree of Doctor of Commercial Science, honoris causa, from NYU (2010).

Melvin R. Green Codes and Standards Medal

JAMES W. COAKER

Conferral at the Honors Assembly, 2014 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 W. COAKER, P.E., principal, COAKER & CO., P.C. (Fairfax Station, Va.), for outstanding contributions in promoting the acceptance of ASME standards worldwide through personal engagement with key stakeholders, publications in industry journals, and professional development programs; and for leadership in the development of performance standards that facilitate the incorporation of new technology and encourage innovative engineering solutions.

After earning his bachelor's degree in 1968, Mr. Coaker spent four years on active duty in the U.S. Navy as a propulsion engineer, with shipboard tours in Vietnam and the Mediterranean. He continued his affiliation with the U.S. Naval Reserve and retired in 1998 at the rank of captain (engineering duty).

Upon completion of his active naval duty, Coaker worked in pump and condenser application engineering before joining a plate steel design/fabrication company (tanks, pressure vessels, heat exchangers and piping systems for nuclear and fossil

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



fuel utilities, the chemical and process industry, and fluid storage), where he progressed to chief engineer.

In 1987 Coaker joined the design and construction staff of the United States Postal Service (USPS) headquarters in Washington, D.C., where he was responsible for national inspection and safety of boilers, elevators, escalators and compressed air systems. During his last year with USPS he served as a senior contracting officer for design and construction.

Following his retirement from USPS in 2001, Coaker entered private practice as principal of COAKER & CO., P.C. (Fairfax Station, Va.), an engineering consultant practice dedicated to supporting accident investigation and litigation involving elevator and escalator cases, and education in standards application.

Coaker has presented papers at various conferences, and is a contributing author to ELEVATOR WORLD magazine and NAESA (National Association of Elevator Safety Authorities) International's Progress e-newsletter. He has also shared his vast knowledge and experiences through professional development programs and speaking engagements.

An ASME Fellow, Coaker is chair of the Committee on Finance and Investment, and serves on the Board on Safety Codes and Standards. He has been a member of the A17.1 Standards Committee for Safety Code for Elevators and Escalators since 1991; and serves on the New Technology Committee, the A17.2 Inspectors' Guide Committee, the A17 QEI (Qualification of Elevator Inspectors) Committee and the A17 International Standards TAG (Technical Advisory Group). Coaker served on the Council of Codes and Standards (1996–2005), the Board of Governors (2005–08), the board of directors of ASME Foundation (2008–14) and as chair of the Events Committee (2011–13). He is past chair of the National Plant Engineering and Maintenance Division. He has also contributed to the Society as an author, editor and presenter. He received a Dedicated Service Award from the ASME Board on Professional Development; and, in 2010, received the Society's Safety Codes and Standards Medal.

Coaker is a member of the International Association of Elevator Engineers and NAESA International.

Among his honors, Coaker received USPS' Special Achievement awards (1989, 1992 and 1996), and he was recognized by the National Society of Professional Engineers as USPS Professional Engineer of the Year (1991).

Coaker earned his bachelor's degree in mechanical engineering from Lafayette College (Easton, Pa.) in 1968; and his master's degree in business from Virginia Commonwealth University, Richmond, in 1976. He is a registered professional engineer in Virginia.

JACOB NAN-CHU CHUNG – ART XIANFAN XU – GENERAL KENNETH E. GOODSON– SCIENCE

Conferral at the Heat Transfer Luncheon, 2014 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

JACOB NAN-CHU CHUNG, P.E., Ph.D., Andres H. Hines Jr./Progress Energy eminent scholar chair professor, University of Florida, Gainesville, for pioneering and seminal contributions to the science and engineering of heat transfer and phase-change of droplets and bubbles, transition in heated flows, microgravity and nano to microscale boiling fundamentals, thermal transport in the synthesis of nanocluster materials, space cryogenic boiling heat transfer and fuel cell thermal transport modeling.

Dr. Chung is currently the Andrew H. Hines Jr./Progress Energy eminent scholar chair professor at the University of Florida (UF), Gainesville. He joined UF in 1998 after 19 years on the faculty at Washington State University (WSU), Pullman. Chung's prior experience includes working in industry for six years as a nuclear reactor safety engineer before pursuing his doctoral degree in mechanical engineering.

His research activities have been in the general areas of fluid mechanics and heat transfer with a special focus on bubble dynamics, phase change heat transfer, multiphase flows, microgravity boiling, turbulence in heated flows, microscale thermal transport, cryogenic heat transfer, fuel cell thermal transport, and biomass conversion to energy. He has served as a



technical consultant to the Battelle/Pacific Northwest National Laboratory and the Hewlett-Packard Company.

Chung is co-author of a book titled "Transport Phenomena With Drops and Bubbles." He has authored/co-authored more than 160 archival journal papers.

An ASME Fellow, Chung has been a member of the Heat Transfer Division's (HTD's) K-11 Committee on Heat Transfer in Fire and Combustion Systems since 1985 and formerly served on the K-19 Committee on Environmental Heat Transfer. He is a member of the Microelectromechanical Systems Division. Since 1985 Chung has served as co-chair/chair, organizer and track/session/panel chair for various symposiums and conferences. Most recently, he was organizer and track chair for micro/nanoscale boiling and condensation at the Micro/Nanoscale Heat and Mass Transfer International Conference in 2012 and 2013. He received the HTD's *Journal of Heat Transfer*, Fluids, Energy and Nano Conference.

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

His honors include the WSU College of Engineering's Research Excellence Award (1988) and School of Mechanical and Materials Engineering Research Excellence Award (1994 and 1995); AIAA's Distinguished Leadership and Service Award (1995); and the UF College of Engineering's Doctoral Dissertation Advisor/Mentoring Award (2008).

Chung earned his bachelor's degree in nuclear engineering from the National Tsing Hua University, Taiwan, in 1970; his master's degree in nuclear engineering from the University of Missouri, Colombia, in 1973; and his Ph.D. in mechanical engineering from the University of Pennsylvania, Philadelphia, in 1979. He is a registered professional engineer in Pennsylvania.

GENERAL

XIANFAN XU, Ph.D., James J. and Carol L. Shuttleworth professor of mechanical engineering, Purdue University (West Lafayette, Ind.), for pioneering theoretical and experimental research on heat transfer in nanoscale materials, microsystems, and materials processing and manufacturing; and on fundamentals of nanoscale radiation and its application to material processing and manufacturing.



Dr. Xu joined the faculty at Purdue University (West Lafayette, Ind.) in 1994 and is currently the James J. and Carol L. Shuttleworth professor of mechanical engineering. His current research is focused on heat transfer in nanoscale materials, heat transfer in micro and fundamentals of nanoscale radiation and its application in nanoscale materials processing and manufacturing, and fundamentals of nanoscale radiation and its application in nanoscale materials processing and manufacturing. His group develops advanced experimental techniques for investigating ultrafast dynamics of energy conversion processes. His work on laser processing and manufacturing has contributed to the fundamental understanding of heat transfer processes during laser-matter interactions and the development of new laser manufacturing technologies. He has made significant contri-

butions to both fundamental engineering science and engineering applications of nanoscale radiation, including new data storage technologies.

In recent years Xu has led and participated in many large scale research projects including National Science Foundation (NSF)/Department of Energy projects on thermoelectrics for waste heat recovery; NSF projects on nanoscale radiation and applications in nanomanufacturing; and Defense Advanced Research Projects Agency projects on nanoscale radiation for nanomaterials synthesis, nanoscale thermal interface materials and thermoelectric materials for energy harvesting.

Xu has supervised 71 Ph.D. and M.S. students, postdoctoral researchers and visiting scholars. He has written about 400 publications including more than 140 archival journal papers, six book chapters, and many conference papers and technical reports; and he has given over 100 invited talks worldwide.

An ASME Fellow, Xu has given many technical presentations at Society conferences and authored/co-authored numerous articles for ASME journals. He has contributed extensively as a member of the Technical Committee (2008, 2009, 2012 and 2013) and as track chair–ultrafast diagnostics (2009, 2012) for the Micro/Nanoscale Heat and Mass Transfer International Conference. At various conferences, including the International Mechanical Engineering Congress and Exposition, he has served as co-chair/chair of technical sessions on topics including transport phenomena in laser and plasma processing, transport phenomena in micro and nanoscale manufacturing, nano/microscale radiative energy transfer, ultrafast micro and nano processing, and laser-materials interactions at nanoscale.

Xu is also a Fellow of SPIE, the International Society for Optics and Photonics; and a member of the Optical Society of America.

His honors include a Faculty CAREER Award (1996) from the NSF, GM Faculty Fellowships (1995 and 1996), a Young Investigator Award (2000) from the Office of Naval Research, and Purdue University's B.F.S. Schaefer Young Faculty Scholar

Award (2002) and School of Mechanical Engineering Discovery in Mechanical Engineering Award (2009).

Xu earned his B. Eng. in engineering thermophysics from the University of Science and Technology of China, Hefei, in 1989. He earned his master's degree and Ph.D. in mechanical engineering from the University of California, Berkeley, in 1991 and 1994, respectively.

SCIENCE

KENNETH E. GOODSON, Ph.D., Robert Bosch chairman of the mechanical engineering department and Davies family provostial professor, Stanford University, California, for seminal contributions to the science and technology of phonon and electron transport and scattering in films and nanostructures through publications, lectures, short courses and mentoring of the next generation of university thermal science faculty.

Dr. Goodson joined the faculty at Stanford University, California, in 1994 and is currently the Robert Bosch chairman of the mechanical engineering department and Davies family provostial professor. He is a heat transfer specialist with interests ranging from electronics thermal management and vehicle waste heat recovery to the conduction physics of electrons and phonons in thin films and semiconductor devices.

Goodson and his students bring fundamental science to applications in thermal management and energy conversion. His lab developed the first phonon free path measurements using silicon nanolayers. His group also has highly cited contributions on phonon transport in diamond, microfluidic heat sink technology, carbon nanotube interface mate-



rials, phase change memory materials and devices, and two-phase microfluidic convection. Goodson co-founded Cooligy, which developed heat sinks for the Apple G5; Cooligy was acquired by Emerson in 2006. Fifteen of his 40 Ph.D. alumni are now professors at Stanford, the Massachusetts Institute of Technology (MIT), the University of California, Berkeley and other top engineering schools.

Before joining Stanford, Goodson spent nearly two years with the Materials Research Group at Daimler-Benz AG (Ulm, Germany).

Goodson has co-authored more than 170 archival journal articles, more than 200 refereed conference papers, nine book chapters and two books; and he holds 34 U.S. patents.

He has delivered plenary lectures at ITHERM, THERMINIC, SEMI-THERM, PHONONS as well as ASME's InterPACK (International Technical Conference and Exhibition on Packaging and Integration of Electronic and Photonic Microsystems).

An ASME Fellow, Goodson served as an associate editor of the *Journal of Heat Transfer* (2008–12) and the editor-in-chief of *Microscale and Nanoscale Thermophysical Engineering* (2008–12). He has given symposium keynote addresses at the International Mechanical Engineering Congress and Exposition (2010–12). He received the Allan Kraus Thermal Management Medal in 2010.

Goodson is also a Fellow of IEEE and the American Association for the Advancement of Science. He is a member of Tau Beta Pi, the Engineering Honor Society; The Pi Beta Kappa Honor Society; and Sigma Xi, the Scientific Research Society.

His honors include the THERMI Award (2013), presented at the SEMI-THERM conference; IEEE's Golden Reviewer award (2010); a National Science Foundation CAREER Award (1996–2000); a Young Investigator Award (1996–99) from the Office of Naval Research; and a number of Best Paper/Outstanding Paper awards.

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

JOHN A. TICHY

Conferred at the Tribology Frontiers Conference, Chicago, October 2014

THE MAYO D. HERSEY AWARD, established in 1965, is bestowed for distinguished and 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.

JOHN A. TICHY, Ph.D., professor, Rensselaer Polytechnic Institute (Troy, N.Y.), for wide-ranging contributions to the field of tribology including the understanding and application of various types of lubricant rheology to tribological systems such as squeeze films, dampers, artificial joints, seals and chemical mechanical polishing.



Dr. Tichy has been a member of the faculty at Rensselaer Polytechnic Institute (RPI) in Troy, N.Y., for 38 years. He advanced from assistant professor to associate professor in 1982, and since 1986 is a professor in the department of mechanical, aerospace and nuclear engineering. Tichy served as department head from 1996 to 2005. He also spent many summer periods at several laboratories in France, and he spent a sabbatical year at Institut des Sciences Appliquées (INSA) de Lyon, France, in 2006.

For most of his career Tichy has worked in the tribology area, specializing primarily in hydrodynamic lubrication. His tribology research approach has been from the perspective of fluid mechanics. His contributions comprise improvements and modifications to

the classical theory of Reynolds, which were made by including the effects of fluid inertia and various non-Newtonian models. He has studied squeeze films and squeeze film dampers, particulate flows, lubrication in prosthetic human joints, lubrication in microsystems, and the chemical-mechanical planarization process.

Tichy has published extensively, with more than 120 archival journal publications and a comparable number of conference proceedings and other papers.

An ASME Fellow, Tichy has been active in the Society, in both technical and administrative roles, throughout his career. Since 2004 he has been chair of the ASME Press Advisory Committee. Among his prior activities, he was a member of the Tribology Division's Executive Committee (1985–91, chair 1990), editor of the Journal of Tribology (1998–2005) and member of the ASME Research Committee on Tribology (1991–98, chair 1998). He received Best Paper in Tribology awards in 1984 and 2001, the Tribology Division's Innovative Research Award in 2003 and the ASME Board of Governors Award in 2004.

Tichy is a member of the Society of Tribologists and Lubrication Engineers (STLE) and Sigma Xi, the Scientific Research Society.

His honors include the U.S. Army Research Office's Fortieth Anniversary Key Research Achievement Award (1991), RPI's William H. Wiley Distinguished Faculty Award (1993) and Lewis T. Assini Undergraduate Teaching and Counseling Award (1994), and STLE's International Prize (2010).

Tichy earned his bachelor's degree, master's degree and Ph.D. in mechanical engineering from the University of Michigan, Ann Arbor, in 1966, 1967 and 1970, respectively. He received a doctor honoris causa from INSA Lyon in 2006.

BRIAN PARRY

Conferred at the B89 Committee Meeting, Denver, CO., October 8, 2014

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.

BRIAN PARRY, P.E., associate technical fellow, The Boeing Company, Seattle, for outstanding leadership, extraordinary perseverance and tireless collaboration in developing and promoting a broad range of standards spanning dimensional metrology and machine tools; and in crafting consensus within the framework of disparate national and international communities of professionals.

Mr. Parry has been working at The Boeing Company for 35 years and is currently an associate technical fellow in the Seattle office. Prior to 2006 he led a group tasked with providing solutions to complex measurement problems. The group was responsible for the evaluation and implementation of new equipment and methods, including statistical process control. Earlier, as head of the Special Test Equipment Group for the 767 Division, Parry was responsible for mechanical, electrical, hydraulic and pneumatic test equipment as well as the stress analysis of major tooling. He was a major contributor to the development of a patented laser-based system for airplane assembly tooling, which allows for real-time correction.

Among his other achievements, Parry developed new certification procedures for vector measuring and coordinate measuring

machines, which allowed hydraulic tubing to be digitally defined and reverse engimeered. He also developed a methodology that enabled computerized maintenance management systems in Russia and allowed the Czech Republic to accept product at fabricators. Parry is a founding member of the Committee of the Geometric Dimensioning and Tolerancing Technical Interest Group, which is sponsored by the Boeing/IAM (International Association of Machinists and Aerospace Workers) Ed Wells Initiative.

Prior to joining Boeing, Parry worked for a small research company on the design and construction of a high-field magnet and associated structures for a laser-heated solenoid used in controlled thermonuclear reaction experiments. Efforts included the stress analysis of critical components such as optical mounting systems.

An ASME member, Parry consecutively served in every elected executive board position in the Western Washington Section (1982–89), and he led the formation of a new section for members outside the greater Seattle area. He was elected to the Consensus Committee of the B89 Standards Committee on Dimensional Metrology in 1996 and was elected B89 chair in 2000. He is past vice chair (2009–12) of the ASME Board on Standardization and Testing. Parry was a member of the U.S. Technical Advisory Group to the International Organization for Standardization's Technical Committee 213–Dimensional and Geometrical Product Specifications and Verification; and he served on ASME's Special Committee H213–Harmonization of Dimensional and Geometrical Product Specification. He has been a member of the Society's B5 Standards Technical Committee (TC) 52–Machine Tool Performance since 1998; and, since 2007, has served on various Y14 Engineering Drawing and Related Documentation Practices project teams. Parry received a
Certificate of Achievement in 2002 for work on B5/TC52 and a Certificate of Acclamation in 2010 for work on the ASME Uncertainty Lexicon.

He is a member of the National Conference of Standards Laboratories International, the American Society for Quality and SAE International. For more than 20 years Parry wrote questions for the professional engineering examination with the National Council of Examiners for Engineering and Surveying.

Parry earned his bachelor's degree in mechanical engineering from the University of Washington, Seattle, in 1976. He is a registered professional engineer in Washington and Oregon.

Soichiro Honda Medal

THOMAS MOREL

Conferral at the President's Luncheon, 2014 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 MOREL, Ph.D., president and CEO, Gamma Technologies, Inc. (Westmont, Ill.), for the visionary, focused and dedicated development of GT-POWER, which has become the industry standard for engine simulations; and GT-SUITE, the virtual simulation that is used by major engine, powertrain and vehicle manufacturers worldwide.



Dr. Morel has held positions with managerial responsibilities for more than 30 years. In 1994, he founded Gamma Technologies, Inc. (GT) in Westmont, Ill., an engineering software firm to serve the automotive and engine industry. He is currently president and CEO, and has full responsibility for all financial aspects of the company.

The primary business of GT is the development, supply and support of advanced computer-aided engineering tools for engine, vehicle and powergenerating industries. These tools, residing in a software package called GT-SUITE, are used for the analysis of combustion, emissions, acoustics, fuel injection, lubrication systems, valvetrains, cranktrains, cooling systems, vehicles, hybrids, transmis-

sions, drivelines and integrated engine/vehicle systems. GT-POWER, part of GT-SUITE, is the industry standard engine simulation tool.

