2018 FELLOWS

SEVENTH EDITION

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ABOUT THE NAI FELLOWS PROGRAM

Election to NAI Fellow status is the highest professional distinction accorded solely to academic inventors who have demonstrated a prolific spirit of innovation in creating or facilitating outstanding inventions that have made a tangible impact on quality of life, economic development and the welfare of society.

With the induction of the 2018 class, the program has 1,060 Fellows worldwide representing more than 250 prestigious universities and governmental and non-profit research institutes. Collectively, the Fellows hold more than 36,000 issued U.S. patents, which have generated over 9,400 licensed technologies and companies, and created more than 1.3 million jobs. In addition, over $137 billion in revenue has been generated based on NAI Fellow discoveries.

NOMINATE SOMEONE FOR NAI FELLOWSHIP

Eligibility Requirements:

- Nominees should have made outstanding contributions to innovation in areas such as patents and licensing, innovative discovery and technology, significant impact on society and support and enhancement of innovation
- Nominees must be a named inventor on patent(s) issued by the United States Patent and Trademark Office (the medican patent count among current NAI Fellows is 20)
- Nominees must be affiliated with an academic organization, e.g., university, college, non-profit research institute or government agency
- Nominees do not have to be current members of, nor affiliated with, a Member Institution of the National Academy of Inventors (although recommended)
- All U.S. and non-U.S. citizens are eligible for nomination
- Deceased nominees are not eligible
- Self-nomination, team submissions and nominations submitted by relatives are not eligible
- Nominations do not have to be submitted by an individual affiliated with an NAI Member Institution (although recommended)

The following documents must be included with the online submission form:

- Nominee's full Curriculum Vitae
- Complete list of issued U.S. patent(s) held by the nominee (excludes patent applications and pending patents)
- Letter of nomication signed and on letterhead
- Optional: Letter(s) of Support, Nominee's Biography, etc.
- Letter of nomination signed and on letterhead

Nominations open May – July annually

Find more information at **www.AcademyofInventors.com/fellows.asp**

United States Patent and Trademark Office

Office of the Commissioner for Patents

December 11, 2018

Dear Friends:

On behalf of the United States Patent and Trademark Office (USPTO), I congratulate the National Academy of Inventors' newly elected 2018 class of Fellows. The USPTO is honored to recognize the 148 academic luminaries of innovation and invention who are being bestowed this professional distinction. The NAI Fellows serve as role models to innovators in their fields today and in the future. Their inventions add to the scope and depth of science that will shape future innovation for years to come.

I also want to commend the NAI for continuing to celebrate and honor the top minds in academic research nationally and abroad. The USPTO recognizes the positive impact that NAI Fellows have made on our society and quality of life, and I am honored to serve on the NAI Fellows Selection Committee.

The USPTO values the mission we share with the NAI to advance and protect invention and innovation. Our work together, now and in the future, will continue to benefit the invention and innovation community worldwide.

Again, congratulations to the 2018 NAI Fellows. You are among our nation's top academic innovators and inventors and deserve much recognition for your outstanding achievements.

Warmest regards,

Drew Hirshfeld
Commissioner for Patents
U.S. Patent and Trademark Office

P.O. Box 1450, Alexandria, VA 22313-1450 • ww.uspto.gov

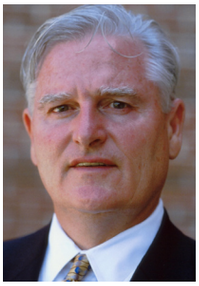
2018 FELLOWS CEREMONY SPEAKERS

Welcome Remarks

Paul R. Sanberg

President, National Academy of Inventors

Paul R. Sanberg, Ph.D., D.Sc., is president and founder of NAI and senior vice president for research, innovation and economic development, Distinguished University Professor of medicine, engineering, and business, and executive director of the Center of Excellence for Aging and Brain Repair at University of South Florida. His work has been instrumental in translating new pharmaceutical and cellular therapeutics to clinical trials and commercialization for Tourette syndrome, stroke, ALS, Alzheimer's, Huntington's and Parkinson's disease. He is an inventor on 163 U.S. and foreign patents; author of over 675 scientific articles and 14 books, with over 32,571 citations. He has served on editorial boards for over 30 scientific journals, is editor-in-chief of NAI's journal *Technology and Innovation*, and has received numerous scientific awards, including the AIMBE Advocate Award; Bryden Alumni Award (York University); Fulbright Specialist; McGovern Science & Society Award (Sigma Xi); Florida Academy of Sciences Medalist; Florida Inventors Hall of Fame inductee; fellow of AAAS, AIMBE, Royal Societies of Chemistry, Public Health and Medicine; and AAAS-Lemelson Invention Ambassador. He serves on the nomination evaluation committee, U.S. National Medal of Technology and Innovation; and advisory board, APLU Commission on Innovation, Competitiveness, and Economic Prosperity. He is a Charter Fellow of NAI.



Introduction of Keynote Speaker

Ed Schons

President, Florida High Tech Corridor

As president of the Florida High Tech Corridor Council, Ed Schons leads a unique economic development initiative anchored by the University of Central Florida, the University of South Florida and the University of Florida in its efforts to attract, retain and grow high tech, high-wage companies and the workforce to support them. Following two decades of involvement with the organization and its partners, Schons became president in 2017 and now maintains key partnerships with economic development organizations in the 23-county Florida High Tech Corridor region and throughout the state of Florida. Schons is a member of the Florida Chamber Foundation's Florida 2030 Executive Steering Committee, a delegate to the Enterprise Florida Inc. Stakeholders Council and previously served as chairman of the Florida Economic Development Council (FEDC). A skilled economic developer, his accolades include the Florida Chamber President's Award for Outstanding Service, the FEDC's prestigious Eunice Sullivan Economic Development Professional Award for Outstanding Dedication and Commitment to the Economic Development Profession and the Leadership St. Pete Alumni Association's Leadership Award for Outstanding Contributions to the Community.

