

# ***Celebrate Engineering***



# **2012** ***ASME Honors***

students launched MicroGREEN Polymers Inc. to commercialize the technology. Dr. Kumar serves as scientific advisor to the company.

#### William T. Ennor Manufacturing Technology Award



#### S. JACK HU

The William T. Ennor Manufacturing Technology Award was established in 1990 by the ASME Manufacturing Engineering Division and the Alcoa Co. 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.

S. Jack Hu, Ph.D., J. Reid and Polly Anderson Professor of Manufacturing Technology, professor of mechanical engineering, and professor of industrial and operations engineering at the University of Michigan in Ann Arbor, is recognized for pioneering the development of innovative methodologies for predicting and diagnosing quality variation in multistage assembly systems, and methods for designing manufacturing system configurations and their implementation in automotive body assembly and battery manufacturing.

Dr. Hu co-directs the General Motors Collaborative Research Laboratory in Advanced Vehicle Manufacturing. He also currently serves as the associate dean for academic affairs in the College of Engineering.

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



#### CHARLES H. TOWNES

The Nancy DeLoye Fitzroy and Roland V. Fitzroy Medal, established in 2011, recognizes pioneering contributions to the frontiers of engineering leading to a breakthrough in existing technology or leading to new applications or new areas of engineering endeavor.

Charles H. Townes, Ph.D., professor in the graduate school at the University of California, Berkeley, is honored for the invention of masers and lasers that have dramatically changed the modern world and benefited mankind.

In 1951, Dr. Townes realized that stimulating molecules with microwaves and amplifying the effect in a special chamber could produce an unusually pure, concentrated beam of radiation. Three years later, he and his graduate students fired up a machine that produced the desired beam and called it a maser. In 1958, he and his brother-in-law, Arthur L. Schawlow, adapted his theory to show that visible light could replace microwaves; this led almost immediately to the first laser. Today, the laser is widely used in countless applications in modern society.

#### Fluids Engineering Award



#### GRETAR TRYGGVASON

The Fluids Engineering Award was established by the Fluids Engineering Division in 1968. In 1978 it was elevated to an ASME award recognizing 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.

Gretar Tryggvason, Ph.D., Viola D. Hank Professor of Aerospace and Mechanical Engineering, and department chair at the University of Notre Dame in Indiana, is recognized for remarkable contributions to the art, science, and practice of computation in fluids engineering, and for outstanding leadership in mechanical engineering education.

Dr. Tryggvason is best known for developing, with his students and collaborators, a front-tracking method for direct numerical simulations of multiphase flows and the use of this method to examine several systems, including bubbly flows, droplet motion, and boiling. He has supervised over 20 doctoral dissertations, and he holds two patents.

#### Freeman Scholar Award



#### PRATAP VANKA

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.

Pratap Vanka, Ph.D., professor of mechanical engineering at the University of Illinois at Urbana-Champaign, presented the Freeman Scholar lecture, "Computational Fluid Dynamics on Graphics Processing Units," at the 2012 Fluids Engineering Division Summer Meeting held in Puerto Rico.

Dr. Vanka has been an active researcher of computational fluid dynamics for 35 years, studying a diverse set of flow problems that have included two-phase flow in steam generators, liquid sodium flow in fast breeder reactors, magnetohydrodynamic power generation, ramjet combustors and ducted rockets, short take-off and vertical landing aircraft, jets in cross flow, and continuous casting of steel, to name a few.

#### Y.C. Fung Young Investigator Award



#### MARISSA NICHOLE RYLANDER

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.

Marissa Nichole Rylander, Ph.D., associate professor in the department of mechanical engineering and School of Biomedical Engineering and Sciences at Virginia Polytechnic Institute and State University in Blacksburg, is recognized for exemplary teaching and mentoring, and for establishing a nationally prominent program of research in bioengineering, including bioheat transfer.

Dr. Rylander is the director of the Tissue Engineering, Nanotechnology, and Cancer Research Laboratory. Her research focuses on bioheat transfer, nanomedicine, biomedical optics, tissue regeneration, and cancer engineering. She has also developed graduate courses, supervised undergraduate and Ph.D. students, and provided effective mentoring to help her students earn numerous honors and awards. Dr. Rylander has published 40 peer-reviewed articles in high-ranking journals.

#### Gas Turbine Award



#### MARTIN N. GOODHAND ROBERT MILLER

Established in 1963, the Gas Turbine Award recognizes outstanding contributions to the literature of combustion gas turbines or gas turbines thermally combined with nuclear or steam power plants. The award is sponsored by the ASME International Gas Turbine Institute.

Martin N. Goodhand, Ph.D., research fellow at St. John's College in Cambridge, U.K.; and Robert Miller, D.Phil, reader in energy technology at the University of Cambridge, are recognized for the paper titled "The Impact of Real Geometries on Three-Dimensional Separations in Compressors" (GT2010-22246), presented at Turbo Expo 2010.

As a member of Cambridge University's Whittle Laboratory, Dr. Goodhand is currently studying compressor deterioration on secondment at Rolls Royce. The aim of this work is to determine how compressor blade design can be altered to mitigate the effects of manufacturing imperfections and subsequent in-service erosion and fouling.

Dr. Miller's research at the Whittle Laboratory covers a wide range of flows in aero engines, gas turbines, and tidal turbines, and in part involves industrial collaborations with Rolls Royce, Mitsubishi, and Siemens.

#### Technical Communities Globalization Medal



#### JOHN H. LIENHARD V

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.