Morel's personal technical work has been focused on the extension of advanced fluid dynamics concepts for the development of new GT-SUITE models for fluid dynamics, heat transfer, combustion, acoustics, turbochargers, fuel injection and heat management. One of his key technical contributions has been the development of a three-dimensional modeling of underhood flow through multiple interacting heat exchangers, allowing rapid analysis of thermal management and fuel economy of vehicles operating under transient conditions such as the Environmental Protection Agency's federal test procedure driving cycle.

Today, all leading engine and vehicle manufacturers worldwide, in total more than 500 customers, rely on GT-SUITE for the design of their engines — a contribution that Morel deems his most important.

In 1983 Morel was co-founder of Integral Technologies, Inc. (ITI) in Westmont, Ill., a general engine consulting firm with a heavy specialization in the development of computer-aided engineering (CAE) software products. Among his contributions, he was the principal developer of the engine design analysis code WAVE; under his leadership WAVE became the first widely used commercial engine simulation software. Following the acquisition of ITI by Ricardo plc of the U.K. in 1988, Morel continued with the company for another five years as the executive vice president of Ricardo North America.

Morel also has expertise in vehicle aerodynamics. While pursuing his doctoral degree, he contributed to the aerodynamic design of The Blue Flame, the rocket-powered land speed record holder in 1970 at 622 mph (1,001 km/h). He then spent eight years at General Motors Research Laboratories (Warren, Mich.), where he contributed to basic research on fluid dynamic drag generation on bluff bodies (cars and trucks). He also worked on methods for wind tunnel design; one of his methods is often used for the design of contraction cones.

Morel's direct technical contributions are reflected in more than 90 publications. He holds one U.S. patent.

A Fellow of ASME, Morel is past chair of the Fluids Engineering Division (FED), and the Honors and Fluids Mechanics committees. He has organized conference sessions for more than 10 years, and was organizer for four ASME symposia on vehicle aerodynamics and internal combustion engines. He served as chair of the Technical Program for the First National Fluid Dynamics Congress (ASME/American Institute of Aeronautics and Astronautics/American Society of Civil Engineers), which was held in 1988. He received the FED's Robert T. Knapp Award for Best Paper in 1979.

Morel is also a Fellow of SAE International and has organized SAE Congress sessions on engine modeling for more than 20 years.

His honors include GM's Charles E. McCuen Special Achievement Award (1977), a Best Paper Award at the XXI FISITA (International Federation of Automotive Engineering Societies) Congress (1986) and SAE's Arch T. Colwell Award (1988).

Morel earned his Dipl.Ing. from Czech Technical University (CVUT), Prague, in 1965. He earned his master's degree and Ph.D. in mechanical engineering from the Illinois Institute of Technology, Chicago, in 1969 and 1972, respectively. Morel received an honorary doctorate (honoris causa) from CVUT in 2008.

ROBERT M. WAGNER

Conferred at the Internal Combustion Engine Division Fall Technical Conference, Columbus, Ind., October 2014

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.

ROBERT M. WAGNER, Ph.D., director, Fuels, Engines and Emissions Research Center, Oak Ridge National Laboratory (Knoxville, Tenn.), for leadership in innovative research in the area of unstable combustion fundamentals in internal combustion engines, and for distinctive contributions in the scaling and harmonization of low-temperature combustion processes to production-viable multicylinder engines.



Dr. Wagner is the director of the Fuels, Engines and Emissions Research Center at Oak Ridge National Laboratory (ORNL) in Knoxville, Tenn. He is also a faculty member of the Bredesen Center for Interdisciplinary Research and Graduate Education at the University of Tennessee, Knoxville.

His responsibilities include coordination and development of strategic internal and external collaborations at ORNL to better support the mission of the U.S. Department of Energy's Vehicle Technologies Office. He has been principal investigator on many research activities spanning low-temperature combustion, unstable combustion fundamentals, nonlinear controls, thermodynamics, renewable fuels and emission characterization. This includes the integration of

ORNL expertise in high-performance computing, neutron sciences, material sciences and advanced manufacturing to accelerate the development of advanced transportation technologies.

He has authored more than 100 technical publications, a book chapter and two patents; and is a frequent invited speaker on the topics of high-efficiency combustion, engine instabilities, adaptive controls and the long-term outlook of high-efficiency transportation technologies. He serves on the editorial boards of the *International Journal of Engine Research* and the *Journal of Emission Control Science and Technology*, and is an associate editor of SAE International's *Journal of Engines*.

An ASME member, Wagner is an assistant vice chair (July 2014–June 2015) on the Internal Combustion Engine (ICE) Division's Executive Committee. He has served as technical program chair for the 2014 ICE Division Fall Technical Conference.

Wagner is a Fellow of SAE International and a member of the American Association for the Advancement of Science.

His honors include SAE International's Leadership Citation (2014) and Forest R. McFarland Award (2010), ORNL's Significant Event awards (2002, 2004 and 2011) and UT-Battelle's Early Career Award for Engineering Accomplishment (2003). He was an invited attendee at the 2011 China-America Frontiers of Engineering Symposium sponsored by the National Academy of Engineering.

Wagner earned his bachelor's degree, master's degree and Ph.D. in mechanical engineering from Missouri University of Science and Technology, Rolla, in 1993, 1995 and 1999, respectively.

Allan Kraus Thermal Management Medal

PETER EMILE RAAD

Conferral at the Electronic and Photonic Packaging Division Reception, 2014 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.

PETER EMILE RAAD, P.E., Ph.D., professor of mechanical engineering and Linda Wertheimer Hart professor, Southern Methodist University, Dallas, for innovative research in deep-submicron thermal metrology; for determining 3-D temperature fields in electronic devices using 2-D thermal measurements; for exemplary teaching and mentoring; and for leadership in incubating cross-disciplinary research and educational initiatives at the intersection of industry and academia.

Dr. Raad joined the faculty at Southern Methodist University (SMU), Dallas, in 1986. He currently holds the Linda Wertheimer Hart professorship and is a professor of mechanical engineering.

In 2000 Raad founded the Linda and Mitch Hart eCenter, a universitywide center dedicated to helping business and society address the intended and unintended consequences of interactive network technologies, particularly the Internet. In 2002 he founded The Guildhall at SMU, a novel, industry–university, crossdisciplinary graduate program designed to educate and train future practitioners and innovators in the fast-growing field of digital game development. He served as director of the Hart eCenter and executive director of The Guildhall at SMU until May 2012. Previoucly be served as the ascentiate day of the SMU School



ously he served as the associate dean of the SMU School of Engineering.

Raad has received over \$2.5 million in funding support for his research in tsunami mitigation and in metrology of submicron electronics. In 2006 he founded TMX Scientific to innovate and commercialize deep submicron thermal measurement systems and ultrafast thermal computational engines.

He has published more than 50 journal articles, and given more than 100 conference and invited talks. He holds U.S. and international patents in thermal metrology and computational characterization of multiscale integrated circuits.

An ASME Fellow, Raad served as ASME Student Section advisor at SMU (1990–94) and chair of the College Relations Committee for the North Texas Section (1995–2006). He was lead organizer (1995–2006) for the Forum on Advances in Free Surface and Interface Fluid Dynamics, initially held at the International Mechanical Engineering Congress and Exposition and subsequently held at the Fluids Engineering Division Summer Meeting. Raad was technical associate editor (1999–2002) for the *Journal of Fluids Engineering;* (2001–02); and chair of the Technical Committee on Computational Fluid Dynamics (2003–04). He was honored as the North Texas Section Engineer of the Year (1999–2000).

Raad is a senior member of the IEEE. He is also a member of the American Physical Society; Sigma Xi, the Scientific Research Society; and Tau Beta Pi, the Engineering Honor Society.

His honors include SMU's Outstanding Graduate Faculty Award (four times) and Outstanding Undergraduate Faculty Award (twice); the Harvey Rosten Award for Excellence in the Physical Design of Electronics (2006); and inclusion among *Next-Gen*'s Top 25 People of 2007 (most influential in the video gaming industry).

Raad earned three degrees in mechanical engineering from the University of Tennessee, Knoxville: his bachelor's degree, with honors, in 1980; and his master's and Ph.D. (thermal sciences) in 1981 and 1986, respectively. He is a registered professional engineer in Texas.

GURUSWAMI RAVICHANDRAN

Conferral at the Applied Mechanics Dinner, 2014 International Mechanical Engineering Congress and Exposition

THE WARNER T. KOITER MEDAL was established in 1996 to reconize 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 a research engineer and teacher.

GURUSWAMI RAVICHANDRAN, Ph.D., John E. Goode Jr. professor, California Institute of Technology, Pasadena, for outstanding scientific, engineering and mentoring contributions in the areas of ultrahigh strain rate mechanics of ceramics and metals; and for pioneering and innovative experiments to advance the understanding of coupled phenomena in the fields of smart materials and cellular mechanics.



Dr. Ravichandran is the John E. Goode Jr. professor of aerospace and professor of mechanical engineering; and director of GALCIT, the Graduate Aerospace Laboratories at the California Institute of Technology (Caltech), Pasadena.

He began his academic career as an assistant professor in the department of applied mechanics and engineering sciences at the University of California, San Diego (1987–90) after serving as a research fellow at Caltech (1986–87). He returned to Caltech as an assistant professor in 1990; was promoted to the ranks of associate and full professor in 1995 and 1999, respectively; and assumed his current position in 2005.

Ravichandran has held visiting scholar appointments at École Polytechnique, France; the Tokyo Insti-

tute of Technology (chair in international cooperation); and the Indian Institute of Science, Bangalore (Aditya Birla chair).

His research interests are in the mechanics of materials, particularly dynamic deformation, damage and failure, micromechanics, active materials, cell mechanics and experimental methods.

His publications include more than 135 articles in premier journals. He has delivered numerous keynote and plenary talks; and, as a lecturer for the Midwest Mechanics Seminar Program (2007–08), he delivered lectures at 10 universities. He holds seven patents, with two pending.

An ASME Fellow, Ravichandran served as associate technical editor for the *Journal* of Engineering Materials and Technology (1997–2000), chair of the Applied Mechanics Division's Technical Committee on Fracture and Failure Mechanics (1995–97), and was co-organizer/organizer for a number of symposiums between 1994 and 2008. He received a Best Paper Award in Adaptive Structures and Material Systems from the Aerospace Division in 2005 and the Society's Charles Russ Richards Memorial Award in 2008.

He is a member of the European Academy of Sciences and Arts and the International (Russian) Academy of Engineering; a Fellow of the Society for Experimental Mechanics (SEM) and the American Academy of Mechanics; and a senior member of the American Institute of Aeronautics and Astronautics.

His honors include a Presidential Young Investigator Award (1991) from the National Science Foundation; the B.J. Lazan Award (2005), a Best Paper Award in Dynamic Behavior of Materials (2011) and the William M. Murray Medal (2014) from SEM; and the A.C. Eringen Medal (2013) from the Society of Engineering Science.

Ravichandran received his B.E. (honors) in mechanical engineering from the University of Madras (Tamil Nadu, India) in 1981. He earned a master's degree in engineering (solid mechanics and structures), a master's degree in applied mathematics and his Ph.D. in engineering (solid mechanics and structures) from Brown University (Providence, R.I.) in 1983, 1984 and 1986, respectively. He received a doctor honoris causa from Paul Verlaine University (Metz, France) in 2006 and Chevalier de l'ordre des Palmes Académiques from the Republic of France in 2011.

Robert E. Koski Medal

HUBERTUS J. MURRENHOFF

Conferred at the Bath/ASME Symposium on Fluid Power and Motion Control, Bath, U.K., September 2014

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.

HUBERTUS J. MURRENHOFF, Dr.-Ing., executive director, Institute for Fluid Power Drives and Controls, RWTH Aachen University, Germany, for two decades of exceptional leadership of one of the largest and most renowned fluid power research centers; and for leading fluid power into the 21st century through outstanding research results and through education that provides engineers with excellent skills to support industry.

Dr. Murrenhoff is the executive director of the Institute for Fluid Power Drives and Control (IFAS) at RWTH Aachen University, Germany, his alma mater. He was appointed to this position in October 1994 upon the retirement of Dr. Wolfgang Backé, and the name of the institution, established as the Institute for Hydraulic and Pneumatic Drives and Controls (IHP) by Backé in 1968, was simultaneously changed.

Murrenhoff began working as a member of the academic staff under the leadership of Backé in 1978, and he was appointed chief engineer in 1983. During his subsequent employment in the industrial sector (1986–94), he gained a wide range of experience in the field of servo-hydraulics and electromechanical components and systems while serving as vice president



of engineering and marketing at HSC Controls, Inc., an aviation technology company in Buffalo, N.Y. (now part of Woodward Governor); and as managing director of technology at Magnet-Schultz (Memmingen, Germany), a world leader in electromechanical devices.

With acquired knowledge from industry, Murrenhoff structured IFAS into five research groups — tribology and fluid analysis, pump and motor technology, valve technology and mechatronics, system and control technology, and pneumatics — to promote continuous advances in all aspects of fluid power. Through his established relationships with manufacturers, users of fluid power components and systems, and other research facilities, Murrenhoff ensures that IFAS's activities always comply with upcoming demands.

Murrenhoff is also heavily involved in higher education including teaching courses and incorporating knowledge gained through research into lectures and exercises, supervising researchers, conducting doctoral exams, and serving as a member of many national and international boards and organizations. He was instrumental in the establishment of the biennial International Fluid Power Conference (IFK) in Germany.

His publications include more than 450 papers, and he holds a number of patents. He has been co-editor or editor of the journal *O*+*P Ölhydraulik und Pneumatik* since 1994.

An ASME member, Murrenhoff has served as a reviewer of scientific papers. He is also a member of SAE International and the Association of German Engineers (VDI).

Among his honors are RWTH Aachen University's Borchers Medal (1983), the Institution of Mechanical Engineers' Bramah Medal (2001) and VDI's Honorary Medal (2004).

Murrenhoff earned his Dipl.-Ing. and Dr.-Ing. from RWTH Aachen University in 1978 and 1983, respectively.

James N. Landis Medal

SUSUMU MOCHIDA

Conferred at the ASME Power Conference, Baltimore, July 2014

THE JAMES N. LANDIS MEDAL was established in honor of James N. Landis, president of ASME in 1958, and is presented for outstanding personal performance related to designing, constructing or managing the operation of major steam-powered electric stations using nuclear or fossil fuels, coupled with personal leadership in some humanitarian pursuit related to a committee activity, section leadership or the broad nontechnical professional activity of the individual's engineering society.

SUSUMU MOCHIDA, director and general manager, Technology and Engineering Division, Nippon Furnace Co., Ltd. (Yokohama, Japan), for outstanding contributions to the development of a clean and efficient combined heat and power system to harness energy from waste materials, biomass and plastics using innovative high-temperature steam gasification technology, and for providing applications to a wide range of thermal platforms.



Mr. Mochida is director and general manager of the Technology and Engineering Division at Nippon Furnace Co., Ltd. (NFK) in Yokohama, Japan. His responsibilities include providing solutions for technology and engineering issues related to the company's industrial burner/thermal energy equipment. Throughout his career, he has made outstanding contributions on numerous leading technological development projects to solve challenging issues economically.

Mochida joined NFK in 1982 as a research and development (R&D) engineer for industrial combustion equipment. He contributed to the development of high-intensity burners, regenerative burners and low NOx burners using both physical and numerical models. Since 2002, he has led the R&D efforts to

implement the revolutionary high-temperature steam gasification technology for

high-efficiency gasification with tar free syngas from various kinds of biomass feedstocks. He also directed and managed the joint research project with Nagoya University, Japan, on the development of a small combined heat and power (CHP) plant using high-temperature steam gasification technology for waste biomass. He and his team completed a small CHP system in 2013 with financial support from the Japanese government through NEDO, the New Energy and Industrial Technology Development Organization.

Mochida has authored over 30 technical publications, contributed to over 15 patents, and given presentations at numerous meetings and conferences.

A member of ASME, he received the Society's George Westinghouse Silver Medal in 2001.

Mochida is also a member of the Combustion Society of Japan; The Japan Institute of Energy; The Society of Chemical Engineers, Japan; and the Japan Society of Mechanical Engineers. He is chairman of the Japanese Flame Research Committee, a suborganization of the International Flame Research Foundation.

Mochida earned his bachelor's degree from the department of chemical engineering at Chuo University, Tokyo, in 1982.

Bernard F. Langer Nuclear Codes and Standards Award

DOUGLAS SCARTH

Conferred during Boiler and Pressure Vessel Code Week, Washington, D.C., August 2014

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.

DOUGLAS SCARTH, Ph.D., technical director, fracture programs, Kinectrics Inc., Toronto, for outstanding work that continues to expand and clarify the use of fracture mechanics in the nuclear industry; and for providing leadership and expertise in support of ASME's Boiler and Pressure Vessel Committee on Nuclear Inservice Inspection.

Dr. Scarth has been involved in structural integrity evaluations of nuclear pressure boundary components for a number of years. He has developed fatigue design curves for irradiated Zr-Nb pressure tubes in a CANDU® (Canada deuterium uranium) reactor coolant environment and has led the development of methods for evaluating flaws in CANDU reactor Zr-Nb pressure tubes. These include models for predicting delayed hydride cracking initiation and fatigue crack initiation from flaws, a model for predicting fracture toughness of irradiated Zr-Nb pressure tubes and a model to predict the relaxation of residual stresses in CANDU fuel channel rolled joints. These models are used for design and/or inservice evaluation of CANDU Zr-Nb pressure tubes.



Scarth has participated in the development of engineering codes and standards for fitness-for-service assessments of plant components including a number of non-(continued)

Bernard F. Langer Nuclear Codes and Standards Award (cont.)

mandatory appendices and code cases under Section XI of the ASME Boiler and Pressure Vessel Code (BPVC). He has co-authored the Canadian Standards Association (CSA) Standard N285.8 for inservice evaluation of CANDU Zr-Nb pressure tubes as well as fitness-for-service guidelines for CANDU steam generator tubes and CANDU feeder piping.