Keynote Speaker

Andrew H. Hirshfeld

Commissioner for Patents, United States Patent and Trademark Office
U.S. Department of Commerce

Andrew H. Hirshfeld, Esq., is Commissioner for Patents for the United States Patent and Trademark Office (USPTO). He was appointed to the position in July 2015. Hirshfeld leads and manages more than 10,000 employees as the patent organization's chief operating officer. He manages and directs all aspects of patent operations, examination policy, patent quality management, international patent cooperation, resources and planning and budget administration. In his previous role as deputy commissioner for patent examination policy, he served as an authority on patent laws, rules and examining practice and procedure. He provided oversight and direction for the Offices of Petitions, Patent Legal Administration, and the Manual of Patent Examining Procedure. Hirshfeld previously served as Chief of Staff to the Under Secretary of Commerce for Intellectual Property and Director of the USPTO. He began his career at the USPTO in 1994 as a Patent Examiner, became a Supervisory Patent Examiner in 2001 and was promoted to the Senior Executive Service in 2008 as a Group Director in Technology Center 2100, Computer Architecture and Software. Hirshfeld holds a bachelor's degree from the University of Vermont, and a juris doctorate degree from Western New England College School of Law. Hirshfeld served as a member of the 2018 NAI Fellows Selection Committee.

FELLOWS

Seth Y. Ablordeppey | *Florida A&M University*

Seth Y. Ablordeppey, Ph.D., is professor of medicinal chemistry and Eminent Scholar Chair in Biomedical Sciences at Florida A&M University (FAMU), having transitioned from serving as the interim dean of the College of Pharmacy and Pharmaceutical Sciences. He served as the chair of the basic pharmaceutical sciences division at FAMU for 11 years. He is a Fulbright Scholar, and has made many contributions to the scientific community in the fields of medicinal chemistry and pharmaceutical sciences. He has garnered 16 grants during his career, four of which were valued over one million dollars. He currently has five provisional applications filed at the USPTO, two utility applications pending and four issued U.S. patents. Ablordeppey was one of the three founding members of The School of Pharmacy at The University of Lagos in Nigeria. Ablordeppey has served as a leader in many service-focused initiatives for organizations like NIH and ACS.

Rafi Ahmed | *Emory University*

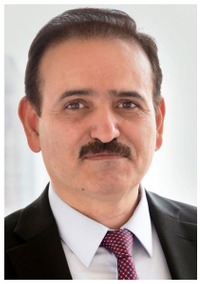
Rafi Ahmed, Ph.D., is Georgia Research Alliance Professor of Microbiology and Immunology, and director of the Emory Vaccine Center at Emory University School of Medicine in Atlanta, GA. His research efforts are directed towards understanding the mechanisms of immunological memory and using this knowledge to develop new and more effective vaccines. Ahmed has 12 U.S. patents Ahmed has published over 400 publications with his research focusing on defining the mechanisms of T cell exhaustion during chronic viral infections and cancer and developing strategies for restoring function in exhausted T cells. Ahmed is a member of NAS and NAM.

Pulickel M. Ajayan | *Rice University*

Pulickel M. Ajayan, Ph.D., is Benjamin M. and Mary Greenwood Anderson Professor of Engineering at Rice University and founding chair of the department of materials science and nanoengineering. His work covers diverse areas of nanomaterials including nanoparticles, nanotubes, 2D materials, nanocomposite and energy storage materials. He holds 26 U.S. patents and some of his work has been commercialized through licensing and start-ups. He is the recipient of awards such as the Spiers Memorial Award, MRS medal, Alexander von Humboldt-Helmoltz Senior Award and lifetime nanotechnology award from the Houston Technology Center. He received Docteur Honoris Causa from the Universite Catholique de of Louvain (Belgium) and distinguished alumni recognition from Banaras Hindu University (India) and the materials science and engineering department at Northwestern University. He has published more than 900 journal papers earning more than 80,000 citations and an h-index of 144.

Rod C. Alferness | *University of California, Santa Barbara*

Rod C. Alferness is Richard A. Auhll Professor and dean of the college of engineering at University of California, Santa Barbara (UCSB). While at Bell Labs, his research focused on integrated photonic devices and circuits for optical communication networks, including high-speed optical modulators and switches for optical networks. These devices provide critical functions for the fiber optical networks that underpin the global internet. Alferness served three years as chief technical officer for the Lucent Optical Networking Business where he led the transfer of his optical switching technology to commercial products that are now deployed around the world. Later, he returned to Bell Labs as the senior vice president of research, where he was responsible for Lucent's global Bell Labs' research. Before joining UCSB, he was the chief scientist of Bell Labs. Alferness has 30 U.S. patents, is a member of NAM and has received numerous awards for his work, including the IEEE Photonics Award and OSA's highest award, the Frederic Ives Medal / Jarus Quinn Prize.