John H. Lienhard V, P.E., Ph.D., Samuel C. Collins Professor of Mechanical Engineering at the Massachusetts Institute of Technology, is honored for outstanding contributions in fostering global research collaboration and technology transfer in clean water and clean energy technologies, and for international education outreach through open-access online distribution of educational materials, especially in developing countries.

During nearly 25 years on the MIT faculty, Dr. Lienhard's research and educational efforts have focused on desalination, heat transfer, thermodynamics, fluid mechanics, and instrumentation. He has directed the Rohsenow Kendall Heat Transfer Laboratory since 1997. Dr. Lienhard is currently the director of the Center for Clean Water and Clean Energy at



MIT and King Fahd University of Petroleum and Minerals in Dhahran, Saudi Arabia. He visits the Persian Gulf often.

#### Heat Transfer Memorial Award

The Heat Transfer Memorial Award was established in 1959 by the Heat Transfer Division. In 1974, it was elevated to an ASME award recognizing outstanding contributions to the field of heat transfer through teaching, research, practice, and design, or a combination of such activities.



#### CHANG H. OH – ART

Chang H. Oh, Ph.D., INL distinguished engineer at the Idaho National Laboratory in Idaho Falls, is recognized for seminal and sustained contributions to thermal engineering, particularly for pioneering achievements in modeling thermal-hydraulic behavior, accident mitigation methods, and numerical tools for nuclear reactor systems that are designed to be coupled to other industrial process applications.

Dr. Oh's research career in thermal and fluid science spans 40 years. He has been with INL since 1985.



#### SATISH G. KANDLIKAR – GEN

Satish G. Kandlikar, Ph.D., the James Gleason Professor of Mechanical Engineering at Rochester Institute of Technology in New York, is recognized for outstanding research contributions in boiling heat transfer, particularly in mini- and micro-channels; for establishing international conferences dealing with transport phenomena in small channels; and for editorial work on handbooks and journals.

Dr. Kandlikar joined the faculty at RIT in 1980. He has contributed extensively in the area of boiling heat transfer, focusing on correlation development, modeling, and high-speed imaging of boiling phenomena.



#### JAVAD MOSTAGHIMI – SCIENCE

Javad Mostaghimi, P.Eng., Ph.D., distinguished professor in plasma engineering at the University of Toronto, is recognized for distinguished contributions to thermal plasma processing, particularly to the development of mathematical models of plasma sources and thermal spray coating formation, and as the founding director of the Centre for Advanced

Coating Technologies.

Dr. Mostaghimi joined the university in 1990. His research spans the areas of heat transfer, plasma processing and plasma chemistry, and fluid mechanics.

#### Mayo D. Hersey Award



#### FRANCIS E. KENNEDY JR.

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

Francis E. Kennedy Jr., P.E., Ph.D., professor of engineering, emeritus, Thayer School of Engineering at Dartmouth College in Hanover, N.H., is recognized for seminal contributions concerning thermal phenomena in frictional sliding interfaces, including early application of finite element analysis of temperature distributions; for development of closed-form surface temperature design equations; and for experimental verification via novel approaches such as thin-film surface thermocouples.

Since his retirement in 2009, Dr. Kennedy has continued his involvement with research projects dealing with wear of new metallic materials, wear of ultra-high molecular weight polyethylene components of knee prostheses, wear of metal-on-metal hip implants, and lubrication of knee prostheses.

#### Patrick J. Higgins Medal



#### FREDERICK G. PARSONS

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.

Frederick G. Parsons, an independent consultant providing services through F.G. Parsons Consulting in Cranston, R.I., is honored for outstanding dedication and effectiveness in developing and promoting a broad range of standards spanning dimensional metrology, surface metrology, and engineering specifications, and for consensus-building leadership in working to align national and international standards development in these areas.

Mr. Parsons has over 50 years of experience in designing, producing, and marketing dimensional metrology products. Mr. Parsons served as the head of the U.S. delegation to the International Organization for Standardization's Technical Committee 213—Dimensional and Geometrical Product Specifications and Verification (ISO/TC 213) for 10 years; and currently serves on ASME's Board on Standardization and Testing.

#### Soichiro Honda Medal



#### PRIYARANJAN PRASAD

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.

Priyaranjan Prasad, Ph.D., president of Prasad Consulting LLC in Plymouth, Mich., is honored for research, development, and implementation of active and passive safety technologies worldwide as exemplified by the development of injury criteria, design guidelines for vehicle structures to enhance occupant protection, and biomechanical research forming the basis of Federal Motor Vehicle Safety Standards.

Dr. Prasad worked for Ford Motor Co. for 35 years (1973-2008) in product development, advanced engineering, and research. He has written more than 110 technical peer-reviewed papers, and has received seven patents in active/passive safety technologies. Currently he is a consultant to universities, governments, and automotive original equipment manufacturers.

#### Internal Combustion Engine Award



#### NICHOLAS P. CERNANSKY

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.

Nicholas P. Cernansky, P.E., Ph.D., Frederic O. Hess Chair Professor of Combustion at Drexel University in Philadelphia, is recognized for contributions to the field of internal combustion engines that have provided significant insights into a range of topics including air quality and pollutant formation, hydrocarbon kinetics mechanisms at low and intermediate temperature, advanced combustion systems, and next generation fuels.

A member of the faculty since 1975, Dr. Cernansky teaches undergraduate and graduate courses, and conducts research in the areas of combustion, propulsion, thermodynamics, and energy conversion and utilization. He is the author of numerous reports and publications arising from this work, including more than 100 refereed publications. Dr. Cernansky has supervised more than 40 master's and 30 doctoral students. He also coordinates the department's Undergraduate Honors Research Program.