He is currently technical director of fracture programs at Kinectrics Inc., Toronto, which provides life cycle management solutions for the electricity industry through testing, inspection, certification and consulting services. Scarth is responsible for the development and improvement of methods for evaluating the structural integrity of nuclear pressure boundary components.

An ASME member, Scarth is currently chair of the Society's BPVC Section XI Working Group on Pipe Flaw Evaluation and secretary of the Section XI Task Group on Stress Corrosion Cracking Reference Curves. He is a member of the Section XI Working Group on Flaw Evaluation, Subgroup on Evaluation Standards and BPV Committee on Nuclear Inservice Inspection (XI). Scarth previously served as chair of the Pressure Vessels and Piping Division's (PVPD's) Materials and Fabrication Technical Committee (2009-12). He is currently a member of the PVPD's Executive Committee and chair of the Honors and Awards Committee. He served as an associate editor of the *Journal of Pressure Vessel Technology* (2005–11) and received a Certificate of Appreciation in 2012. He also received certificates of Recognition (2008 and 2011) and Appreciation (2008 and 2012) for committee service, and PVP Conference Best Paper awards in 2001 and 2011.

Scarth is also a member of the CSA, and he received a Certificate of Recognition (2003) for committee service and an Award of Merit (2004).

Among his other honors, Scarth received Manitoba Hydro's Donald M. Stephens Fellowship (1981) and Ontario Hydro's New Technology Award (1989).

Scarth earned his bachelor's degree and master's degree in mechanical engineering from the University of Manitoba (Winnipeg, Canada) in 1979 and 1982, respectively. He earned his Ph.D. in materials science from the University of Manchester, U.K., in 2002.

Gustus L. Larson Memorial Award

WEI LU

Conferral at the Members and Students Luncheon, 2014 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.

WEI LU, Ph.D., professor, University of Michigan, Ann Arbor, for outstanding achievements in mechanical engineering within 10 to 20 years following graduation.

Dr. Lu joined the faculty at the University of Michigan (U-M), Ann Arbor, in 2001 and is currently a professor in the department of mechanical engineering.

Lu has made seminal contributions to the scientific understanding and engineering application of mechanics and materials systems involving interface motion, structure evolution and deformation. He is recognized as a leader in the extension of mechanics principles and approaches to self-assembly and electrochemical systems.

His work has revealed self-assembly mechanisms and ways to guide their behaviors in various systems involving multiple energetic forces and kinetic processes, particularly systems where elasticity plays an important role. This work enables the systematic application of self-assembly for nanofabrication.

In the energy area, Lu's research has led to an integrated analysis of the complex Li-ion battery fading process. His studies have revealed the collective actions of multiple fading mechanisms and generated a realistic 3-D mechanical, thermal and electrochemical framework for predicting and optimizing battery performance, which is critical to electrical vehicles. He has also contributed to the development of computational tools that enable quantitative prediction of the



grid-to-rod fretting problem, which accounts for more than 70 percent of nuclear fuel failures.

Lu has published over 90 peer-reviewed journal papers; and he has many publications in conference proceedings, encyclopedias and book chapters. He has given more than 100 presentations and invited talks at international conferences; universities and national labs including Harvard, MIT and Stanford; and at other prestigious institutions worldwide.

An ASME Fellow, Lu has served on multiple technical committees, and has organized numerous symposia and sessions. He received the Pressure Vessels and Piping Division's Robert J. McGrattan Literature Award in 1997.

Lu is a member of the Materials Research Society and the American Society for Engineering Education.

His honors include the U-M Mechanical Engineering Department's Achievement Award (2013); U-M's Faculty Recognition Award (2012) and Robert M. Caddell Memorial Research Achievement Award (2006); the National Science Foundation's CAREER Award (2004) and U.S. Air Force Summer Faculty fellowships (2005, 2006 and 2007). He was an invited participant at the National Academies' Keck Futures Initiative Conference in 2012 and 2013.

Lu earned his bachelor's degree in engineering mechanics and a Ph.D. in solid mechanics from Tsinghua University, Beijing, in 1994 and 1998, respectively. He earned a Ph.D. in materials science and engineering from Princeton University, New Jersey, in 2001.

KYRIACOS A. ATHANASIOU

Conferred at the Summer Bioengineering Conference, Boston, July 2014

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

KYRIACOS A. ATHANASIOU, P.E., Ph.D., distinguished professor, University of California, Davis, for sustained and outstanding leadership in biomechanical engineering, and for pioneering work in soft tissue regeneration.



Dr. Athanasiou is a distinguished professor of biomedical engineering and orthopaedic surgery at the University of California (UC), Davis. He is also chair of the department of biomedical engineering and holds the Child family endowed chair in engineering. At UC Davis, he has established one of the most recognized research groups in bioengineering, specializing in the musculoskeletal system.

Prior to joining the faculty at UC Davis, Athanasiou was a professor in the department of bioengineering (1999-2009) at Rice University, Houston. Earlier he was affiliated with The University of Texas Health Science Center at San Antonio (1989–1999) and The University of Texas at Austin (1994–99).

Athanasiou's pioneering and extensive work in tissue engineering has addressed the important goal of cartilage healing. His group has demonstrated the fabrication of entire sections of cartilage by self-assembly, without the use of any scaffolds, with properties approaching those of native cartilage. Five companies, with a total of 13 U.S. Food and Drug Administration-approved products, have been founded on discoveries within his group and now produce widely used medical products; two of these companies have been acquired by large medical firms.

He has published more than 280 peer-reviewed articles, 290 conference proceedings and abstracts, a textbook titled "Introduction to Continuum Biomechanics (Morgan and Claypool, 2008), a book titled "Articular Cartilage" (CRC Press, 2013) and three books on tissue engineering. He holds 19 U.S. patents, with 12 pending.

An ASME Fellow, Athanasiou has been an active participant at scientific meetings, both locally and nationally, and has contributed scientific studies to ASME journals. He was honored with the Van C. Mow Medal in 2005 and the Thomas A. Edison Patent Award in 2008.

Athanasiou is also a Fellow of the American Association for the Advancement of Science, the American Institute for Medical and Biological Engineering, and the Biomedical Engineering Society (BMES). He is past president of the BMES and is currently editor-in-chief of Annals of Biomedical Engineering, the society's flagship journal. Athanasiou is a member of the Orthopaedic Research Society (ORS), the American Society of Biomechanics, the Cyprus Association of Professional Engineers, the Cyprus Society of Biomedical Engineering and Medical Physics, the American Academy of Orthopaedic Surgeons, the Tissue Engineering Society, the Society for Biomaterials, the American Society of Temporomandibular Joint Surgeons and the American Institute of Chemical Engineers.

His extensive list of honors includes the Takis and Louki Nemitsas Foundation's Nemitsas Prize (2012), the highest honor a Cypriot scientist can receive and one of the most prestigious awards in the European Union, presented by the president of the Republic of Cyprus; BMES's Distinguished Service Award (2011); *The Wall Street Journal*'s 2008 Innovation Award; ORS's Marshal R. Urist Award for Excellence in

Tissue Regeneration Research (2008); and Rice University's Hershel M. Rich Invention awards (2006, 2008).

Athanasiou earned his bachelor's degree in mechanical engineering, summa cum laude, at New York Institute of Technology at Old Westbury in 1984. He earned three degrees at Columbia University, New York: an M.S. in mechanical engineering in 1985; and a Ph.M and Ph.D. in mechanical engineering (bioengineering) in 1988 and 1989, respectively. He is a registered professional engineer in Texas.

Machine Design Award

LARRY L. HOWELL

Conferred at the International Design and Engineering Technical ConferencesBuffalo, N.Y., August 2014

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

LARRY L. HOWELL, P.E., Ph.D., professor, Brigham Young University (Provo, Utah), for research, application, teaching and service contributions that have had a lasting impact on compliant mechanisms including making it possible to create devices with unprecedented performance, such as origami-inspired mechanisms, microelectromechanical systems, space mechanisms and medical devices.

Dr. Howell is a professor and past chair of the department of mechanical engineering at Brigham Young University (BYU) in Provo, Utah, where he holds a university professorship (2007–17). Prior to joining BYU in 1994 he was a visiting professor at Purdue University (West Lafayette, Ind.); a finite element analysis consultant for Engineering Methods, Inc. (West Lafayette, Ind.); and an engineer at General Dynamics (Fort Worth, Texas), where he worked on the design of the YF-22, the prototype for the U.S. Air Force F-22 fighter jet.

Howell's pioneering research addresses the challenges of compliant mechanisms, such as fatigue loading inherent in their motion, their nonlinear deflections and the complexities associated with the design



of integrated components, to provide a foundation for research and application. He has been aggressive in moving machine design research forward, and his research group has worked closely with companies to develop innovative products with superior performance.

His patents and technical publications focus on compliant mechanisms including origami-inspired mechanisms, space mechanisms, microelectromechanical systems and medical devices. He is co-editor of the Handbook of Compliant Mechanisms (John Wiley & Sons, 2013); and author of the book titled "Compliant Mechanisms" (John Wiley & Sons, 2001), which was translated into Chinese.

An ASME Fellow, Howell is past chair (2005) of the Design Engineering Division's (DED's) Mechanisms and Robotics Committee (1998–2007) and past associate editor (2004–08) for the *Journal of Mechanical Design*. Since 2000 he has been serving in leadership capacities for technical conferences and symposiums. He received the DED's Mechanisms and Robotics Award in 2009 and Design Automation Conference Best

Paper Award in 1999; and he won first place in the graduate division of the Student Design Competition at the 1990 Mechanisms Conference.

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

His honors include a Theodore von Kármán Fellowship at RWTH Aachen University, Germany (October 2013); BYU's Karl G. Maeser Research and Creative Arts Award (2005-06), Technology Transfer Award (2001) and various teaching awards (1996–2010); and a National Science Foundation CAREER Award (1996–2000).

Howell received his bachelor's degree in mechanical engineering from BYU in 1987, and his master's degree and Ph.D. in mechanical engineering from Purdue University in 1991 and 1993, respectively. He is a registered professional engineer in Utah.

Charles T. Main Student Section Awards

MEREDITH ANNE CAMPBELL - GOLD **CLAIRE HARPER - SILVER**

Conferral at the Members and Students Luncheon, 2014 International Mechanical Engineering Congress and Exposition

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

GOLD

MEREDITH ANNE CAMPBELL, undergraduate student, Daniel Webster College (Nashua, N.H.), for outstanding contributions to ASME including service as chair of the Daniel Webster College Student Section and the District A Student District Operating Board, and involvement with the Human Powered Vehicle Challenge and the Student Section Enterprise Committee; and for creating change in the community through numerous other campus activities.



Ms. Campbell is pursuing a bachelor's degree in mechanical engineering, with a minor in business management, at Daniel Webster College (DWC) in Nashua, N.H. She expects to receive her degree in May 2016. At DWC, she has been serving as student body president since May 2014 and has been a research assistant since 2011.

Among her other DWC responsibilities, Campbell founded and served as president (2012-14) of the Kenya Connection Club, the only humanitarianfocused club on campus. She also served as secretary (2012–13) and president (2013–14) of the Music Club; was a member of the DWC Student Conduct Review Board (2011–12); was freshman ambassador (2011–12) and member (2013-14) of the Engineering Advisory

Board (2013–14); was chief editor of the DWC Yearbook (2012–13); and served as a resident assistant coordinator (2013-14). Her other efforts include volunteering at the annual New Hampshire FIRST (For Inspiration and Recognition of Science and Technology) LEGO League state finals.

Campbell's work experience includes her current position as research and development intern at Valeo Radar Systems (Hudson, N.H.); previously she was an aftersales engineering intern at Bosch Thermotechnology (Londonderry, N.H.).

A member of the ASME Student Section at DWC since her freshman year, Campbell was one of only four active members and served as secretary (2011–12). Originally vice chair during her sophomore year, she increased the active student membership, planned many new events and rose to the position of chair (2012–13). As a junior, she continued as chair (2013–14) as well as project leader of the Human Powered Vehicle Challenge. As a result of her efforts to rebuild the section, student membership has risen to include 30 percent of all engineering students at DWC. Campbell also served as chair of the District A Student District Operating Board and a member of the Society's Student Section Enterprise Committee (2013–14). She was selected as ASME's winner of the 2014 DiscoverE New Faces of Engineering–College Edition program.

Campbell is also a member of the Society of Women Engineers and the DWC Student Chapter of the American Institute of Aeronautics and Astronautics.

Her honors include first place (2012) at the 66th Midyear Conference Media Showcase of the American Society for Engineering Education's Engineering Design Graphics Division; and DWC's Distinguished Student Service Award (2013).

SILVER

CLAIRE HARPER, undergraduate student, The University of Alabama, Tuscaloosa, for dedicated leadership within the ASME Student Section at The University of Alabama including tireless efforts to promote section growth and provide robust leadership for the future; and for service as vice chair and chair of the District F Student District Operating Board.

Ms. Harper is currently pursuing a bachelor's degree in mechanical engineering, with a minor in aerospace engineering, at The University of Alabama (UA), Tuscaloosa. Her projected graduation date is May 2015.

She completed a three-term co-op with Southern Nuclear at the E.I. Hatch Nuclear Plant (Vidalia, Ga.) and has been conducting fuels research under UA's Dr. Marcus Ashford. She recently completed a summer internship at Gulfstream Aerospace (Savannah, Ga.).

Harper joined the ASME Student Section at UA as a freshman and has served on the Human Powered Vehicle Challenge team (2011, 2014), and as recruitment chair (2011–12), secretary (2012–13) and chair



(2013–14). During her time as chair, the Student Section continued to flourish, with membership increasing from a healthy 300 in 2012–13 to approximately 475 students. Recognizing that Student Section leadership was "senior heavy," Harper led the officers in creating four freshman liaison positions to bring more students into the ASME leadership pipeline. She also served on the Student District Operating Board for District F as vice chair of conferences (2012–13) and as chair (2013–14), and was a member of the Society's Student Section Enterprise Committee (2013–14). She received an ASME International Power Division Scholarship and the Birmingham Section's William B. Sanford Memorial Scholarship in 2013.

Her other campus efforts include volunteering for Rockets and Racecars, an outreach program that encourages underprivileged and at-risk elementary and middle school children to pursue STEM (science, technology, engineering and mathematics) majors.

Harper is also a member of the Society of Women Engineers; Pi Tau Sigma, the National Mechanical Engineering Honor Society; and UA's Honors College and Computer-Based Honors Program.

Among her honors, Harper was selected as Outstanding Freshman (2011) and Outstanding Junior (2013) by UA's department of mechanical engineering, was awarded the UA ASME Rising Leader Award (2011), and was named to "Who's Who Among Students in American Universities and College" (2014).

McDonald Mentoring Award

NAEL BARAKAT

Conferral at the Members and Students Luncheon, 2014 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.

NAEL BARAKAT, P.Eng., Ph.D., professor and chair of mechanical engineering, Grand Valley State University (Grand Rapids, Mich.), for outstanding contributions to ASME for nearly two decades, particularly for integrating succession planning with a focus on early career engineers and for encouraging active involvement in the profession through leadership and mentoring.



Dr. Barakat is currently a professor and chair of mechanical engineering at Grand Valley State University (GVSU) in Grand Rapids, Mich. He joined the faculty at the School of Engineering in 2005 after three years of university teaching and four years of industrial experience and consulting at companies including Brown and Sharpe, and Agere Systems.

His areas of interest include mechatronics, controls, robotics, automation, systems integration, metrology as well as engineering ethics, professionalism, leadership and education. He supervises the robotics lab and co-supervises the clean room.

Barakat's 75 publications include peer-reviewed journal articles and conference proceedings. He has frequently been invited to deliver seminars, work-

shops and training sessions on leadership, engineering ethics and the societal impact of engineering.

A Fellow of ASME, Barakat has been contributing to the Society since he joined as a graduate student in 1995. His initial involvement was through conference and technical publishing as well as reviewing peer publications. He served as Student Section advisor at Lake Superior State University (Sault Ste. Marie, Mich.) from 2002 to 2005 and at GVSU from 2005 to 2010. Since 2009 he has been a prime trainer for leadership training and workshops. Barakat is currently the District B leader, and the Technology and Society Division chair. He has served as a member of the Committee on Ethical Standards and Review since 2008 and was elected chair in 2011. Since 2008 he has been organizing topics and chairing sessions, focused on ethics, professionalism, engineering education and globalization, for the International Mechanical Engineering Congress and Exposition. He has been representing ASME within the

U.S. delegation to the World Federation of Engineering Organizations since 2012 and is currently a member of the Committee on Anti-Corruption. He received a Student Section Advisor Award–District B in 2007 and 2011, and an ASME Dedicated Service Award in 2012.

Barakat is member of the American Society of Engineering Educators (ASEE), where he serves as Ethics Division program chair. He is also a member of the European Society for Engineering Education, the International Society for Engineering Education and the International Association of Engineers.

Among his honors, Barakat received a Distinguished Early Career Award (2010) from GVSU, a Best Student Paper Award (advisor and co-author) from ASEE's North Central Section (2009) and recognition as outstanding advisor of the engineering societies from Lake Superior State University (2005).

Barakat earned his master's degree in mechanical engineering from Concordia University, Montreal, in 1996; and his Ph.D. in mechanical engineering from McMaster University (Hamilton, Ontario) in 2000. He is a registered professional engineer in Ontario.

M. Eugene Merchant Manufacturing Medal of ASME/SME

DEAN L. BARTLES

Conferred at THE BIG M Manufacturing Convergence, Detroit, June 2014

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.

DEAN L. BARTLES, Ph.D., executive director–Digital Manufacturing and Design Innovation Institute, UI LABS, Chicago, for pioneering contributions to tank, mortar and artillery ammunition production processes as well as the multiple launch rocket system demilitarization process, which resulted in improvements in production rate efficiency, environmental control and energy utilization.

Dr. Bartles has 35 years of manufacturing management experience, in both domestic and international capacities, with emphasis on manufacturing facility startups, plant management, and manufacturing research and development. He has made significant contributions to improving defense manufacturing efficiency throughout his career.