Emad S. Alnemri | *Thomas Jefferson University*

Emad S. Alnemri, Ph.D., is Thomas Eakins Endowed Professor of Biochemistry and Molecular Biology at Thomas Jefferson University. Alnemri is an internationally renowned leader in the field of programmed cell death (apoptosis), demonstrating high-impact contributions to this field over the last 25 years. His innovative research focuses on understanding how caspases and the inflammasomes regulate cell death and inflammation. Significant ground-breaking scientific discoveries made by Alnemri include apoptotic caspases, inflammasomes and novel regulators of cell death; mechanism of activation and regulation of the apoptosome; and molecular modulation of active caspase-9 by XIAP and Smac. He holds 34 U.S. patents and 11 foreign patents, and has over 184 peer-reviewed journal articles. Alnemri was also honored as a top 400 cited scientists in biomedical sciences (2013). He received the Jefferson Medical College Research

Hal S. Alper | *The University of Texas at Austin*

Hal S. Alper, Ph.D., is professor of biotechnology at The University of Texas at Austin (UT-Austin) and a pioneer in the fields of synthetic biology and metabolic engineering, creating technologies that profoundly impact the way industrial biotechnology is conducted. He is the recipient of numerous awards including UT-Austin Emerging Inventor of the Year Award, AIChE Allan P. Colburn Award, Edith and Peter O'Donnell Award in Engineering, Jay Bailey Young Investigator Award in Metabolic Engineering and Camille Dreyfus Teacher-Scholar Award. He holds seven issued U.S. patents and six additional patent applications with five already licensed to seven companies. He has published over 100 peer-reviewed articles and nine book chapters. He is editor-in-chief for Biotechnology Notes, review editor for Metabolic Engineering, senior editor for Biotechnology Journal, associate editor for Microbial Cell Factories among other editorial

Evelina Angov | *Walter Reed Army Institute of Research*

Evelina Angov, Ph.D., is chief of the laboratory of molecular parasitology in the malaria vaccine branch at Walter Reed Army Institute of Research (WRAIR). Angov occupies a critical position of leverage as the Integrated Product Technology Chair for Malaria Vaccines. She has developed three malaria vaccine candidates for evaluation in phase I/II trials. She holds 14 issued U.S. patents, four of which include commercial collaborating co-inventors, and eight foreign patents. She has published 77 peer-reviewed papers, two book chapters and serves as review editor of Frontiers in Immunology. Angov serves as a member of NIH's NIAID SBIR immunology/microbial vaccines (other than HIV) study sections. Angov's discoveries in the identification of relevant antigenic targets, application of codon harmonization to gene expression and purification processes advance the field of vaccinology, and are critical milestones in the development of malaria vaccines.

Bernard P. Arulanandam | *The University of Texas at San Antonio*

Bernard P. Arulanandam, Ph.D., is interim vice president for research, economic development and knowledge enterprise and Jane & Roland Blumberg Professor of Biosciences at The University of Texas at San Antonio. Arulanandam is an internationally recognized mucosal immunologist who directs a research program focused on understanding host-microbe interactions and identifying approaches to induce optimal mucosal protection and immunity. Extensively published in his field (over 110 journal articles, 196 abstracts/conference proceedings and a book chapter), he holds seven U.S. patents for the development of vaccines against chlamydia trachomatis, francisella tularensis, and acinetobacter baumannii. He is the co-founder of the San Antonio Vaccine Development Center. Arulanandam is highly passionate about providing student and faculty mentoring in the production of the next generation of scientific talent. Honors and awards include induction as fellow of AAM and AAAS and recipient of the Fulbright International Education Administrators Award.

Stephen F. Badylak | *McGowen Institute for Regenerative Medicine, University of Pittsburgh*

Stephen F. Badylak, D.V.M, Ph.D., M.D., is deputy director of the McGowan Institute for Regenerative Medicine and professor of surgery and bioengineering at the University of Pittsburgh. He is an internationally recognized pioneer in the development and clinical application of biologic scaffold materials. He has demonstrated in the lab and the clinic that functional tissue can be generated through the use of these materials and holds 66 U.S. patents. One of the more challenging applications has shown the restoration of functional skeletal muscle in wounded soldiers who have lost muscle tissue in the extremities as a result of trauma in combat. Badylak has been recognized for his contributions by receipt of the University of Pittsburgh Innovation Award and the Chancellor's Distinguished Research Award. The core tissue engineering technology that Badylak has developed is now the basis of over 100 U.S. FDA approved medical devices that represent a multi-billion dollar industry. His intellectual property portfolio has resulted in the treatment of more than 10 million patients worldwide over the past 20 years. Badylak is fellow of AIMBE.

Harrison H. Barrett | *The University of Arizona*

Harrison H. Barrett, Ph.D., is a regents' professor of optical sciences and medical imaging at The University of Arizona. Barrett has 27 U.S. patents, has written or co-authored over 300 scientific papers and has presented over 150 invited or plenary papers at scientific conferences. He has written two major books and edited several others. In 2006, his book Foundations of Image Science, written in collaboration with Kyle J. Myers, was awarded the First Biennial J. W. Goodman Book Writing Award from OSA and SPIE. His other awards include Humboldt Prize, the 2000 IEEE Medical Imaging Scientist Award an Ernest Thomas Sinton Walton Award from Science Foundation Ireland and 2005 Charles Edward Kenneth Mees Medal from OSA. In 2014, he received an honorary doctorate in engineering from the University of Ghent in Belgium. He also received the Paul C. Aebersold Award of the Society of Nuclear Medicine and Molecular Imaging, and is a member of NAE.