In March 2014 Bartles was selected to serve as executive director for the new Digital Manufacturing and Design Innovation (DMDI) Institute that is led by UI LABS in Chicago. This public-private consortium of more than 70 organizations will address the life cycle of digital data interchanged among myriad design, engineering, manufacturing and maintenance systems, and flowing across a networked supply chain, to drive U.S. manufacturing leadership.



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

Previously Bartles was with General Dynamics (St. Petersburg, Fla.), where, most recently, he was vice president of advanced programs and strategic growth for the Ordnance and Tactical Systems (OTS) Division. From 2001 to 2011 he was vice president and general manager of the OTS strategic business unit for large caliber ammunition, which included three manufacturing plants. His implementation of adaptive control technology on computer numerically controlled turning operations contributed to significant improvements in production process efficiency. Among his other accomplishments, Bartles formed and led a team that more than doubled the multiple launch rocket system demilitarization rate at a Missouri facility while bringing emissions below permit levels. He also improved production operations at various ammunition plants in the U.S. and was called upon to modernize a number of overseas facilities.

Earlier affiliations include Fairchild Republic Company (1978–83), General Defense Corporation (1983–89), Olin Ordnance (1989–97) and Primex Technologies (1997–2001).

Among his current activities, Bartles serves as treasurer of the North American Manufacturing Research Institute and the Manufacturing Enterprise Solutions Association; is a member of the board of directors of MTConnect Institute and the National Center for Manufacturing Sciences; and is a member of the Manufacturing Division of the National Defense Industrial Association, where he recently served as vice chairman. He also currently serves as chairman emeritus of the board of directors for the National Center for Defense Manufacturing and Machining and chairman of the board of directors for the Smart Manufacturing Leadership Coalition.

Bartles has always been a strong advocate for industry-university collaboration. He currently serves as a volunteer board member on East Carolina University's College of Technology Industry Advisory Board, Pittsburgh State University's College of Technology Industry Advisory Board, Iowa State University's Industrial and Manufacturing Systems Engineering Industrial Advisory Council and the University of Kentucky's Institute for Sustainable Manufacturing Industry Advisory Board.

Prior activities include serving on President Obama's Economic Recovery Advisory Board's Education and Training Subcommittee and chairing the board of directors of the American League for Export Security Assistance. He also served for more than 10 years on the U.S. Department of State's Defense Trade Advisory Group and recently completed a three-year term on the Department of Commerce's Manufacturing Council.

An ASME Fellow, Bartles has been a member of the Industry Advisory Board since 2009. He is also a Fellow of SME and currently serves as vice president on the international board of directors.

His honors include the Picatinny (N.J.) Chapter of the National Defense Industrial Association's Victor Lindner Development Award (2006); the Association of Technology, Management, and Applied Engineering's Industry Innovation Award (2012); the National Center for Advanced Technologies' Industry Defense Manufacturing Excellence Award (2012); the Jesse S. Heiges Distinguished Alumni Award (2013) from Shippensburg University of Pennsylvania; the William E. Warner Professional Practice Award (2013) from Epsilon Pi Tau; the Production and Operations Management Practice Award (2014); and the Manufacturing Leadership Award (2014) from the Manufacturing Leadership Council.

Bartles received his bachelor's degree in business administration from Shepherd College (Shepherdstown, W.Va.) in 1978. He earned two master's degrees: one in business administration from Shippensburg University of Pennsylvania in 1981 and the second in international business from Tampa College, Florida, in 1991. He earned his doctorate in business administration from Nova Southeastern University (Fort Lauderdale, Fla.) in 2000; and his Ph. D. in technology management, with a concentration in manufacturing systems, from Indiana State University, Terre Haute, in 2013.

CHRISTOPHER R. JACOBS

Conferred at the Summer Bioengineering Conference, Boston, July 2014

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.

CHRISTOPHER R. JACOBS, Ph.D., professor of biomedical engineering, Columbia University, New York, for outstanding contributions to biomechanics including novel anisotropic computer simulations of bone adaptation, studies of loading-induced dynamic fluid flow on bone cell adaptation, evidence of the role of primary cilia in mechanosensing, and the first fluid-structure interaction models of cilia bending.

Dr. Jacobs joined the faculty at Columbia University, New York, in 2008 and is currently a professor in the department of biomedical engineering. Previously he was an associate professor in the department of mechanical engineering at Stanford University, California (2001-08) and an assistant professor in the department of orthopaedic surgery at The Pennsylvania State University, University Park (1994–2001).

His career focus has been on uncovering the mechanisms that allow cells to sense and respond to mechanical stimulation. He and his dedicated team of trainees have created and validated mathematical models of cell mechanical behavior, identified novel molecular mechanosensors in cell cultures and created in vivo models to confirm the function of these tar-



gets. Recently his lab has characterized the biomechanical behavior of primary cilia and developed innovative tools to examine the molecular signaling systems within these unique mechanosensing microdomains.

Jacobs has advised more than 10 postdoctoral fellows and 15 Ph.D. students.

He has authored/co-authored more than 100 full-length, peer-reviewed journal papers, which have been cited over 4,000 times, with more than 10 cited over 100 times and four cited over 200 times. He has published eight book chapters as well as 12 editorials, book reviews, memorials and other nonpeer-reviewed commentaries. He is the North American editor for *Computer Methods in Biomechanics and Biomedical Bioengineering*. Jacobs is the senior author of a textbook titled "An Introduction to Cell Mechanics and Mechanobiology" (Garland Science, 2012); in the first six months it was adopted for use in 35 courses with a combined enrollment of more than 850 students. He has delivered more than 100 invited presentations including 17 keynote talks, five plenary addresses, two conference openings and two named lectureships. He holds one patent, with one pending.

An ASME member, Jacobs has been serving on the Y.C. Fung Young Investigator Award Review Committee since 2008. Previously he was a member of the Council for Education (1997–98) and the Scholarship and Student Loan Committee (1998– 2001), and he worked on the Bioengineering Division Newsletter (1999–2001).

A Fellow of the American Institute for Medical and Biological Engineering, Jacobs is also a member of the Biomedical Engineering Society, the American Society for Bone and Mineral Research, the Orthopaedic Research Society, the American Society for Cell Biology, the American Society of Biomechanics, the European Society of Biomechanics and the American Association for the Advancement of Science.

Jacobs earned his bachelor's degree in systems science and mathematics from Washington University, St. Louis. He earned his master's degree and Ph.D. in mechanical engineering from Stanford University in 1989 and 1994, respectively.

L. CATHERINE BRINSON

Conferral at the Materials Division Reception, 2014 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.

L. CATHERINE BRINSON, Ph.D., Jerome B. Cohen professor, Northwestern University (Evanston, Ill.), for significant contributions to the synthesis and characterization of polymer nanocomposites through research that has provided a fundamental understanding of the interphase and how nanoreinforcements affect polymer behavior, thus shedding light on material design for industry; and for educational contributions and service to the engineering profession.



Dr. Brinson is currently the Jerome B. Cohen professor of engineering at Northwestern University (Evanston, Ill.) with appointments in mechanical engineering, and materials science and engineering. She joined the faculty at Northwestern in 1992 following postdoctoral research at the DLR (Deutsches Zentrun für Luft- und Raumfahrt), Germany's aeronautics and space research center.

Her current research involves investigations into nanoconfinement on local polymer mechanical behavior, characterization of nanoparticle reinforced polymers, the phase transformation response of shape memory alloys, nano and microscale response of biomaterials, and materials genome informatics research. Investigations span the range of molecular interactions, micro-

mechanics and macroscale behavior.

Brinson served as a member of the Institute for Defense Analysis' Defense Science Study Group, served two terms on The National Academies' National Materials Advisory Board and chaired two National Research Council studies.

She has authored/co-authored more than 120 journal articles and co-authored one book. Since 2004 she has been serving on the editorial boards of *Advanced Engineer*ing Materials and Mechanics of Advanced Materials and Structures.

An ASME Fellow, Brinson has been a member of the Computational Mechanics Committee, and she served as lead organizer of 2013 International Mechanical Engineering Leadership Summit. She was a member of the ASME Department Head Executive Board (2011–13); co-organizer of various symposia (between 1994 and 2005) at ASME conferences; and associate editor of the *Journal of Engineering Materials and Technology* (1997–2003) and co-editor of a special volume of the journal for participants in the 1997 Symposium on Characterization and Modeling of Polymeric Material Systems at the Joint ASME / ASCE (American Society of Civil Engineers) / SES (Society of Engineering Science) Summer Meeting. She received the Applied Mechanics Division's Tom J.R. Hughes Young Investigator Award in 2003.

Brinson is also a Fellow of the SES and the American Academy of Mechanics; and a member of TMS–The Minerals, Metals and Materials Society, the Society for Experimental Mechanics, the American Society for Engineering Education and the American Association of University Women.

She has received a number of awards including a Friedrich Wilhelm Bessel Research Award (2006–07) from the Alexander von Humboldt Foundation and a National Science Foundation CAREER Award (1995–2000).

Brinson received her bachelor's degree in engineering science and mechanics from Virginia Polytechnic Institute and State University, Blacksburg, in 1985. She earned her master's degree and Ph.D. in applied mechanics from the California Institute of Technology, Pasadena, in 1986 and 1990, respectively.

Sia Nemat-Nasser Early Career Award

KEVIN T. TURNER

Conferral at the Materials Division Reception, 2014 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.

KEVIN T. TURNER, Ph.D., Gabel family term associate professor of mechanical engineering and applied mechanics, University of Pennsylvania, Philadelphia, for outstanding research in experimental and theoretical solid mechanics, particularly for advancing the understanding of interfacial mechanics with applications to microscale and nanoscale manufacturing, wafer bonding, layer transfer processes, failure and reliability in microsystems, and advanced lithography.

Dr. Turner is the Gabel family term associate professor of mechanical engineering and applied mechanics at the University of Pennsylvania, Philadelphia, where he also serves as the director of the Quattrone Nanofabrication Facility. He was on the faculty of the department of mechanical engineering at the University of Wisconsin–Madison (2005–11) before moving to the University of Pennsylvania.

His primary research interests are related to mechanics, manufacturing, and materials issues in micro and nanoscale systems. Much of his work falls at the intersection of these fields. For example, he has developed theoretical mechanics models and performed fundamental measurements that have resulted in an improved understanding of several commer-



cially important semiconductor manufacturing processes including wafer bonding and advanced lithography. His current research includes work on 3-D integration, microtransfer printing, wear of nanoscale contacts in scanning probe-based processes, and adhesion of soft materials and structured surfaces.

An ASME member, Turner regularly attends and presents his research at ASME technical conferences, and he has reviewed abstracts for various technical tracks within Society meetings. As a faculty member, he regularly participates in events hosted by the ASME Student Section.

Turner is also a member of the Materials Research Society; SPIE, The International Society for Optics and Photonics; and the Adhesion Society.

Among his honors, Turner was selected to participate in the National Academy of Engineering's Frontiers of Engineering Symposium (2012) and was among *R&D Magazine*'s 2009 R&D 100 Award winners; and he received the Society of Manufacturing Engineers' Outstanding Young Manufacturing Engineer Award (2011), the Adhesion Society's Young Adhesion Scientist Award (2011), the National Science Foundation's CAREER Award (2009) and the American Society for Engineering Education's Ferdinand P. Beer and E. Russell Johnston Jr. Outstanding New Mechanics Educator award (2008).

Turner earned his bachelor's degree in mechanical engineering from the Johns Hopkins University, Baltimore, in 1999. He earned his master's degree and Ph.D. in mechanical engineering from the Massachusetts Institute of Technology, Cambridge, in 2001 and 2004, respectively.

BART RAEYMAEKERS

Conferred at the Tribology Frontiers Conference, Chicago, October 2014

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.

BART RAEYMAEKERS, Ph.D., assistant professor, The University of Utah, Salt Lake City, for significant contributions in the area of hydrodynamic lubrication, particularly surface texturing to reduce friction between sliding surfaces in magnetic storage devices and, most recently, prosthetic joints.



Dr. Raeymaekers joined the faculty at The University of Utah, Salt Lake City, as an assistant professor in the department of mechanical engineering in October 2010. His current research interest is bio- and nanotribology with a focus on elastohydrodynamic lubrication and surface texturing.

Earlier he was a postdoctoral fellow at Los Alamos National Laboratory, New Mexico (2009–10).

Raeymaekers has been a member of teams that have performed leading-edge tribology and contact mechanics research. As evidenced by his papers in top tribology journals, he has made important contributions to the field of tribology through research on hydrodynamic lubrication, contact mechanics, fretting wear, and design and analysis of precision instrumen-

tation for tribology applications.

He has co-authored 30 journal publications, presented at more than 25 conferences and regularly reviews manuscripts for various journals. He has three patents pending.

An ASME member, Raeymaekers is a member of the Information and Storage Processing Systems (ISPS) Division's Executive Committee, and the Tribology Division's Tribology Education and Contact Mechanics committees. He served as session organizer and session chair (fluid film lubrication) at the 2012 International Joint Tribology Conference. He received a graduate student fellowship from the ISPS Division in 2006, and a Best Paper Award at the 2008 and 2014 ISPS conference.

Raeymaekers is also a member of the Society of Tribologists and Lubrication Engineers (STLE).

His honors include the Barbara J. and Paul D. Saltman Excellent Teaching Award (2006) from UC San Diego; and a fellowship (2004) from the Belgian American Educational Foundation.

Raeymaekers earned his bachelor's degree in electromechanical engineering, magna cum laude, from KaHo St. Lieven Ghent, Belgium, in 2002; and a master's degree in applied sciences (electromechanical engineering), magna cum laude, from Vrije Universiteit Brussel, Belgium, in 2004. He earned a master's degree, summa cum laude, and his Ph.D. in engineering sciences from UC San Diego in 2005 and 2007, respectively. In 2009 he earned an MBA from the Massachusetts Institute of Technology, Cambridge.

GHASSAN JAWDAT NICOLAS MOHAMMAD JANBOZORGI HAMEED METGHALCHI

Conferral at the President's Luncheon, 2014 International Mechanical Engineering Congress and Exposition

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

GHASSAN JÁWDAT NICOLAS, Ph.D., fracturing and stimulation engineer, Schlumberger (Al-Udhailiyah, Eastern Province, Saudi Arabia); MOHAMMAD JANBOZORGI, Ph.D.; and HAMEED METGHALCHI, Sc.D., professor of mechanical and industrial engineering, Northeastern University, Boston, for the paper titled "Constrained-Equilibrium Modeling of Methane Oxidation in Air."

Dr. Nicolas is currently working at Schlumberger (Al-Udhailiyah, Eastern Province, Saudi Arabia), the world's largest oilfield services company. He was selected for Schlumberger's elite Access Program, which includes spending 18 months in operations (well production services) followed by 21 months in data and consulting services. In his current position as a fracturing and stimulation engineer, Nicolas performs hydraulic fracturing treatments (acid fracturing, prop fracturing and matrix acidizing) to stimulate wells, increase their effective permeability and improve their production.

An ASME member, Nicolas is also a member of the American Institute of Chemical Engineers, the American Institute of Aeronautics and Astronautics, The Combustion Institute and the Lebanese Order of Engineers.

His honors include Northeastern University scholarships (2005–07, 2008–12), the Mark Jaoudeh Scholarship Award (2011) from the American Lebanese Engineering Society and an undergraduate merit scholarship (six semesters) from the University of Balamand (2002–05).

Nicolas received his bachelor's degree in mechanical engineering from the University of Balamand (Amioun, Lebanon) in 2005. He earned his master's degree in mechanical engineering (thermodynamics and heat transfer) and his Ph.D. in mechanical engineering (combustion and chemical kinetics) from Northeastern University, Boston, in 2007 and 2012, respectively. He is registered in the Lebanese Order of Architects and Engineers (Tripoli).

Dr. Janbozorgi received his bachelor's degree in mechanical engineering from the University of Tehran, Iran, in 2001; his master's degree in aerospace engineering from Sharif University of Technology (Tehran, Iran) in 2003; and his Ph.D. in mechanical engineering from Northeastern University, Boston, in 2011.

As a postdoctoral researcher at Northeastern University, Janbozorgi worked on funded projects including development of the rate-controlled constrained-equilibrium theory for turbulent combustion, development of empirical correlations between laminar burning speed of refrigerants and the minimum





ignition energy, and modeling of the expansion of combustion products of energetic fuels (RDX and HMX) through a supersonic nozzle.

Janbozorgi then spent a year as a postdoctoral research associate at the University of Southern California, Los Angeles, where he was focused on developing new concepts and approaches for chemical kinetic modeling of combustion of heavy hydrocarbon fuels relevant to high-speed combustion.

He is a member of ASME, The Combustion Institute and the American Physical Society.



Dr. Metghalchi joined the faculty at Northeastern University, Boston, in 1979 and is currently a professor in the mechanical and industrial engineering (MIE) department. Among prior positions, he was chair of the MIE department (2004–12) and was the interim dean of the College of Engineering (2006–07).

Metghalchi's research is in the general area of thermal sciences and deals with scientific issues in combustion, fluid mechanics, thermodynamics and chemical reactions specifically using the second law of thermodynamics to predict evolution of nonequilibrium reacting gas mixtures. He is a pioneer in flame speed measurements and the development of the ratecontrolled constrained-equilibrium method in chemical kinetics. He has supervised more than 40 master's,

Ph.D. and postdoctoral students. His research has been funded by the National Science Foundation, the Army Research Office, the Office of Naval Research, the Department of Energy and private companies such as Ford Motor Company, Caterpillar Inc., Stone and Webster Corporation, Integrated Genetics, Genzyme Inc. and the Qatar Foundation.

His publications include more than 130 referred articles in leading journals and conference proceedings. He was a member of the editorial board of the *International Journal of Thermodynamics* and the *International Journal of Exergy*.

An ASME Fellow, Metghalchi is the editor-in-chief of the *Journal of Energy Resources Technology*; and, since 2012, he serves on the James Harry Potter Gold Medal Award Committee. He is past chair (2004–05) of the Executive Committee of the Advanced Energy Systems Division. He served as a member of the ASME Energy Conversion Group (2008–12), the Committee on Operations and Training (2008–12), the Department Head Executive Committee (2009–12) and the Edward F. Obert Award Committee (2009–13). In 2011 he received the James Harry Potter Gold Medal and a Dedicated Service Award.

Metghalchi is a member of the American Society for Engineering Education, SAE International and The Combustion Institute. He is also a member of the Scientific Council of the International Centre for Applied Thermodynamics.

He received his bachelor's degree in mechanical engineering from the University of Oklahoma, Norman, in 1975. He earned his master's degree and Sc.D. from the Massachusetts Institute of Technology, Cambridge, in 1977 and 1980, respectively.

Old Guard Early Career Award

ANDRES E. RONDON MARIN

Conferral at the Members and Students Luncheon, 2014 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.

ANDRES E. RONDON MARIN, graduate student, Université Pierre et Marie Curie–Sorbonne, Paris, for inspirational leadership within ASME that has had an impact on young engineers in more than 10 countries; and for extraordinary career achievements including ongoing educational pursuits.

Mr. Rondon Marin is currently working on obtaining his Ph.D. in biomedical engineering under a threeyear research contract at the Laboratoire d'Imagerie Biomedicale at Université Pierre et Marie Curie (UPMC)–Sorbonne, Paris. He is developing vibration methods for the analysis of stability of cementless hip prosthesis in collaboration with an implants company in Switzerland and the participation of an orthopaedic surgeon.

As part of a combined Ph.D. Program in Science and Management, Rondon Marin is also pursuing an MBA diploma at the Collège des Ingénieurs, Paris.

Previously, as a research intern at the Laboratoire de Biomécanique of Arts et Métiers-ParisTech, Rondon Marin developed a finite elements model for frac-



ture prediction of the human femoral bone for future applications for the condition of osteogenesys imperfecta. Earlier, at the Institut des Systèmes Intelligents et de Robotique at UPMC–Sorbonne, he developed an algorithm for an artificial skin for dexterous objects manipulation with an anthropomorphic hand in a project funded by the European Commission.

An ASME member, Rondon Marin helped establish ASME Student Sections and programs throughout Latin America, and he is now working to do the same in Europe. For the Student Section at La Universidad del Zulia (Maracaibo, Venezuela), he held numerous positions including vice chair (2006–07), and he led a collaborative project that included six Venezuelan universities for the organization of the first ASME Human Powered Vehicle Challenge outside the U.S. He currently serves as member-at-large on the ASME Board on Career Development (2014–15); international liaison (since 2008) for the Human Powered Vehicle Challenge Committee; and has recently assumed numerous leadership roles for the development and implementation of ASME programs in Europe in collaboration with the District H's District Operating Board (DOB) and Student District Operating Board (SDOB), including an initiative to organize the first European ASME Early Career Forum held last year in Italy, and development of student and early career activities in France.

Previously he served the Society as member-at-large (2011–12) and chair (2012–14) of the Knowledge and Communities' (K&C) International Outreach Affinity Group; vice chair (2011–13) of the K&C Graduate Students Affinity Group; alternate (2010–12)/voting (2012–14) member of the ASME Nominating Committee; Nominating Committee representative (2010–14) on the Programs and Activities Operating Board; chair of the International Student Development Project Committee (2009–12); and Student Section Committee representative and SDOB chair (2007–09) for District I–Latin America. He co-organized the 2014 Early Career Forum in Zurich in collabo-

ration with Europe's DOB and SDOB, and the Swiss ASME Section. He has participated as coordinator/organizer and presenter/trainer (in different languages) at the Student Professional Development Conferences (2007–14) and Leadership Training Seminars (2008–13) in Venezuela, Colombia, Ecuador, Chile, Peru, Argentina, the U.S., France, Turkey, Italy, and this year in Denmark. Rondon Marin received District I's 2011 Charles T. Main Student Section Award Certificate and 1st Place Award at the 2008 District I Student Design Contest. He has also received multiple recognitions for service as a presenter/trainer at SDOB Leadership Conferences (2009–13).

He is also a member of the International Society of Biomechanics, the Venezuelan Society of Nanotechnology and the Association of Ph.D.'s of the UPMC–Sorbonne.

Rondon Marin graduated with honors from La Universidad del Zulia with a bachelor's degree in mechanical engineering in 2008. He earned a master's degree in mechatronics of medical systems for rehabilitation at UPMC–Sorbonne in 2012; and a master's degree in biomedical engineering (biomechanics of the musculoskeletal system) at École Nationale Supérieure d'Arts et Métiers–ParisTech in 2013.

Rufus Oldenburger Medal

ROBERT RONALD BITMEAD

Conferred at the Dynamic Systems and Control Conference, Antonio, Texas, October 2014

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.

ROBERT RONALD BITMEAD, PE, Ph.D., distinguished professor of mechanical and aerospace engineering, University of California, San Diego, for sustained contributions, in both theory and application, to joint system modeling and control design; and for work that has had major impact on model predictive control and controller certification based on experimental data.



Dr. Bitmead is a control theorist with a long history of experience in control applications in many industrial sectors: sugar, steel, mining, telecommunications, aerospace, transportation, energy and photolithography. His theoretical work is strongly influenced and guided by these applications. In the area of system identification (the fitting of dynamic models using experimental data) in particular, Bitmead has been an innovator in model fitting for the purpose of subsequent model-based feedback controller design. These methods arose in industrial control and yielded new techniques in the theory of modeling from data. This synergism between modeling and control, theory and practice is characteristic of his research and its implementation. He has made significant contributions to

constrained control and to the certification of feedback controllers for aircraft engines.

Bitmead joined the faculty at the University of California (UC), San Diego in 1999 as a professor in the department of mechanical and aerospace engineering. He held

the Cymer Corporation chair in high-performance dynamical systems modeling and control (2003–14) and is currently a distinguished professor of mechanical and aero-space engineering. Many of his former doctoral students occupy leadership roles in academe and industry.

Prior to joining UC San Diego, Bitmead spent 16 years at The Australian National University, Canberra, including eight as the executive director of the Cooperative Research Centre for Robust and Adaptive Systems, an incorporated joint venture comprised of the university, government labs and industry.

Bitmead has authored / co-authored numerous publications including three books, more than 20 book chapters, over 90 articles in refereed journals and more than 175 conference papers.

Bitmead is a Fellow of IEEE and member of the IEEE Control Systems Society's board of governors; a Fellow of the International Federation of Automatic Control (IFAC), where he served on the council (1996–2002); and a Fellow of the Australian Academy of Technological Sciences and Engineering.

Among his honors, Bitmead was a Distinguished Lecturer (2001–06) for the IEEE Control Systems Society, and he received an Outstanding Service Award (2002) from IFAC.

Bitmead earned his bachelor's degree in applied mathematics at the University of Sydney in 1976. He earned his master's degree and his Ph.D. in electrical engineering at the University of Newcastle, Australia, in 1977 and 1980, respectively. He is a nationally registered professional engineer (electrical) in Australia.

Performance Test Codes Medal

W. GLENN STEELE JR.

Conferral at the President's Luncheon, 2014 International Mechanical Engineering Congress and Exposition

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.

W. GLENN STEELE JR., P.E., Ph.D., William L. Giles distinguished professor emeritus of mechanical engineering, Mississippi State University, Starkville, for significant contributions to the methodology of uncertainty analysis and its application to experimental programs; for serving ASME with exemplary dedication for more than three decades; and for current service as vice chair of PTC 19.1, the Society's Performance Test Code Committee on Test Uncertainty.

Dr. Steele joined the faculty at Mississippi State University (MSU), Starkville, in 1979 and focused on education, research and service in the energy area with special emphasis on the applications of uncertainty analysis. He advanced to professor in 1985, and was Bobby Shackouls professor (2005–12) and William L. Giles distinguished professor (1997–12). Steele served in various administrative roles including head of the MSU mechanical engineering department (1990–2008), interim dean of engineering in (1995–96, 2004 and 2007–08), interim vice president for research and economic development (2009), interim *(continued)*



provost and academic vice president (2010), and director of two university research centers (2006–12). He retired in 2012 and is a William L. Giles distinguished professor emeritus of mechanical engineering.

Prior to his career at MSU, Steele worked at the Westinghouse/Bettis Atomic Power Laboratory in Pittsburgh (1974–79), where he did research and development work on nuclear power plant components for the U.S. Navy.

Uncertainty analysis has been the primary focus of Steele's involvement with national and international committees on the development of new standards for experimental error analysis.

His publications include a co-authored book (three editions), three book chapters, more than 30 journal articles and more than 75 technical papers.

An ASME Fellow, Steele has been a member of Society's Performance Test Code (PTC) Committee 19.1–Test Uncertainty since 1991, and he has been serving as vice chair since 1995. He also serves on V&V 20 Committee–Verification and Validation in Computational Fluid Dynamics and Heat Transfer, a committee he co-founded with H.W. Coleman in 2003. Steele previously served on the PTC Standards Committee (1994–2013) and chaired the Technical Sessions Committee (1996–97). He also served on the Mechanical Engineering Department Heads Committee (1990–2008) including as vice chair, Region XI (1994–95); and was ASME Student Section advisor at MSU (1983–84).

Steele is an Associate Fellow of American Institute of Aeronautics and Astronautics (AIAA). He is also a member of the American Society for Engineering Education; the American Society of Heating, Refrigerating and Air-Conditioning Engineers; and SAE International.

Among his honors, Steele received the Southern Growth Policies Board's Innovator Award (2009), AIAA's Ground Testing Award (2004) and MSU Bagley College of Engineering's Career Achievement Award (2004); and he was recognized by the Mississippi Legislature as Outstanding Faculty Honoree for MSU at the annual HEAD-WAE (Higher Education Appreciation Day, Working for Academic Excellence) Awards Program (1998).

Steele earned his bachelor's degree in mechanical engineering from MSU in 1968. He earned his master's degree and Ph.D. in mechanical engineering from North Carolina State University, Raleigh, in 1970 and 1974, respectively. He is a registered professional engineer in Mississippi.

Marshall B. Peterson Award

BRANDON A. KRICK

Conferred at the Tribology Frontiers Conference, Chicago, October 2014

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

BRANDON A. KRICK, Ph.D., assistant professor, Lehigh University (Bethlehem, Pa.), for the design and execution of the first tribological experiments of candidate solid lubricants in an extraterrestrial environment, part of MISSE-7, NASA's Materials International Space Station Experiment program.

Dr. Krick earned his bachelor's degree, master's degree and Ph.D. in mechanical engineering from the University of Florida (UF), Gainesville, in 2007, 2011 and 2012, respectively. He served as a postdoctoral associate at UF before joining the faculty at Lehigh University (Bethlehem, Pa.) in 2013 as an assistant professor.

His research interests are at the intersection of mechanical engineering, materials science and surface physics. Krick studies the fundamental origins of friction, wear, materials deformation and adhesion on complex surfaces ranging from cells to nanocomposites in environments ranging from space to thousands of feet under water. His research experience includes working with a multidisciplinary team on tribology



experiments that were mounted externally on the International Space Station as part of NASA's seventh Materials International Space Station Experiment program (MISSE-7); evaluating wear of dinosaur dental fossils (published in Science magazine); developing and patenting ultra-low wear polymer nanocomposites; and collaborating internationally on mechanics of soft matter.

Krick now directs the Surface Interfaces and Materials Tribology Laboratory at Lehigh University. His current focus is utilizing in situ experiments to characterize and understand the complex mechanical, material, chemical and physical interactions of tribological interfaces.

He is the author/co-author of 17 refereed journal articles, and he has delivered numerous technical presentations. He holds two patents and has more than 15 patent disclosures on devices and materials designed to mitigate friction and wear.

Krick is a member of ASME; the Society of Tribologists and Lubrication Engineers (STLE); Tau Beta Pi, the Engineering Honor Society; and Pi Tau Sigma, the International Mechanical Engineering Honor Society.

His honors include a UF Alumni Fellowship (2007–12), UF's Mechanical Engineering Department Outstanding Graduate Research Award (2011) and STLE's Young Tribologist Award (2011).

IBRAHIM TARIK OZBOLAT

Conferral at the Members and Students Luncheon, 2014 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.

IBRAHIM TARIK OZBOLAT, Ph.D., assistant professor, The University of Iowa, Iowa City, for outstanding achievements in mechanical engineering within 10 years of graduation.



Dr. Ozbolat is an assistant professor in the department of mechanical and industrial engineering at the University of Iowa, Iowa City, and the founder and co-director of the Advanced Manufacturing Technology Group. He is also affiliated with the Center for Computer-Aided Design as a research professor.

His major research thrust is in the area of design, manufacturing and tissue engineering with a special focus on biomanufacturing, additive manufacturing and electronics manufacturing. Ozbolat is a globally known expert in 3-D bioprinting, particularly in organ fabrication. He has two patents pending. His success in research has led to two spin-off companies.

Ozbolat has published more than 60 journal and conference articles, and his research has been featured

numerous times in local, national and international media. He frequently gives talks, locally, nationally and internationally, at forums, conferences and seminars; and he organizes demonstrations and events geared to the public, particularly youth, to encourage their participation as future engineers in medicine, engineering and science.

An ASME member, Ozbolat's research was featured in "Printed Life" in the January 2012 issue of *Mechanical Engineering* magazine. In January 2014 an ASME video titled "3-D Organ Printing: Promises and Challenge" featured his efforts in this area. He received the Manufacturing Engineering Division's Chao and Trigger Young Manufacturing Engineer Award in 2014.

Ozbolat is also a member of the Institute of Industrial Engineers (IIE); Alpha Pi Mu, the Industrial Engineering Honor Society; and the Society of Manufacturing Engineers (SME).

His honors include a National Science Foundation CAREER Award (2014); SME's Outstanding Young Manufacturing Engineer Award (2014); The University of Iowa's Old Gold Summer Fellowship Award (2012), Innovations in Teaching With Technology Award (2012 and 2013) and Center for Computer-Aided Design Leadership Award (2013); and IIE's award for Manufacturing and Design Best Track Paper (2013).

Ozbolat earned dual bachelor's from Middle East Technical University (Ankara, Turkey): an industrial engineering degree in 2006 and a mechanical engineering degree in 2007. He earned his Ph.D. in industrial and systems engineering from the University at Buffalo, The State University of New York in 2011.

James Harry Potter Gold Medal

MICHAEL R. von SPAKOVSKY

Conferral at the President's Luncheon, 2014 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.

MICHAEL R. von SPAKOVSKY, Ph.D., professor, Virginia Polytechnic Institute and State University, Blacksburg, for pushing the boundaries of science by delving into the most basic elements of physics and thermodynamics, and applying these insights to the modeling of complex nonequilibrium/equilibrium phenomena at scales ranging from single particle systems to large stationary cogeneration and high-performance aircraft systems.

Dr. von Spakovsky has more than 27 years of teaching/research experience and more than 17 years of industry experience in mechanical engineering, power utility systems, aerospace, and software engineering.

Since 1997 von Spakovsky has been professor of mechanical engineering at Virginia Polytechnic Institute and State University, Blacksburg, and director of the Center for Energy Systems Research. His courses include thermodynamics and intrinsic quantum thermodynamics (IQT), kinetic theory, fuel cells, and energy systems. His research involves approaches for the integrated synthesis, design, operation and control of stationary energy and high-performance aircraft systems, theoretical/applied thermodynamics with a focus on IQT, and fuel cell applications.



Among his various professional activities, von Spakovsky serves as chair of the Executive Committee for the International Centre of Applied Thermodynamics and is a member of the Scientific Committee. He is former editor-in-chief (11-year tenure) of the Centre's *International Journal of Thermodynamics*. He is a member of the international advisory board of *Archives of Thermodynamics* and was a topic editor for the Encyclopedia of Life Support Systems. From 1999 to 2012, he was a member of the Scientific Committee for the International Conference on Efficiency, Cost, Optimization, Simulation and Environmental Impact of Energy Systems (ECOS) and served on the advisory board for the 2007, 2008 and 2009 conferences.

Von Spakovsky has more than 210 publications and has given talks, keynote lectures, seminars and short courses (e.g., on fuel cells and IQT) worldwide.

An ASME Fellow, von Spakovsky is associate editor of the *Journal of Fuel Cell Science and Technology* and a member of the Award Review committees for the Frank Kreith Energy and Edward F. Obert awards. Previously he was the Advanced Energy Systems Division's (AESD's) representative to the Society's Energy Technical Group (2011–13), Executive Committee chair (2010–11), fuel cell representative to the Society (2004–07) and symposium chair for the Systems Analysis Technical Committee (2000). He also served as ASME's representative on the Centre for the Analysis and Dissemination of Demonstrated Energy Technologies' U.S. Team (2001–03) and as a member of numerous independent review panels. He received AESD's Best Paper Award in 2005, 2008 and 2012; and a Lifetime Achievement Award in 2012. In that same year, he received the Society's Edward F. Obert Award.

He is a senior member of the American Institute of Aeronautics and Astronautics; and a member of Tau Beta Pi, the Engineering Honor Society.

Von Spakovsky graduated cum laude from Auburn University, Alabama, in 1974 with a bachelor's degree in aerospace engineering. He earned his master's degree and Ph.D. in mechanical engineering from the Georgia Institute of Technology, Atlanta, in 1980 and 1986, respectively.

Prime Movers Committee Award

ROBERT J. BELL ALBERT S. BIRKS

Conferred at the ASME Power Conference, Baltimore, July 2014

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

ROBERT J. BELL, P.E., director of engineering/president, Heat Exchanger Systems, Inc. (Weymouth, Mass.); and ALBERT S. BIRKS, P.E., for the paper titled "An Engineer's Guide to Eddy Current Testing."



Mr. Bell is the director of engineering/president and founder of Heat Exchanger Systems, Inc. (HES), a consulting, engineering and nondestructive examination firm in Weymouth, Mass. Since 1982 HES has been providing specialized engineering, testing and examination services for power plant feedwater heaters, condensers, miscellaneous heat exchangers, and associated systems.