Mark A. Barteau | *Texas A&M University*

Mark A. Barteau, Ph.D., is vice president for research at Texas A&M University (TAMU). Barteau is a leader in the fields of chemical engineering, catalysis and energy. He is the recipient of numerous awards, including the LaMer Award and the Ipatieff Prize of the ACS, Colburn, Alpha Chi Sigma, and Cecil Awards from AIChE, Emmett Award of the North American Catalysis Society and the International Catalysis Award of the International Association of Catalysis Societies. He holds two U.S. patents, has published 250 articles and has served as an associate editor or editorial board member of 14 peer-reviewed journals. Barteau is a member of NAE and fellow of AAAS and AIChE.

Jaqueline K. Barton | *California Institute of Technology*

Jacqueline K. Barton, Ph.D., is the John Kirkwood and Arthur A. Noyes Professor of Chemistry and Norman Davidson Leadership Chair of the Division of Chemistry and Chemical Engineering at the California Institute of Technology. Her research on DNA charge transport chemistry has stimulated the development of DNA electrochemical sensors and an understanding of long range cellular signaling. Barton holds 10 issued U.S. patents with one pending. Among many awards, she is a recipient of a MacArthur Foundation Fellowship and has been elected to AAA&S, the APhils, NAS and NAM. She has also served the chemical community through her participation in ACS, government and industrial boards. Barton received the 2010 National Medal of Science from President Obama, and the 2015 Priestley Medal, the highest award of ACS.

Susan J. Baserga | *Yale University*

Susan J. Baserga, M.D., Ph.D., is professor of molecular biophysics & biochemistry, genetics and therapeutic radiology at Yale University and the Yale School of Medicine. Baserga is a world leader in the field of eukaryotic ribosome biogenesis and how it relates to cancer and human genetic diseases. Through this, she is pioneering new approaches to cancer therapy. She is a 2018 winner of the Connecticut Technology Council Woman of Innovation in Research & Leadership award, 2016 William C. Rose Award from the American Society of Biochemistry and Molecular Biology and the Charles W. Bohmfalk Prize for basic science teaching at the Yale School of Medicine. She holds $1.7 million dollars/year in direct cost grant funding from NIH. She holds three U.S. patents that have been licensed to one company. Baserga is a member of the Connecticut Academy of Science and Engineering.

Rashid Bashir | *University of Illinois at Urbana-Champaign*

Rashid Bashir, Ph.D., is Grainger Distinguished Chair in Engineering, professor of bioengineering and dean of the college of engineering at the University of Illinois at Urbana-Champaign. Bashir is a pioneer in micro and nanotechnology, semiconductor processing, microfluidics and bio nanotechnology, and applications of these technologies to biology and medicine. He was the recipient of the 2000 NSF Early Career Award, 2012 IEEE EMBS Technical Achievement Award and the 2017 Robert Pritzker Award from the BMES. He holds 46 U.S. patents and one Chinese patent. Of his patents, 24 are used by National Semiconductor Corporation and Fairchild Semiconductors for analog/BiCMOS semiconductor manufacturing and 10 patents are licensed to four other companies, three of which were startups that he helped co-found. He has published over 240 journal articles, one edited book, 12 book chapters, presented over 150 invited talks and over 250 conference proceedings and abstracts. Bashir is fellow of IEEE, APS, AAAS, AIMBE, BMES and RSC.

Frank S. Bates | *University of Minnesota*

Frank S. Bates, Sc.D., is a regents' professor of chemical engineering at the University of Minnesota. He is recognized for his wide-ranging research in polymer science and especially contributions to the fundamental understanding and practical use of polymer blends, solutions and block polymers. Bates is the co-recipient of the 2017 Newcomb Cleveland Prize (*Science*, *AAAS*) and 2014 Cozzarelli Prize (PNAS), and received the 1997 Polymer Physics Prize (APS). He holds 26 U.S. patents, several dealing with currently marketed products, and has over 440 published works that have been cited over 50,000 times. Bates has served the broader scientific community as a former divisional associate editor for *Physical Review Letters* (1994-1999) and a member of the Reviewing Board of Editors of *Science* (1997-2002). He was elected to NAE in 2002, AAA&S in 2010 and NAS in 2017.

J. Michael Bishop | *University of California, San Francisco*

J. Michael Bishop, Ph.D., is chancellor emeritus of University of California, San Francisco (UCSF) and presided over what would become the largest academic biomedical expansion in the nation. He was awarded the Nobel Prize in Physiology or Medicine with Harold E. Varmus for the discovery that growth regulating genes in normal cells can malfunction and initiate the abnormal growth processes of cancer. He was also awarded the Albert Lasker Award for Basic Biomedical Research, the American Cancer Society National Medal of Honor, and the National Medal of Science. He holds one issued U.S. patent regarding RNA interference in mammalian cells, and is fellow of NAM, AAA&S and AAAS.

Elizabeth H. Blackburn | *University of California, San Francisco*

Elizabeth H. Blackburn, Ph.D., is Morris Herztein Professor of Biology and Physiology at the University of California, San Francisco (UCSF). She has been a leader in the area of telomere and telomerase research, having discovered the molecular nature of telomeres- the ends of eukaryotic chromosomes that serve as protective caps essential for preserving the genetic information- and co-discovered the ribonucleoprotein enzyme, telomerase. She is also known for her championing of diversity and inclusion in the sciences. She holds six U.S. patents and currently continues to work with various cells (including human cells) with the goal of understanding telomerase and telomere biology. She and her research team also collaborate in a wide range of investigations of the roles of telomere biology in human health and diseases, through clinical and other human studies. Blackburn has won many prestigious awards throughout her career including the Nobel Prize in Physiology or Medicine, the Albert Lasker Medical Research Award for Basic Medical Research, and in 2007 was named one of TIME Magazine's 100 Most Influential People.