Prior to his career at HES, Bell spent 12 years at Stone & Webster Engineering Corporation, Boston. Initially he designed mechanical systems for power plants and later worked in the Operation Services Division, eventually becoming supervisor of the Special Projects Group.

Bell has published more than 40 papers on testing and analysis of heat exchanger failures, refurbishment, and performance issues. He has also been a principal investigator on several Electric Power Research Institute heat exchanger related projects.

An ASME member, Bell serves on PTC 12.2, ASME's Performance Test Code Committee on Steam Surface Condensers.

Bell is also a member of The American Society for Nondestructive Testing and is Level III certified in electromagnetic testing methods.

Bell earned a bachelor's degree in mechanical engineering from the University of Maryland, College Park, in 1970; a master's degree in environmental engineering from Northeastern University, Boston, in 1976; and a master's degree in business administration, with honors, from Babson College (Wellesley, Mass.) in 1981. He is a registered professional engineer in Pennsylvania, New York, Massachusetts and Texas.



Mr. Birks recently retired from the Indian Head Naval Surface Warfare Center in Maryland. At Indian Head, part of the Naval Sea Systems Command (NAVSEA), Birks served as the site radiation safety officer, and as senior engineer and scientist with the Energetics, Test and Evaluation Division.

Prior to his work with NAVSEA, Birks was manager of nondestructive test engineering for the Babcock & Wilcox Aerospace Division (Mount Vernon, Ind.) during the development and initial production of the Advanced Solid Rocket Motor for NASA's Shuttle program. Earlier he served as associate section manager of the Nondestructive Test Branch at Battelle Pacific Northwest Laboratories (Richland, Wash.) in support of the nuclear program at that site.

A member of ASME, Birks serves on the Boiler and Pressure Vessel Committee on Nondestructive Examination (V) and is past chair of the Subgroup on Surface Examination Methods.

He is a Fellow of The American Society for Nondestructive Testing (ASNT), where he served on the board of directors for two terms. He is certified as Level III in electromagnetic testing, ultrasonic testing and radiographic testing. While chairing the ASNT Ultrasonics Committee, he served as technical editor of ASNT's Nondestructive Testing Handbook: Volume 7, Ultrasonic Testing.

He has written and presented more than 30 papers on nondestructive testing and has been awarded several patents.

Birks earned his bachelor's degree in electrical engineering from Rensselaer Polytechnic Institute (Troy, N.Y.) in 1953. He is a registered professional engineer in Illinois.

Dixy Lee Ray Award

LEO P. DUFFY

Conferral at the President's Luncheon, 2014 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.

LEO P. DUFFY, for advancing the public good through the design of standardized naval nuclear power plant systems that were adopted internationally, and through comprehensive national nuclear waste policy development.



Mr. Duffy served as the first assistant secretary of the Department of Energy's (DOE) Office of Environmental Restoration and Waste Management. Confirmed during President George H.W. Bush's administration, Duffy headed up this new mission from 1989 to 1993.

Soliciting feedback from Congress and hundreds of engineers and scientists across the complex, Duffy established a pioneering program (now the Office of Environmental Management) and an initial five-year plan to tackle the nation's nuclear waste legacy. He secured congressional appropriations for an annual operating budget totaling \$5.2 billion. In addition to his responsibilities for coordinating all DOE waste activities, he directed environmental compliance,

waste management operations, and related technology research, development and demonstration activities. He was also responsible for centralized management, planning, headquarters control, and validation of cost, schedule and priorities of environmental cleanup and waste management projects at DOE facilities. He conducted numerous reviews – programmatic, performance, budget and contract performance – at all major DOE sites and national laboratories.

Duffy was named Engineering News-Record Man of the Year in 1993 in recognition of his comprehensive program and five-year plan.

Following his tenure as assistant secretary, Duffy was principal of DUFFY GROUP (West Chester, Pa.), through which he provided strategic counsel and management support on critical initiatives until his retirement in 2003.

Among his earlier career experience, Duffy served as vice president and project director for nuclear services at Roy F. Weston, Inc.; general manager of the Westinghouse Waste Technology Services Division and the Strategic Operations Division of Westinghouse Nuclear Power Co.; and manager of EG&G Idaho's Waste Management Group.

Duffy also played a role in the Navy's standardization of nuclear power plant systems, which put particular emphasis on control rooms, instrumentation, operating procedures and training programs. He was assigned to the staff of Adm. Hyman G. Rickover and served as chief of prototypes for the Naval Reactors Division of the U.S. Atomic Energy Commission/Energy Research and Development Administration; and, subsequently, as director of the Chief of Naval Operations' Ships Material Readiness Program, which provided training for senior officers prior to command in nuclear assignments.

He has authored numerous articles and papers on nuclear energy and waste management.

Duffy earned his bachelor's degree in mechanical engineering from New York University in 1952. He attended the Bettis Reactor Engineering School, Pittsburgh (1955–56), received Naval Nuclear Propulsion Training (1967) and qualified as a nuclear plant engineer (1967).

Charles Russ Richards Memorial Award

SURESH V. GARIMELLA

Conferral at the Members and Students Luncheon, 2014 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.

SURESH V. GARIMELLA, Ph.D., Goodson distinguished professor and executive vice president for research and partnerships, Purdue University (West Lafayette, Ind.), for outstanding achievements in mechanical engineering for 20 years or more following graduation.



Dr. Garimella joined the faculty at Purdue University (West Lafayette, Ind.) in 1999. He is currently executive vice president for research and partnerships and the Goodson distinguished professor of mechanical engineering. He is also director of the National Science Foundation's (NSF) Cooling Technologies Research Center. He previously served as Purdue's Chief global affairs officer; and, earlier, led Purdue's Office of Engagement as associate vice president. Among his prior experience, Garimella was on the faculty at the University of Wisconsin–Milwaukee (1990–99).

His areas of expertise include micro and nanoscale transport phenomena, thermal management and energy

efficiency in electronics systems, renewable and sustainable energy systems technology and policy, and global academic–public–private partnerships.

Garimella has supervised over 80 graduate students; 17 alumni from his group are now faculty members at prestigious universities worldwide.

He has held honorary faculty positions at the Technical University of Darmstadt, Germany; Xi'an Jiaotong University, China; and the University of New South Wales, Sydney. As Jefferson science fellow in the International Energy Office at the U.S. Department of State (2010–11), Garimella explored pathways to a clean energy future, analyzing cross-cutting issues at the intersection of energy security and climate change. He was the State Department delegate to the International Energy Agency's Committee on Energy Research and Technology. He was recently reappointed senior fellow of the State Department's Energy and Climate Partnership of the Americas, a regional partnership announced by President Obama at the April 2009 Summit of the Americas. He is a member of the board of directors of Modine Manufacturing Company.

He has co-authored 500 refereed journal/conference publications and 18 patents/ patent applications. He serves in editorial roles with several leading energy-related journals.

An ASME Fellow, Garimella has been a member of the Heat Transfer Division's (HTD's) K-16 Committee on Heat Transfer in Electronic Equipment since 1990. He previously served as chair (2005–07) of the HTD's Membership Development and Recognition Committee and as a member of the K-5 Coordination Committee (1995–98). He was editor of *Heat Transfer-Recent Contents* (1995–98), and associate editor of *Thermal Science and Engineering Applications* (2008–11) and the *Journal of Heat Transfer* (2004–07). He also has contributed to the Society as conference organizer, conference chair/co-chair, session organizer and panelist. He received the HTD's K16 Clock Award in 2007 and 75th Anniversary Medal in 2013; and the Society's Gustus L. Larson Memorial Award in 2004, Allan Kraus Thermal Management Medal in 2009 and Heat Transfer Memorial Award–Art in 2010.

Garimella is also a Fellow of the American Association for the Advancement of Science and a member of IEEE.

His extensive list of honors includes Purdue University's Provost's Award for Outstanding Graduate Mentor (2012), College of Engineering Faculty Award of Excellence for Mentoring (2011) and the School of Mechanical Engineering's Ruth and Joel Spira Award (2009); the NSF IUCRC (Industry University Cooperative Research Center) Association's Alexander Schwarzkopf Prize for Technology Innovation (2011); a Distinguished Alumnus Award (2010) from the Indian Institute of Technology (IIT), Madras; the Harvey Rosten Award for Excellence (2009); and various Best Paper and Best Poster awards.

Garimella received three degrees in mechanical engineering: his B.Tech. from IIT, Madras in 1985; his master's degree from The Ohio State University, Columbus, in 1986; and his Ph.D. from the University of California, Berkeley in 1989.

ADAM HART-DAVIS

Conferral at the Honors Assembly, 2014 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.

ADAM HART-DAVIS, DPhil, for educating the public about science, technology, engineering and mathematics by making STEM both inspirational and accessible in multiple media formats; and for celebrating engineers and the lasting impact of their contributions to the world.



Dr. Hart-Davis is a well-known scientist, author, photographer, historian, and radio and television personality. He is also a philanthropist who has a passion for raising awareness of the quality of life benefits that science, technology, engineering and mathematics bring, particularly for those in developing countries.

After three years of postdoctoral research in Canada and the U.K. (1968-71), Hart- Davis served as science editor at Oxford University Press, U.K. In 1977 he joined the science department at Yorkshire Television (Leeds, U.K.). There, through 1993, he worked as a researcher, producer and executive producer on programs such as "Arthur C. Clarke's Mysterious World"; "Scientific Eye," a television series used in 70 percent of U.K. secondary school and in 35 other

countries; and the equally successful "Mathematical Eye." He was a presenter on "Local Heroes"; "What the Romans Did for Us" and spin-off series on the Victorians, Tudors and Stuarts, and Ancients; "How London Was Built"; and many other programs. In addition to providing lively demonstrations of experiments, the programs provided Web links so young people could gain hands-on experience.

Hart-Davis has been a presenter on more than 100 radio programs about science and technology including two series of "Engineering Solutions." He has written numerous articles, and is the author or editor of nearly 30 books including "Chain Reactions–Pioneers of British Science and Technology," "Eurekaaargh–A Spectacular Collection of Inventions That Nearly Worked," "Talking Science," "The Book of Time–The Secrets of Time, How it Works and How We Measure It," "The Cosmos– A Beginner's Guide," "Engineers–From the Great Pyramids to the Pioneers of Space Travel," and a pop-up book for children titled "Inventions–A History of Key Inventions That Changed the World."

As a freelance writer, Hart-Davis has just finished editing a book about science for Dorling Kindersley. He also gives a variety of lectures to local history groups as well as national and international organizations.

Hart-Davis is president, patron or honorary fellow of some 35 organizations including the British Science Association, Merton College, The Royal Photographic Society, the Royal Society of Chemistry, the Society of Dyers and Colourists, the Institution of Lighting Engineers and The Newcomen Society.

His honors also include the Institution of Engineering Designers' Gerald Frewer Memorial Trophy (1999), the Royal Academy of Engineering's inaugural Public Promotion of Engineering Medal (2002), The Institution of Incorporated Engineers' Sir Henry Royce Memorial Foundation Medal (2003), the Royal Television Society's Judges' Award for Educational Television (2003), and the Institute of Scientific and Technical Communicators' Horace Hockley Award (2006).

Hart-Davis received his bachelor's degree in chemistry (first-class honours) from Oxford University, U.K., in 1966; and his DPhil in organometallic chemistry from York University, U.K., in 1968. He holds 14 honorary degrees.

ROBERT BOLEN

Conferred at the B30 Committee Meeting, Baltimore, May 2014

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.

ROBERT BOLEN, consultant, for more than 35 years of dedicated service advocating for the use of ASME safety standards; and for outstanding contributions as a member of the B30 Safety Standards Committee for Cranes and Related Equipment including 21 years as chair of Subcommittee B30.11–Monorails and Underhung Cranes.

Mr. Bolen spent his career at DuPont Co. (Wilmington, Del.), where he worked for 37 years in the central engineering department. Although he retired from DuPont in 2002, he continues to provide engineering consulting services.

During his last 25 years at DuPont, Bolen was the company consultant on overhead and vertical material handling systems. His responsibilities included providing expertise on cranes, hoists, manipulators, material lifts, elevators and industrial ergonomics. In addition to writing specifications, reviewing equipment design and overseeing installation of new equipment, he was called upon to assess and upgrade existing equipment. Because of the depth of his knowledge, Bolen often served as a subject matter



expert for internal investigations on hoisting and elevator incidents and accidents.

Among his significant contributions at DuPont, Bolen was the originator, leader and trainer for the Rigging Champion Network (RCN), which is dedicated to the safe handling of freely suspended loads. Founded in 1991, it consists of individuals knowledgeable in all aspects of the maintenance and operation of overhead hoisting systems. From its inception, Bolen emphasized knowledge and use of ASME's B30 Safety Standards for Cranes and Related Equipment to become an effective champion. Under his leadership the RCN grew from its roots within one business, with about a dozen sites, to include all of the different businesses under the DuPont umbrella; currently there are RCN members at nearly 100 DuPont facilities worldwide.

Bolen began his association with ASME Safety Codes and Standards in 1978. He served as a member of the NOG-1–Nuclear Overhead and Gantry Cranes Committee and Mechanical Subcommittee through 1989. He has been a member of the B30 Safety Standards Committee for Cranes and Related Equipment since 1989, and was chair of Subcommittee B30.11–Monorails and Underhung Cranes (1990–2011). Bolen currently serves on Subcommittee B30.11 as well as B30.5–Mobile and Locomotive Granes, and B30.28–Balance Lifting Units. In addition to his B30 activities, he served as a member of the Mechanical Subcommittee for Valued Services (1989–2010). He received an ASME Certificate for Valued Services (1989).

He was a member of the National Association of Elevator Safety Authorities (1989–2006) and had been certified as a qualified elevator inspector.

Bolen graduated from Spring Garden Institute, Philadelphia, in 1962 with an associate degree in mechanical technology. He earned his bachelor's degree in mechanical and aerospace engineering from the University of Delaware, Newark, in 1967.
REZA S. ABHARI

Conferred at the ASME Turbo Expo 2014, Düsseldorf, Germany, June 2014

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.

REZA S. ABHARI, Ph.D., full professor, ETH Zurich, for significant contributions to the gas turbine industry in both the U.S. and Europe, and for exemplary service to the IGTI.



Dr. Abhari is a full professor and head of the Laboratory for Energy Conversion (established in 1892) at ETH Zurich. With 75 students and staff, current research at the laboratory includes renewable energy technology and economics, fossil fuel power generation and laser produced plasma. Abhari served as delegate of the rector (2005–10), dean/head of the department of mechanical and process engineering (2003–05) and head of the Institute of Energy Technology (2001–03, 2011–13).

Prior to joining ETH Zurich in 1999, Abhari was an assistant/associate professor at the College of Engineering at The Ohio State University, Columbus, where he co-founded the Gas Turbine Laboratory. Earlier, he worked in the aerospace industry in the

U.S., focusing on research and development and its management.

He has made significant contributions in the areas of turbomachinery aerothermodynamics, wind energy, fluid-structure interaction, numerical simulation, experimental techniques and measurement technology. Among his accomplishments, Abhari was the first researcher to identify the impact of the unsteady pressure waves due to rotor-stator interaction, resulting in the pulsation of the coolant being used to protect the surface. He successfully demonstrated the importance of aerodynamic damping for the prediction of high-cycle fatigue, and his work in the area of miniature instrumentation development has been an important component in the advanced research being done worldwide in the turbomachinery field. He is an inventor on eight European patents.

Abhari has been involved in the growth of a number of energy, aerospace and semiconductor enterprises in the U.S. and Europe as a board member, founder or strategic advisor. He is currently a member of the supervisory board of PNE Wind AG, headquartered in Germany.

Abhari has authored/co-authored more than 200 scientific articles and journal publications, and has served on a number of scientific editorial boards. He has given keynote speeches in the U.S., Europe and Asia on topics related to energy supply and conversion, technology management and innovation management.

An ASME Fellow, Abhari has been a member of the K-14 Committee on Gas Turbine Heat Transfer and the IGTI Turbomachinery Committee since 1992 and 1995, respectively. He was a member of the board of directors of ASME IGTI (2004–10) and served on the editorial board of the *Journal of Power and Energy* (2001–06). Abhari received Best Paper awards in 1993, 2008, 2009 and 2011.

He is a member of the Swiss National Academy of Engineering Sciences and a Christensen Fellow of St. Catherine's College (Oxford, U.K.).

Abhari earned his bachelor's/master's degrees in engineering science from the University of Oxford, U.K., in 1985; and his Ph.D. in aeronautics and astronautics from the Massachusetts Institute of Technology, Cambridge, in 1991.

Milton C. Shaw Manufacturing Research Medal

ALBERT SHIH

Conferred at the Manufacturing Science and Engineering Conference, Detroit, June 2014

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

ALBERT SHIH, Ph.D., professor of mechanical engineering and biomedical engineering, University of Michigan, Ann Arbor, for fundamental contributions to abrasive grinding in high-volume production; and for leadership that has broadened manufacturing research into the design of advanced medical devices and healthcare operations.

Dr. Shih is a leader in novel manufacturing processes, particularly abrasive machining and biomedical manufacturing. He joined the faculty at the University of Michigan (U-M), Ann Arbor, in 2003 and is currently professor of mechanical engineering and biomedical engineering. He is also associate chair, Integrative Systems + Design, a division in the College of Engineering; and director of the global automotive and manufacturing engineering program.

Among his prior experience, Shih was an associate professor in the department of mechanical and aerospace engineering at North Carolina State University, Raleigh, from 1998 to 2002; and, from 1991 to 1998, he worked at Cummins Inc. (Columbus, Ind.), where he was the lead manufacturing process development engineer.



Šhih's two most significant technical contributions are the development and implementation of super-abrasives (cubic boron nitride and diamond) for production grinding, and the invention and implementation of the precision grinding of zirconia with silicon carbide wheels for high-volume production in diesel engine fuel systems.

More recently, Shih has been a leader in broadening manufacturing research and development efforts into advanced medical devices and healthcare operations. He has made noteworthy achievements in advanced needles and tissue cutting mechanics for biopsy and guidance; thermal management to minimize nerve damage in surgery; advanced diagnosis devices based on bioimpedance; anatomically-accurate simulators for clinical procedures training to enhance patient safety; and assistive devices and systems to help people with disabilities and to facilitate independent living in an aging society.

Shih has published more than 150 papers in archival journals. He holds eight patents, with two pending.

An ASME Fellow, Shih was associate editor of the *Journal of Manufacturing Science* and Engineering (2000–06) and was guest editor for the special issue on biomedical manufacturing (2007). He co-organized/co-chaired a number of conference symposiums; and was co-host for the 2014 ASME Manufacturing Science and Engineering Conference (MSEC)/North American Manufacturing Research Institution (NAMRI) of SME's 42nd Annual North American Manufacturing Research Conference/JSME International Conference on Materials and Processing. He received a Best Paper Award at the 2012 MSEC and was a Best Paper Award finalist in 2013. In 1999, he received the Manufacturing Engineering Division's BOSS Award.

Shih is also a Fellow of SME and an associate member of CIRP–The International Academy for Production Engineering.

His other honors include a National Science Foundation CAREER Award (2000), SAE's Ralph Teetor Education Award (2004), NAMRI/SME's Outstanding Paper (continued)

Milton C. Shaw Manufacturing Research Medal (cont.)

Award (2007) and a U.S. Department of State Fulbright Scholar award (2009). Shih was recognized by U-M with a Gilbert Whitaker Teaching Award (2006), Rackham Faculty Recognition Award (2010), College of Engineering George J. Huebner Jr. Research Excellence Award (2011) and Mechanical Engineering Graduate Student Council Faculty Mentor Award (2011); and he was selected to serve as an International Ambassador for the College of Engineering (2012).

Shih earned his bachelor's and master's degrees in mechanical engineering from National Cheng Kung University (Tainan, Taiwan) in 1984 and 1986, respectively. He earned his Ph.D. from Purdue University (West Lafayette, Ind.) in 1991.

Ben C. Sparks Medal

TIMOTHY W. SIMPSON

Conferred at the Mechanical Engineering Education Leadership Summit, San Juan, Puerto Rico, March 2014

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.

TIMOTHY W. SIMPSON, Ph.D., professor of mechanical engineering and industrial engineering, The Pennsylvania State University, University Park, for exemplary leadership of the Learning Factory that has provided unparalleled student access to innovative and authentic practice-based design/build experiences, fostering the largest collegewide and industry-sponsored capstone design program in the U.S.



Dr. Simpson is a professor of mechanical engineering and industrial engineering at The Pennsylvania State University, University Park, with affiliations in engineering design and the College of Information Sciences and Technology. He is also the co-director of the Center for Innovative Materials Processing through Direct Digital Deposition (CIMP-3D), a Defense Advanced Research Projects Agency-funded manufacturing demonstration facility for additive manufacturing.

From 2007 to 2012, Simpson served as director of the Learning Factory, which provides Penn State engineering students with practical hands-on experience through industry-sponsored and client-based capstone design projects. Under his leadership, student involve-

ment doubled, industry sponsorship tripled, department engagement quadrupled, and cross-college participation increased fivefold.

Simpson has received over \$20 million in funding for his research in product family and product platform design, additive manufacturing, and multidisciplinary design optimization.

To date, Simpson has published more than 250 peer-reviewed papers and was the lead editor on two books on product family and product platform design. He serves on the editorial boards of *Research in Engineering Design*, the *Journal of Engineering Design and Engineering Optimization*.

An ASME Fellow, Simpson is very active in the Society's Design Engineering Division. He currently serves on the Division's Executive Committee, having served on the Design Automation Executive Committee, and as associate editor of the *Journal of Mechanical Design*. His efforts on the Design Automation Conference, part of ASME's International Design Engineering Technical Conferences, range from session chair (1998–2013), session organizer and paper review coordinator (2001–13), program chair (2006), and conference chair (2007). He has served as a reviewer for various ASME conferences and journals.

Simpson is also an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA), and a member of the American Society for Engineering Education (ASEE).

His honors include ASEE's Fred Merryfield Design Award (2011), AIAA's Multidisciplinary Design Optimization Technical Committee Outstanding Service Award (2006), SAE International's Ralph R. Teetor Educational Award (2005), and a National Science Foundation CAREER Award (2002) and graduate research fellowship (1995– 98). Simpson received Penn State's President's Award for Excellence in Academic Integration (2007); and, between 2002 and 2006, he received various teaching and research awards from the Penn State Engineering Alumni Society.

Simpson earned three degrees in mechanical engineering: his bachelor's degree from Cornell University (Ithaca, N.Y.) in 1994; and his master's degree and Ph.D. from the Georgia Institute of Technology, Atlanta, in 1995 and 1998, respectively.

Ruth and Joel Spira Outstanding Design Educator Award

KEVIN CRAIG

Conferred at the International Design and Engineering Technical Conferences, Buffalo, N.Y., August 2014

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.

KEVIN CRAIG, Ph.D., Robert C. Greenheck chair in engineering design and professor of mechanical engineering, Marquette University (Milwaukee, Wis.), for transforming engineering design education—students, faculty, curricula and facilities—for more than 30 years through a focus on human-centered, model-based multidisciplinary design, with a balance between theory and industry best practices, taught in the context of actual engineering practice.

Dr. Craig attended the United States Military Academy at West Point, N.Y., and, in 1973, graduated with a bachelor's degree in engineering and a commission as an officer in the U.S. Army. After military service he worked as an engineer and attended graduate school in New York City, and taught and received tenure at both the United States Merchant Marine Academy (Kings Point, N.Y.) and Hofstra University (Hempstead, N.Y.).

Craig joined the faculty at Rensselaer Polytechnic Institute (RPI) in Troy, N.Y., in 1989. As a tenured full professor of mechanical engineering, he developed the Mechatronics Program, which included an extensive teaching and research laboratory,

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



and several undergraduate and graduate courses in mechatronics. During his 18 years at RPI he graduated 37 master's students and 20 Ph.D. students.

In 2008 Craig became the Robert C. Greenheck chair in engineering design and professor of mechanical engineering at Marquette University (Milwaukee, Wis.). His mission is to integrate multidisciplinary design and discovery learning throughout the College of Engineering. He has worked with all department chairs and faculty to instill shared ownership of this common goal, while managing the details of new courses, laboratories, staff and facilities. Initially, Craig transformed the freshman engineering program with a hands-on, minds-on approach that emphasized human-centered, model-based design. Then, at the

sophomore and junior level, he created two multidisciplinary engineering systems courses taught in the context of modern engineering practice. At the senior year/graduate level, he has developed and taught six innovative courses. He continues to provide students with ongoing opportunities to collaborate in multidisciplinary teams, to conduct research that solves real-world problems, and to work one-on-one with faculty and industry partners.

Craig has more than 30 refereed journal publications and more than 50 refereed conference publications. Since 2007 he has been writing a monthly column on mechatronics for Design News magazine. He has given various keynote addresses in the U.S. and abroad, and numerous invited industrial presentations on mechatronics. He holds two patents.

An ASME Fellow, Craig has conducted a mechatronics course for the Society's Professional Development Program.

Craig is a member of IEEE and the American Society for Engineering Education (ASEE).

His honors include Marquette University's Mechanical Engineering Best Teacher Award (2013); RPI's School of Engineering Education Excellence Award (2006), Trustees' Outstanding Teacher Award (2006) and Lewis T. Assini Undergraduate Teaching and Counseling Award (2000); and ASEE's New Engineering Educator Excellence Award (1987) and North-Midwest Best Teacher Award (2013).

In addition to his bachelor's degree from the United States Military Academy, Craig earned a master's degree in mechanical engineering, a M.Phil. and a Ph.D. in mechanical engineering from Columbia University in 1977, 1981 and 1986, respectively.

ANTONIOS KONTSOS

Conferral at the Members and Students Luncheon, 2014 International Mechanical Engineering Congress and Exposition

THE STUDENT SECTION ADVISOR AWARD, established in 1990 as the Faculty Advisor Award and renamed in 2000, 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 program and operations of a Student Section of the Society.

ANTONIOS KONTSOS, Ph.D., P.C. Chou endowed assistant professor in mechanical engineering, Drexel University, Philadelphia, for dedicated service as advisor for the ASME Student Section at Drexel University since the fall of 2010, particularly for enhancing the visibility of the section through increased membership, activities and funding; student attendance at Philadelphia Section and Society events; and personal and professional development opportunities.

Dr. Kontsos is currently the P.C. Chou endowed assistant professor in mechanical engineering at Drexel University, Philadelphia, where he is also the director of the Theoretical and Applied Mechanics Group. His research group specializes in applying experimental, analytical and computational tools to understand material deformation and damage across time and length scales. In addition, Kontsos' research uses nondestructive evaluation methods and their synergies with both material behavior as well as structural performance for diagnostics of damage and predictions of remaining useful life. His research has received funding from both governmental agencies, including the Office of Naval Research, the National Science Foundation and the U.S. Army, as well as industrial sponsors.



Prior to joining the faculty at Drexel University in

2009, Kontsos was a postdoctoral fellow/lecturer at The University of Texas at Austin.

An ASME member, Kontsos has been ASME Student Section advisor at Drexel since the fall of 2010. He has contributed significantly to the increase in student members by marketing the work and services of the section; talking to all freshmen students in the College of Engineering; and organizing events throughout the year including during Engineers Week, and at open houses and accepted student days. Kontsos encourages and motivates students to be leaders as well as valued members of the community. In addition to offering advice on opportunities to pursue and ways to improve activities, he works with student members to obtain funding to support section activities, and attendance at Philadelphia Section and Society events. Currently, Kontsos is also the ASME Philadelphia Section Secretary. His prior ASME efforts include hosting the 2014 Student Professional Development Conference, which brought together students throughout District A; and organizing a symposium at the Society's Applied Mechanics and Materials Conference, McMAT 2011.

He is faculty advisor for the Pi Tau Sigma Chapter at Drexel and is a member of the national office of Pi Tau Sigma.

He is also a member of The American Society for Nondestructive Testing (ASNT); TMS–The Minerals, Metals and Materials Society; and Sigma Xi, the Scientific Research Society.

His honors include Drexel University's Outstanding Student Advisor Award (2012), ASNT's Faculty Grant Award (2011), and scholarships (2003) from the Alexander S. Onassis Public Benefit Foundation and the Hellenic Professional Society of Texas.

Kontsos received his undergraduate diploma in mechanical engineering from the University of Patras, Greece, in 2002. He earned his master's degree and Ph.D. in mechanical engineering from Rice University, Houston, in 2005 and 2007, respectively.

CHARLES BECHT IV

Conferral at the President's Luncheon, 2014 International Mechanical Engineering Congress and Exposition

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.

CHARLES BECHT IV, P.E., Ph.D., president, Becht Engineering Co., Inc. (Liberty Corner, N.J.), for distinguished leadership and professionalism in the technical advancement of ASME codes and standards for pressure vessels and piping; and for dedication to the engineering profession, public safety and component reliability in the construction of pressure equipment.



Dr. Becht is a recognized authority in pressure vessels, piping, expansion joints, and elevated temperature design. He is president of Becht Engineering Co., Inc. (Liberty Corner, N.J.), which provides engineering consulting and project/turnaround management services to the energy sector; CEO of Helidex, LLC, which specializes in the design, manufacturing and installation of aluminum helicopter-landing platforms for ships and offshore installations; and director/ owner of Sonomatic Ltd., which supplies ultrasonic imaging services including development, design and production of specialized inspection equipment.

Becht began his professional career with Energy Systems Group–Rockwell International (Canoga Park, Calif.), where he advanced to lead engineer in charge

of elevated temperature piping and expansion joint research and development programs for liquid metal fast breeder reactors. Subsequently he joined Exxon Research and Engineering (Florham Park, N.J.), where he was a pressure equipment specialist for Exxon facilities worldwide.

He has authored/co-authored more than 60 publications and is a frequent speaker/ chair at technical forums. He holds six patents.

Among his accomplishments, Becht has developed new fundamental understandings such as the behavior of bellows and elevated temperature structures; and many new code rules including the introduction of weld joint strength reduction factors in the creep regime into ASME B31.3. He also founded ASME's Pressure Technology Post Construction Subcommittee on Repair and Testing.

An ASME Fellow, Becht is currently a member of the Pressure Technology Post Construction Committee (vice chair 1998–2001; chair 2001–07) and the Subcommittee on Repair and Testing (founding chair 1999–2011); the B31 Code for Pressure Piping Standards Committee and Mechanical Design Committee; the B31.3 Process Piping Code Committee (vice chair 2002–05; chair 2005–11); and the ASME Boiler and Pressure Vessel Code Subgroup on Elevated Temperature Design (chair 1996-2002). He has served on a number of other committees as well as the Task Force on Class 1 Expansion Joints between 1987 and the present. Becht is the author of two ASME books: "Process Piping: The Complete Guide to ASME B31.3" and "Power Piping: The Complete Guide to ASME B31.1." He received the Society's Dedicated Service Award in 2001 and S.Y. Zamrik PVP Medal in 2009 as well as numerous certificates in recognition of his efforts.

Becht is a member of the American Society of Civil Engineers; and ASTM International, where he has been serving on Committee F17 on Plastic Piping Systems since 1999. (continued) His honors include Union College's Outstanding Civil Engineering Alumni Gold Award (2011).

Becht earned his bachelor's degree in civil engineering at Union College (Schenectady, N.Y.) in 1976; his master's degree in civil (structural) engineering at Stanford University, California, in 1977; and his Ph.D. in mechanical engineering at Memorial University of Newfoundland, Canada, in 2000. He is a registered professional engineer in 15 states and the province of Alberta, Canada.

Technical Communities Globalization Medal

UPENDRA SINGH ROHATGI

Conferral at the President's Luncheon, 2014 International Mechanical Engineering Congress and Exposition

THE TECHNICAL COMMUNITIES GLOBALIZATION MEDAL, established in 2011, is awarded to an ASME member who has demonstrated a sustained level of outstanding achievement in the promotion of international activity related to mechanical engineering.

UPENDRA SINGH ROHATGI, Ph.D., senior mechanical engineer, Brookhaven National Laboratory (Upton, N.Y.), for career efforts devoted to reducing the risk of the proliferation of weapons of mass destruction and increasing global security through the engagement of scientists and engineers from former Soviet Union countries and Iraq, previously involved in WMD development, in the creation of new technologies for U.S. industries under the U.S. Department of Energy's program of Global Initiatives for Proliferation Prevention, and for institutions in the European Union, Japan and Canada; and through scientific collaborations at the International Science and Technology Center–Moscow and the Science and Technology Center in Ukraine.

Dr. Rohatgi started his career at Brookhaven National Laboratory (BNL) in Upton, N.Y., in 1975 and is currently a senior mechanical engineer. At BNL, he led a team in the development, validation and application of computer codes to simulate hypothetical accident scenarios for nuclear reactors for the U.S. Nuclear Regulatory Commission (NRC) and the Electric Power Research Institute. He contributed to the development of methodologies for scaling for test facilities and for the estimation of uncertainties in code prediction. The uncertainty methodology allowed the use of best estimate codes and is being used internationally for reactor safety analyses.

Rohatgi continues to support the NRC in design certification and technical reviews for new reactor



designs. He also advised Atomic Energy of Canada Limited and Ontario Hydro on scaling and the development of uncertainty methodology. In parallel, during the last 16 years, he has served as a program manager at BNL for the National Nuclear Security Administration's Global Initiatives for Proliferation Prevention program; and, for the last 12 years, he has also served as a senior science advisor to the U.S. Department of State and as a U.S. member of the Science Advisory Committee for the International Science and Technology Center–Moscow. Through these positions, he has contributed to the threat reduction and to the prevention of the proliferation of

Technical Communities Globalization Medal(cont.)

expertise in weapons of mass destruction (WMD) by engaging WMD experts from former Soviet Union (FSU) countries and Iraq in civilian enterprises. For these U.S. government programs, Rohatgi advises the Department of State in the selection of technically sound proposals from WMD scientists, and develops and manages partner projects for civilian technology development with teams consisting of U.S. companies and institutes with WMD scientists in FSU countries.

An ASME Fellow, Rohatgi has chaired the Fluids Engineering Division (FED) and the Multiphase Flow Technical Committee, the Thurston Lecture Award Committee and ASME's first Joint U.S.–European Fluids Engineering Conference (Montreal, 2002). He served as a member-at-large for the Basic Engineering Technical Group, a member of the Technical Communities' Committee on Division Health and Training, and an associate editor for the *Journal of Fluids Engineering*. He has organized more than 40 symposiums and forums for the FED and the Nuclear Engineering Division. He received an ASME Dedicated Service Award in 2009 as well as a number of certificates in recognition of his contributions.

His other honors include the NRC's Special Achievement Award (1998) for training engineers from Armenia and Russia in nuclear reactor analyses, and an Achievement Award (1989) for developing uncertainty methodology code prediction.

Rohatgi earned his bachelor's degree in mechanical engineering from Indian Institute of Technology Kanpur, India, in 1970. He earned his master's degree and Ph.D. in mechanical engineering from Case Western Reserve University, Cleveland, in 1972 and 1975, respectively.

Robert Henry Thurston Lecture Award

KEN P. CHONG

Conferral at the Thurston Lecture, 2014 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.

KEN P. CHONG, P.E., Ph.D., research professor, George Washington University, Washington, D.C., for fostering new research directions to meet national needs through efforts including visionary leadership in the fields of nanomechanics and materials; for mentoring and nurturing a new generation of engineering educators; and for pioneering work in architectural sandwich panels and brittle-fracture testing methods.

Dr. Chong is a research professor in the mechanical and aerospace engineering department at George Washington University in Washington, D.C., and a National Institute of Standards and Technology (Gaithersburg, Md.) associate. His activities include advising graduate students, teaching, writing a textbook on elasticity and mechanics, mentoring young faculty members, doing research, consulting and lecturing.