Sylvia M. Blankenship | *North Carolina State University*

Sylvia M. Blankenship, Ph.D., is an emerita professor and senior associate dean for administration in the department of horticultural science and College of Agriculture and Life Sciences at North Carolina State University (NC State). Blankenship created a postharvest technology based on the anti-ethylene compound, 1-methylcyclopopene (1-MCP) that extends freshness of fruits, vegetables and flowers by controlling ethylene action. Development of 1-MCP has increased understanding of postharvest degradation making 1-MCP a major contributor to international food security. The American Society for the Horticultural Science has bestowed awards on Blankenship including the 2006 Leadership and Administration Award and the 2007 Outstanding Researcher Award. She was the NC State 2015 Innovator of the Year. She holds two U.S. patents and 23 foreign patents, licensed to five companies, with products used worldwide. She is fellow of the International Society of Horticultural Science and the American Society for Horticultural Science.

Robert E. Burrell | *University of Alberta*

Robert E. Burrell, Ph.D., is professor and chair of the department of biomedical engineering at University of Alberta. He is the inventor of the nanocrystalline silver dressings Acticoat™ that are used worldwide to treat wounds. He has received the Meritorious Service Cross, an inaugural Governor General's Innovation Award (highest innovation award in Canada), Jonas Salk Award and the ASTech Award for Outstanding Leadership in Alberta Technology ENCANA Principal Innovation Award. His inventions — 29 U.S. patents and over 200 foreign patents/applications — are owned by Smith & Nephew PLC. He is the founder of four startup companies, and is on the board of directors of the Alberta Health Industry Association. He has published 62 articles and two book chapters. Burrell is fellow of the Canadian Academy of Health Sciences, holds the Sorensen Chair in Commercialization of Biomedical Technology (Faculty of Engineering) and is a former two-term Canada Research Chair in Nanostructured Biomaterials.

Ahmed A. Busnaina | *Northeastern University*

Ahmed A. Busnaina, Ph.D., is a university distinguished professor, W.L. Smith Professor and director of NSF Center for high-rate nanomanufacturing at Northeastern University. Busnaina is the inventor of a technology for printing sensors and electronics at the nano/microscale using directed assembly-based printing of sensors, nanoelectronics, energy and biomedical applications on rigid or flexible substrates. He is the recipient of 2016 IDTechEX Best Academic R&D, and 2015 TechConnect Innovation for Nanoscale Offset Printing System, and 2006 Nanotech Briefs National Nano 50 Award. He holds 20 U.S. and nine foreign patents (and 40 pending U.S. applications) with three licensed and 15 patents under agreement to several startups that he co-founded to develop sensors, energy storage and printing of nanoelectronics. He authored over 600 papers, 28 book chapters, and the *Nanomanufacturing Handbook*. He is also editor of the *Microelectronic Engineering Journal* and associated editor of *Nanoparticle Research Journal*. Buasnaina is an ASME Fellow, Adhesion Society R.L. Patrick Fellow, AIAA Associate Fellow and Senior Fulbright Fellow.

Yihai Cao | *Karolinska Institutet*

Yihai Cao, M.D., Ph.D., is professor of microbiology at the Karolinska Institutet in Stockholm, Sweden. Cao is a world-leading expert in angiogenesis research, cancer research and metabolic disease research. He has contributed numerous inventions and innovations that have led to new drugs and medical device for treating various human diseases. He has received many prestigious prizes and awards, including the Dr. Axel Hirsch Prize for medicine, distinguished professor award, outstanding scientist at the Karolinska Institutet assessed by international panel experts and guest professor at Shinshu University. He holds 21 U.S. patents and 46 foreign patents. He is a member of the European Academy of Sciences, the European Academy of Sciences and Arts, AACR, European Foundation of the Study of Diabetes and New York Science Academy.

Federico Capasso | *Harvard University*

Federico Capasso, Ph.D., is Robert Wallace Professor of Applied Physics and Vinton Hayes Senior Research Fellow in Electrical Engineering at the school of engineering and applied sciences at Harvard University. His awards include the Balzan Prize (2016), Rumford Prize, Gold Medal of the SPIE (2013), King Faisal International Prize for Science (2005), Edison Medal, IEEE (2004), Arthur Schawlow Prize, APS (2004), Robert Wood Prize, OSA (2001) and Material Research Society Medal (1995). He holds 70 U.S. patents and is the founder of two startup companies. He is the author of over 600 papers giving him an h-index of 127 (Google Scholar). He co-founded two startup companies. Capasso is a member of NAS, NAE and is fellow of AAA&S.

Ni-Bin Chang | *University of Central Florida*

Ni-Bin Chang, Ph.D., is the director of Stormwater Management Academy and professor in environmental engineering at the University of Central Florida (UCF). Chang is a leader in sustainability science and green engineering, with fundamental contributions to pollution control, resources conservation and systems analysis. He is the recipient of the Blaise Pascal Medal from the European Academy of Sciences. Chang is an IEEE Fellow "for his contributions to computational techniques for the analysis of environmental sustainability," as well as SPIE and AAAS Fellows "for his contributions to integrated sensing, monitoring and modeling for decision analysis." He has received nine U.S. patents of green sorption media that have been commercialized for nutrient removal and received 38 honors and awards with global impact. He is the editor-in-chief of *SPIE Journal of Applied Remote Sensing,* associate editor of the *IEEE Systems Journal* and a distinguished lecturer of the IEEE Systems Council.