Chong is the former engineering advisor, and director of mechanics and materials (1989-2009) at the National Science Foundation (NSF) in Arlington, Va. He was the NSF interim director of the Division of Civil and Mechanical Systems in 2005. At NSF, in addition to managing an active portfolio of some 130 university research

projects in mechanics and materials, he was involved in the development of model-based simulation, civil infrastructure systems, nanotechnology and other initiatives. He was instrumental in establishing the NSF Summer Institute on Nano Mechanics and Materials in 2003; and in forming the NSF Blue Ribbon Panel on Simulation-Based Engineering Science chaired by Dr. Tinsley Oden in 2005.

Prior to joining the NSF, Chong was a professor for 15 years in Wyoming; visiting professor at the Massachusetts Institute of Technology, Cambridge, in 1987; and, earlier, was a senior research engineer with National Steel Corp. (1969–74). Chong pioneered the research and development of architectural sandwich panels, mechanics and fracturing of oil shales; and



developed new semicircular fracture specimens for brittle materials and a large sweet spot for tennis rackets.

He has published 200 technical papers and four textbooks, and edited 10 books. He was editor (1987–2013) of the Thin-Walled Structures journal (Elsevier). He is a co-editor of the *International Journal of Smart and Nano Materials* (Taylor & Francis, U.K.) and a Spon book series on structures and mechanics, and he serves on several other editorial boards. He has given the Mindlin Lecture, and 50 plenary lectures at major conferences.

An ASME Fellow, Chong has been very active in the Society. He has been a reviewer for *Applied Mechanics Reviews*, and has reviewed other journal articles since 1986. He has been a member of the Applied Mechanics Division's Elasticity Committee and the Materials Division's Electronic Materials Committee. Chong presented a nationwide 90-minute ASME webcast titled "Research and Challenges in Nanomechanics" in October 2002. He has mentored young faculty and postdoctoral members in writing successful career research proposals at workshops organized by the Mechanical Engineering Department Heads Committee, and he co-organized sessions and gave presentations at the International Mechanical Engineering Congress and Exposition in 2006 and 2007. He was an advisor to the chair of the ASME Knowledge and Community Nanotechnology Council, Dr. Wing Kam Liu, in 2010. Over the years, he has co-organized symposiums and served as conference panelist and session chair. He received the Ted Belytschko Applied Mechanics Division Award in 2011.

Chong is also a Fellow of the American Academy of Mechanics and the Society of Experimental Mechanics, and a Distinguished Member of the American Society of Civil Engineers (ASCE). Currently he is assisting the Hong Kong University Grants Committee/Research Grants Council in a Research Assessment Exercise (to assess the research quality of eight universities) and in evaluating regular research proposals.

His honors include ASCE's Edmund Friedman Professional Recognition Award (1997), the National Cheng Kung University's Distinguished Alumni Award (2003), a National Science Foundation Distinguished Service Award (2004) and various lectureships.

Chong graduated in the top 10 percent of his class with a bachelor's degree major in structural engineering from National Cheng Kung University, Taiwan, in 1964. In 1966 he earned a master's degree in structural mechanics (top of class) from the University of Massachusetts, Amherst. He earned a M.A., M.S.E. and Ph.D. in engineering mechanics at Princeton University, New Jersey, in 1969. Nominated by the NSF, Chong attended intensive senior leadership and team-building training at the Federal Executive Institute (Charlottesville, Va.) in 1996. He is a registered professional engineer in Wyoming. He received an honorary doctorate from Shanghai University in 2004 and the 49th honorary professorship from Harbin Institute of Technology, China, in 2013.

ROBERT M. MCMEEKING

Conferral at the Applied Mechanics Dinner, 2014 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.

ROBERT M. MCMEEKING, Ph.D., Tony Evans professor of structural materials and professor of mechanical engineering, University of California, Santa Barbara, for pioneering contributions to broad areas of applied mechanics including nonlinear fracture mechanics, transformation toughening, mechanics of composites, powder consolidation, and ferroelectric fracture and constitutive modeling.



Dr. McMeeking joined the faculty at the University of California, Santa Barbara (UCSB) in 1985. He served as chair of mechanical engineering (1992–95, 1999-2003), and is currently Tony Evans professor of structural materials and professor of mechanical engineering. In addition to his appointments at UCSB, he is sixth century professor of engineering materials (part time) at the University of Aberdeen, Scotland.

Previously McMeeking was an assistant professor (1978–82) and associate professor (1982–85) in the theoretical and applied mechanics department at the University of Illinois at Urbana-Champaign. Earlier he was at Stanford University, California, as acting assistant professor (1976–78), collaborating with Dr. Erastus H. Lee.

McMeeking has published more than 250 scientific papers on such subjects as plasticity, fracture mechanics, computational methods, glaciology, tough ceramics, composite materials, materials processing, powder consolidation and sintering, ferroelectrics, microstructural evolution, nanotribology, adhesion, actuating structures, blast and fragment protection of structures, fluid structure interactions arising from underwater blast waves, the mechanics of the cell and its cytoskeleton, lithium-ion batteries and fuel cells. He consults for industry on topics of reliability and durability of medical implants, ferroelectrics, and batteries and fuel cells.

An ASME Fellow, McMeeking has been actively involved in the Applied Mechanics Division as a member, vice chair and chair of various technical committees. He was associate editor (1987–94) and editor (2002–12) of the *Journal of Applied Mechanics*.

McMeeking is also a Fellow of the U.K.'s Royal Academy of Engineering and The Royal Society of Edinburgh in Scotland. He is a member of the National Academy of Engineering, the American Association for the Advancement of Science, the Society of Engineering Science (SES), the American Academy of Mechanics and Sigma Xi, the Scientific Research Society.

His honors include the William Prager Medal (2014) from the SES, the Humboldt Research Award for Senior Scientists (2006 and 2013) from the Alexander von Humboldt Foundation and the Brown Engineering Alumni Medal (2007) from Brown University. In 2002 he was recognized by Thomson Reuters (formerly the Institute for Scientific Information) as a highly cited researcher in the fields of materials science and engineering.

McMeeking received his bachelor's degree in engineering, with first class honors, from the University of Glasgow, Scotland, in 1972. He earned his master's degree in engineering at Brown University (Providence, R.I.) in 1974. McMeeking completed his Ph.D. in solid mechanics at Brown University in 1977 under the supervision of Dr. James R. Rice.

Worcester Reed Warner Medal

VIGOR YANG

Conferral at the President's Luncheon, 2014 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.

VIGOR YANG, Ph.D., William R.T. Oakes professor and chair, Daniel Guggenheim School of Aerospace Engineering, Georgia Institute of Technology, Atlanta, for extensive and fundamental contributions to the literature of combustion dynamics for propulsion and power-generation technology development.

Dr. Yang is the William R.T. Oakes professor and chair of the Daniel Guggenheim School of Aerospace Engineering at the Georgia Institute of Technology, Atlanta. Prior to joining the faculty at Georgia Tech in 2009, he was the John L. and Genevieve H. McCain chair in engineering (2006–08) at The Pennsylvania State University, University Park, where he was a faculty member since 1985.

His research interests include combustion instabilities in propulsion systems, chemically reacting flows in air-breathing and rocket engines, combustion of energetic materials, and high-pressure thermodynamics and transport. He has supervised 48 Ph.D. and numerous M.S. students through theses completion.



Yang has served on a variety of steering committees

and review/advisory boards for government agencies and universities in the U.S. and abroad, and he has been a consultant to government and industrial organizations.

He is the author/co-author of nearly 400 technical papers in the areas of propulsion and combustion, and he has published 10 comprehensive volumes on rocket and air-breathing propulsion. He was the editor-in-chief of the American Institute of Aeronautic and Astronautics' (AIAA) *Journal of Propulsion and Power* (2001-09) and the *JANNAF* (Joint Army Navy NASA Air Force) *Journal of Propulsion and Energetics* (2009–12). He has been an editor of the Aerospace Book Series of the Cambridge University Press since 2010.

An ASME Fellow, Yang has served as a member of the ASME International Gas Turbine Institute's Controls, Diagnostics and Instrumentation Committee.

Yang is also a Fellow of AIAA and the Royal Aeronautical Society.

His honors include a Lifetime Achievement Award (2014) from the Executive Committee of the JANNAF Interagency Propulsion Committee; several publication and technical awards from AIAA including the Air-Breathing Propulsion Award (2005), the Pendray Aerospace Literature Award (2008) and the Propellants and Combustion Award (2009); and the Penn State Engineering Society's Premier Research Award (2005).

Yang received his bachelor's degree in power mechanical engineering from National Tsing Hua University (Hsinchu, Taiwan) in 1976. He earned his master's degree in mechanical engineering from The Pennsylvania State University in 1980; and his Ph.D. in mechanical engineering from the California Institute of Technology, Pasadena, in 1984.

George Westinghouse Gold Medal

RYOICHI SAMUEL AMANO

Conferral at the Members and Students Luncheon, 2014 International Mechanical Engineering Congress and Exposition

THE GEORGE WESTINGHOUSE GOLD MEDAL was established in 1952 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.

RYOICHI SAMUEL AMANO, Ph.D., professor, University of Wisconsin–Milwaukee, for sustained efforts in education and research for the power industry, particularly outstanding contributions to the development and application of mathematical and experimental methods for innovations in power plant technologies that have resulted in significant improvement in efficiency and performance.



Dr. Amano joined the faculty at the University of Wisconsin (UW)–Milwaukee in 1981 and is currently a professor in the mechanical engineering department. He has been teaching thermal engineering at UW–Milwaukee for nearly 33 years; and has directed significant research programs in the areas of power, energy and aerospace, guiding many graduate and undergraduate students in the process.

Amano has made outstanding contributions to the development of mathematical modeling and experimental studies for power engineering including gas turbine heat transfer, turbulent combustion and cogenerators. His systematic development efforts on several models/studies on power generation component design improvements, critical theoretical development

on propulsion/combustor complex flow and heat transfer modeling, and energy efficient turbine and compressor designs have helped in advancing energy conversion processes, which have benefited many industries, research communities, and research and development divisions for power systems. Some specific topics that he has contributed to include gas turbine blade cooling, cogeneration system analysis, design improvements in turbine combustors, and aerospace engine analysis.

He has published three books covering power engineering, computational methods, and jet impingement cooling technologies; and he currently has a book covering wind energy on press. In addition, he has more than 500 publications including book chapters, and refereed papers in journals and conference proceedings.

An ASME Fellow, Amano has been a member of the Heat Transfer Division's (HTD) K-12 Committee–Aerospace Heat Transfer since 1983; the ASME/International Gas Turbine Institute K-14 Committee–Gas Turbine Heat Transfer since 1999; the Computers and Information in Engineering Division's Energy Systems Committee since 1998, and the Design Engineering Division's Design for Manufacturing and the Life Cycle Committee since 2011. Amano has served on the Organizing Committee for the IDETC/CIE (International Design and Engineering Technical Conferences & Computers and Information in Engineering Conference) from 2001 through 2012. He has chaired/co-chaired technical sessions at various conferences. He received an Outstanding Reviewer Award from the HTD in 2011 for his service on the *Journal of Thermal Science and Engineering Applications*. He has also received numerous awards for Best Paper; and for service as review coordinator, session organizer and course instructor.

Amano is an Associate Fellow of the American Institute of Aeronautics and Astronautics (AIAA), a senior member of IEEE, and a member of SAE International and ASM International.

His honors include AIAA's Sustained Service Award (2007) and Energy Systems Award (2013), UW–Milwaukee's Graduate School/UWM Foundation Research Award (2001), and various grants and fellowships.

Amano earned three degrees in mechanical engineering: his bachelor's and master's degrees from Waseda University, Tokyo, in 1973 and 1975, respectively; and his Ph.D. from the University of California, Davis, in 1980.

Arthur L. Williston Medal

MAVILA MARINA MILLER

Conferral at the Members and Students Luncheon, 2014 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.

MAVILA MARINA MILLER, undergraduate student, Yale University (New Haven, Conn.), for the paper titled "Engineering – Learning from the Past and Building the Future."

Ms. Miller is a junior at Yale University (New Haven, Conn.), where she is pursuing a double major in mechanical engineering and architecture. She expects to receive her B.S. in mechanical engineering and B.A. in architecture in 2016. Before coming to Yale, Miller lived in Shanghai, where she discovered her passion for creative industrial design and development.

As a design aide at the Yale Center of Engineering Innovation and Design, Miller has had the opportunity to manufacture prototypes of some of her ideas. She started a student-run organization called Creative



Product Design Inc., with the aim to develop and prototype a variety of products throughout the semester; the organization is currently in its second year.

Over the summer, Miller launched her own company, KuKy World (www.kukyworld.com), an online e-commerce platform that enables Asian designers to sell their creative products to the U.S. market. Not only does the website open a new channel for Asian designers, engineers and manufacturers to promote their products, it means all consumers have easy access to creative products from the other side of the world. Fluent in six languages, Miller's KuKy World platform is an attempt to bring international trade, engineering and design one step closer together.

Miller's business idea as well as her major combination represent her belief that engineering can be applied anywhere in life and that it is a great foundation for a variety of career paths.

An ASME member, Miller has participated in all talks and activities organized by the Student Section at Yale.

Miller's honors include a Yale Japan fellowship (July 2013).

Henry R. Worthington Medal

GERALD L. MORRISON

Conferral at the President's Luncheon, 2014 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.

GERALD L. MORRISON, P.E., Ph.D., professor of mechanical engineering, Texas A&M University, College Station, for more than three decades of pump research and development ranging from the space shuttle main engines to multiphase electric submersible pumps; and for advanced experimental and computational techniques that have expanded the understanding of pump operation and characterization.



Dr. Morrison began his career as an assistant professor of mechanical engineering at Texas A&M University, College Station, in 1977. Since then he has risen through the ranks to professor. Along the way, he was Halliburton associate professor (1981–82), Texas Engineering Experiment Station research fellow (1983–84, 1985–87), associate director of the Center for Space Power (1987–90) and Nelson-Jackson professor (1993–2012).

Morrison has supervised 19 Ph.D. and 78 M.S. students through degree completion. His current responsibilities include teaching fluid mechanics and laboratory techniques, and managing multiple research projects that support the work of 12 graduate students and a research engineer.

He has performed experimental and computational fluid dynamics studies pertaining to jet noise, multiphase flow meters, centrifugal and positive displacement multiphase pumps; and he developed instrumentation to complete these studies. He holds several patents in the area of flow meters. Funding for one of the first 3-D laser Doppler anemometer systems in the U.S. was obtained from the Air Force, and he has been developing a Doppler global velocimeter for many years. Studies included investigating labyrinth seals to improve the efficiency of the space shuttle main engines and impeller clearance effects upon centrifugal pump efficiency and axial thrust loads. A multiphase flow meter and water cut meter have also been developed.

Morrison has authored/co-authored more than 60 peer-reviewed journal publications, and approximately 50 refereed and 80 other conference publications. He selfpublished a textbook titled "Fluid Mechanics Laboratory" in 1992.

An ASME Fellow, he has served as chair of the Fluid Measurements and Instrumentation Technical Committee, and a member of the Fluid Applications and Systems Technical Committee. He has organized and chaired committee-sponsored sessions at the International Mechanical Engineering Congress and Exposition, and Fluid Engineering Division conferences.

Morrison is an Associate Fellow of the American Institute of Aeronautics and Astronautics and a member of the Society of Petroleum Engineers.

His honors include Texas A&M's Association of Former Students College-Level Teaching Award (1996 and 2011).

Morrison earned his bachelor's degree, master's degree and Ph.D. in mechanical engineering from Oklahoma State University, Stillwater, in 1973, 1974 and 1977, respectively. He is a registered professional engineer in Texas.

ARTHUR G. WARE

Conferred at the Pressure Vessels and Piping Conference, Anaheim, Calif., July 2014

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.

ARTHUR G. WARE, P.E., Ph.D., consultant, for providing numerous services to ASME including Codes and Standards, and the Pressure Vessels and Piping Division; and for significant contributions to the design, analysis, licensing and license renewal of nuclear power plants worldwide.

Dr. Ware began his career at the Bettis Atomic Power Laboratory (West Mifflin, Pa.) and Naval Reactors Facility (Idaho Falls, Idaho), where he specialized in the design, analysis and operation of naval nuclear plants. After a brief period with the Babcock & Wilcox Company (Lynchburg, Va.), the majority of his career was spent at the Idaho National Laboratory, Idaho Falls, where he performed structural and safety analysis for Department of Energy (DOE) test reactors. There he also conducted research for the Nuclear Regulatory Commission (NRC), contributing to the development of ASME Code Case N-411 (nuclear piping damping), resolution of Generic Issue 113 (large bore hydraulic snubbers), and a license renewal procedure for fatigue analysis of reactor components under environmental conditions.



Since 2001, as a private consultant, Ware has reviewed/performed DOE performance category 3 and 4 seismic analyses, conducted engineering marketing, delivered seminars, and reviewed new reactor licensing and licensing renewal applications for the NRC. During this period, he also worked part time as the principal analyst for Applied Engineering Services, Inc., of Idaho Falls.

Ware was a distinguished visiting professor in the mechanical engineering department of The American University in Cairo and a lecturer at the University of Cairo (2009).

He has published 80 technical papers and nine book chapters; and conducted seminars in the United States, South Korea and Brazil.

An ASME Fellow, Ware serves on the Technical Communities Operating Board's Committee on Administration and Finance (2012–15; vice chair 2013–14) and the Manufacturing Technical Group Operating Board (2012–15). He was a member of the Nominating Committee (2007–12; chair 2011) and the Leadership Task Force (2011–12). Since 2001 Ware has been serving on the Pressure Vessels and Piping Division (PVPD) Senate (president 2002–03) and Financial Committee, and since 1989 he has been serving on the Seismic Engineering Committee (chair 1993–95). Previously he served on the PVPD's Executive Committee (1995–2001; chair 2000–01) and Honors Committee (2001–04). He received numerous ASME certificates of Recognition/ Appreciation between 1991 and 2012, as well as a PVP Literature Award in 1991 and an ASME Dedicated Service Award in 2009.

Ware received his bachelor's degree in engineering mechanics from Virginia Polytechnic Institute, Blacksburg, in 1965. He earned his master's degree in engineering mechanics and his Ph.D. in applied mechanics from Stanford University, California, in 1966 and 1970, respectively. He is a registered professional engineer in Idaho.

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