Constance J. Chang-Hasnain | *University of California, Berkeley*

Constance J. Chang-Hasnain, Ph.D., is associate dean for strategic alliances of college of engineering and Whinnery Distinguished Chair Professor in Electrical Engineering and Computer Sciences, at University of California, Berkeley (Berkeley). She is the founding co-director of Tsinghua-Berkeley Shenzhen Institute. Prior to joining the Berkeley faculty, Chang-Hasnain was a member of the technical staff at Bellcore (1987–1992) and assistant professor of electrical engineering at Stanford University (1992–1995). Chang-Hasnain's research interests include semiconductor optoelectronic devices, materials and applications. She pioneered the first planar VCSEL structure using proton implantation for array fabrication with Gbps modulation, first MEMS-VCSEL for wavelegnth tuning, and the first 940-nm VCSEL arrays for 3D depth detection. Her current interests include new optical devices and photonic integrated circuits for novel 3D imaging for robotics and manufacturing using structured light and LIDAR. She is fellow of IEEE, OSA and member of NAE.

Russell R. Chianelli | *The University of Texas at El Paso*

Russell R. Chianelli, Ph.D., is professor of chemistry and biochemistry at The University of Texas at El Paso. Chianelli is a leader in the field of material science and catalytic science. He holds 68 U.S. patents and six foreign patents that have been licensed to four companies. He is the founder of one startup company. He has published 204 articles, 11 editorials, three book chapters and serves as reviewer for over 10 peer-reviewed journals. Chianelli is a member of ACS, Sigma Xi, the New York Academy of Science and the MRS.

Young I. Cho | *Drexel University*

Young I. Cho, Ph.D., is professor of mechanical engineering and mechanics at Drexel University. A leading heat transfer expert, he has developed non-chemical water treatment technologies to prevent fouling in heat exchangers, a blood viscometer for testing blood viscosity in a point-of-care setting and applications of the low-temperature plasma technology for the treatment of industrial wastewater and produced water from fracking. He is a recipient of the NSF Presidential Young Investigator Award, Lindback Award, Research Professor of the Year Award at Drexel University and two NASA Space Act Tech Brief Awards. In 1993, Cho chaired the Advanced Fluid Committee under International Energy Agency. He submitted 34 inventions to Drexel and holds 27 U.S. patents and two pending patent applications, seven of which have been licensed to two companies. Cho served as an editor for *Handbook of Heat Transfer* (McGraw Hill), *Heat Transfer-Asian Research* (Wiley) and the *Advances in Heat Transfer* (Elsevier), and authored 150 peer-reviewed papers.

Sang H. Choi | *NASA Langley Research Center*

Sang H. Choi, Ph.D., is a senior scientist at NASA Langley Research Center. Choi has made significant contributions on the discovery and inventions of rhombohedral hybrid bandgap engineering that will potentially open whole hosts of new semiconductor materials and is a key inventor of nuclear thermionic avalanche cell (NTAC) technology which offers very high power density greater than 10 kW/kg level. Choi is a leader in the area of electronic and energetic materials at NASA. He holds 36 U.S. patents (23 PCT patents), 13 patents pending, and five foreign patents that have been licensed to 25 companies. He has filed 148 inventions, published 45 journal papers, 106 proceeding papers and two book chapters and serves as editorial board member for eight peer-reviewed journals. Choi has numerously given plenary and keynote talks as invited speakers from prestigious conferences and symposiums. Choi is fellow of SPIE and associate fellow of AIAA.

Chih-Chang Chu | *Cornell University*

Chih-Chang Chu, Ph.D., is Rebecca Q. Morgan '60 Endowed Chair Professor of Fiber Science and Biomedical Engineering at Cornell University. Chu's research focuses on the design and synthesis of novel biodegradable polymers/fibers/fabrics for human body repair like wound healing and closure, cardiovascular implants, tissue regeneration, nanotechnology for drug delivery and gene delivery. He has received several honors and awards including SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities. Chu holds 31 U.S. patents and 67 foreign patents. His technology portfolio has been licensed to industry. Chu has authored over 215 research papers and three books and has presented at over 300 conferences and seminars. He serves on editorial boards of several journals such as *Open Biomaterials Journal, Journal of Fiber Bioengineering and Informatics* and *Journal of Bioengineering and Biomedical Science.* Chu served as a founding member for the Cornell University Technology Transfer Advisory Committee and is fellow of AIMBE.

Walter G. Copan | *National Institute of Standards and Technology*

Walter G. Copan, Ph.D., was confirmed by Congress as Under Secretary of Commerce for Standards and Technology and National Institute of Standards and Technology (NIST) Director in October 2017. Copan is an internationally recognized leader known for influencing science and technology and promoting economic development. Case Western Reserve University named Copan their Distinguished Alumnus of the Year in 2008. Copan has authored numerous professional publications and presentations, and serves on the boards of several organizations. He is an active member of the Licensing Executives Society (LES) USA and Canada, where he recently served as regional vice president for the U.S., and a leader in LES International. He also served as a member of the National Advisory Council to the U.S. Federal Laboratory Consortium, and has contributed to United Nations and World Intellectual Property Organization programs as an expert on energy and technology transfer matters. Other professional affiliations include ACS, AUTM and the Industrial Research Institute.

Mark S. Cushman | *Purdue University*

Mark S. Cushman, Ph.D., is distinguished professor of medicinal chemistry at Purdue University. Cushman invented three anticancer drugs (LMP400, LMP776, and LMP744) under investigation in patients at NIH. He is the recipient of the Bank of America Achievement Award in Music, a University of California Regents Scholarship, American Foundation for Pharmaceutical Education Fellowship, Senior Fulbright Scholarship Award, Webster-Sibilsky, Gisvold and Portuguese Lectureships, University of California San Francisco 150th Anniversary Alumni Excellence Award and he is a Purdue Innovators Hall of Fame Inductee and was recognized by the *Journal of Medicinal Chemistry* as a Highly Productive Author. He holds 31 U.S. patents and eight foreign patents that have been licensed to three companies. He has published 342 articles and serves as associate editor of the *Journal of Medicinal Chemistry.* Cushman is fellow of AAAS.

Karl A. Deisseroth | *Stanford University/Howard Hughes Medical Institute*

Karl A. Deisseroth, M.D., Ph.D., is D.H. Chen Professor of Bioengineering and Psychiatry at Stanford University, and investigator of Howard Hughes Medical Institute. A neuroscientist and bioengineer, Deisseroth completed his psychiatry residency at Stanford. He launched his lab at Stanford in July 2004, where he and his team created and developed optogenetics with microbial opsin genes, hydrogel-tissue chemistry, which includes methods such as CLARITY, and a broad range of enabling methods. He also launched and directs the undergraduate bioengineering degree program at Stanford, and continues as a board-certified psychiatrist specializing in effective and autism-spectrum disorders. He was elected to NAM in 2010 and NAS in 2012.

Calum John Drummond | *RMIT University*

Calum John Drummond, Ph.D., D.Sc., is deputy vice chancellor of research and innovation, vice president and research professor at RMIT University. Drummond has made outstanding contributions to science and innovation through leadership, governance and advisory roles, to chemistry and materials science and engineering research and research translation, and to early and mid-career researcher development. He has actively managed large organizational patent portfolios to deliver value to society. He holds four U.S. patents and has published over 200 refereed journal articles and book chapters. He has commercialized technologies as the inaugural vice president of research at CAP-XX, and through many collaborative projects between CSIRO and companies. Among his awards, he is the recipient of the Victoria Prize for Science and Innovation from the Australian state government of Victoria, and the Ian Wark Medal and Lecture from the Australian Academy of Science and the Weickhardt Medal from the Royal Australian Chemical Institute for contributions to the economic prosperity of Australia. Drummond is fellow of Australian Academy of Technological Sciences and Engineering and fellow of Australian Institute of Company Directors.

Lawrence T. Drzal | *Michigan State University*

Lawrence T. Drzal, Ph.D., is university distinguished professor in the department of chemical engineering and materials science and director of the Composite Materials and Structures Center at Michigan State University (MSU). He is the recipient of numerous awards including the Society of Plastics Engineers Automotive Division's Lifetime Achievement Award and the MSU Lifetime Technology Transfer Award. He holds 36 U.S. patents and 17 foreign patents licensed to several companies. In 2007, Drzal co-founded XG Sciences, Inc., a private Michigan company that is currently the world's largest manufacturer of graphene nanoplatelets and serves as chief scientist. He has published over 450 articles in peer-reviewed journals. Drzal is fellow of the American Society for Composites, Adhesion Society, American Institute of Chemists, Society of Plastics Engineers and Society for the Advancement of Material and Process Engineering.

Igor R. Efimov | *The George Washington University*

Igor R. Efimov, Ph.D., is Alisann & Terry Collins Professor and Chairman of Biomedical Engineering at The George Washington University. He is the inventor of a new generation of cardiac devices for diagnostics and treatment of abnormal heart rhythms. He is a recipient of the 2018 George Washington University School of Engineering and Applied Science Distinguished Researcher Award and the 2014 Washington University Chancellor's Hartwell Prize for Innovative Research. He holds 12 issued U.S. patents on cardiac technology which have been licensed to Cardialen and CardioForm, companies he founded. He has published over 200 publications that have 11,000 citations. He served as an associate editor for *IEEE Transactions on Biomedical Engineering* and the *American Journal of Physiology: Heart and Circulatory Physiology.* Efimov is fellow of AHA, Heart Rhythm Society and AIMBE.

Hesham M. El Gamal | *The Ohio State University*

Hesham M. El Gamal, Ph.D., is professor and chair of the electrical and computer engineering department at The Ohio State University (OSU). He co-founded inmobly Inc., a spinoff from OSU pioneering the use of AI technology in multi-media delivery, and served as its chief executive officer from 2012 to 2018. Previously, he served as acting vice president of research at Nile University (Cairo, Egypt), and held visiting appointments at UCLA and Institut Eurecom. El Gamal was recognized as a highly cited researcher by the ISI web of science. He is fellow of IEEE, a recipient of the OSU Innovator Award, OSU Stanley E. Harrison Award, NSF CAREER Award, OSU College of Engineering Lumley Research Award, OSU Electrical Engineering Department FARMER Young Faculty Development Fund and Hughes Network Systems Annual Achievement Award. He holds key intellectual property in the areas of proactive communications, space-time coding/decoding and graphical code design. He holds 17 U.S. patents.

Mary K. Estes | *Baylor College of Medicine*

Mary K. Estes, Ph.D., distinguished service professor at Baylor College of Medicine, is an internationally renowned molecular virologist with fundamental and applied contributions to the field of gastrointestinal infections. Her work on rotavirus and norovirus has world-wide impact. Inventions related to virus-like particle vaccines, and cloning the norovirus genome have led to an antibody product to prevent calf scours, diagnostic assays to detect noroviruses, and new assays to evaluate inactivation methods and antibodies to noroviruses. A norovirus candidate vaccine is in clinical trials. She holds nine U.S. patents and nine foreign patents that have been licensed to 12 companies. Estes is a leader who founded the Texas Medical Center Digestive Diseases Center that fosters collaborative research. She is past president of the American Society for Virology, member of NAS, NAM, NAE and fellow of AAM and AAAS.

Omid C. Farokhzad | *Harvard Medical School*

Omid C. Farokhzad, M.D., is professor of anesthesia at Harvard Medical School and serves as the director of the Center for Nanomedicine at Brigham and Women's Hospital. He has made seminal contributions to the field of nanomedicine. He has 39 U.S. patents and 55 foreign patents. These technologies formed the basis of five biotechnology companies. Farokhzad has served on the board of directors and scientific advisory boards for Tarveda Therapeutics, Placon Therapeutics, Selecta Biosciences and Seer, Inc. He was named a 2013 RUSNANOPRIZE Laureate for development of nanoparticle technologies for medical applications. He received the 2014 Golden Door Award and 2016 Ellis Island Medal of Honor for his economic and societal impact on the U.S. He was listed on the 2015 Worldview 100 by the *Scientific American*, which lists the most influential people in biotechnology. Farokhzad serves as associate editor of *ACS Nano* and is on the editorial board of several top journals.

Mauro Ferrari | *Houston Methodist Hospital/Cornell Medical College*

Mauro Ferrari, Ph.D., is president of Houston Methodist Institute for Academic Medicine, and executive vice president of the Houston Methodist Hospital System. Ferrari is a pioneer in the field of nanomedicine, having developed novel technology platforms for therapeutics, diagnostics, drug delivery systems and regenerative medicine. He is the recipient of the Presidential Young Investigator Award, James A. Shannon Director's Award, Research Superiority Award, Breakthrough Level 4 Award, Aurel Stodola Medal from the ETH-Zurich and the Blaise Pascal Medal from the European Academy of Sciences. Ferrari holds 25 U.S. and 19 foreign patents, and is a scientist-entrepreneur, launching several companies. He has published over 400 peer-reviewed journal articles, 71 book chapters and seven books, and serves as editor-in-chief for *Biomedical Microdevices* (Springer Nature), which he founded in 1998. Ferrari is an active member and fellow of prestigious organizations, including AIMBE, AAAS, European Academy of Sciences, the Italian National Academy of Sciences and Pontifical Academy for Life.

Alan S. Finkel | *Monash University/Australia's Chief Scientist*

Alan S. Finkel, Ph.D., serves as Australia's Chief Scientist. Finkel has made pioneering contributions to innovation policy in Australia and is championing the cause of science, technology and innovation, advising Australia's federal government and the Prime Minister on policy issues. He has received the IEEE Keithley Award for Instrumentation and Measurements, Mountbatten Medal from IET (UK), Peter Nicol Russell Medal and M.A. Sargent Medal from Engineers Australia and the Clunies Ross award from Australian Academy of Technology and Engineering. Finkel has written 10 journal papers and six book chapters both on measurement techniques and innovation policy. He has three U.S. patents, having commercialized neuron measurement technologies in 1982. He is fellow of the Australian Academy of Science, Australian Academy of Technology and Engineering, Australian Academy of Health and Medical Sciences, IEEE and Engineers Australia.

Jessica Fridrich | *Binghamton University*

Jessica Fridrich, Ph.D., is distinguished professor of electrical and computer engineering at Binghamton University. Fridrich has made profound contributions to the field of steganography and forensics of digital media. She is the recipient of the SUNY Chancellor's Outstanding Inventor Award and the SUNY Chancellor's Award for Excellence in Scholarship and Creative Activities. She holds seven U.S. patents that all have generated revenue. She is one of the founders of the *IEEE Transaction on Information Forensics and Security*. She has published over 200 research articles with over 25,000 citations and an h-index of 79. Her research has been generously supported by 20 research grants from NSF and DARPA totaling over $12 million. She served as the associate editor of *IEEE Transactions on Information Forensics and Security* and is on program committee boards of all major professional events focusing on digital media forensics and security. Fridrich is an IEEE Fellow and member of ACM.

Elaine V. Fuchs | *Howard Hughes Medical Institute/The Rockefeller University*

Elaine V. Fuchs, Ph.D., has been a Howard Hughes Medical Institute Investigator since 1998 and is renowned for her research in skin biology, its stem cells and associated genetic disorders, particularly cancers. She received her Ph.D. in biochemistry from Princeton University and, after her postdoctoral research at MIT, joined the faculty at University of Chicago. In 2002, she relocated to Rockefeller University. Her awards and honors include the National Medal of Science, L'Oreal-UNESCO Award for women in science, Albany Prize in Medicine, March of Dimes Prize in Developmental Biology, EB Wilson Award in Cell Biology and McEwen Award for Innovation in Stem Cell Research. She is past president of American Society for Cell Biology and International Society for Stem Cell Research and has trained 30 graduate students and 100 postdoctoral student. Fuchs is an elected member of NAS, NAM and APS.

Judy Genshaft | *University of South Florida*

Judy Genshaft, Ph.D., has catapulted the University of South Florida (USF) to prominence as one of the nation's preeminent research universities. With an annual economic impact of over $4.4 billion, USF is instrumental in the economic development of the Tampa Bay region and is a national leader in higher education. During her tenure, Genshaft grew USF's research enterprise from $186 million to over $500 million. Additionally, the NSF ranks USF among the top 25 universities in the nation for research expenditures, and it is the nation's ninth largest public research university. USF ranks number one in Florida and fifth nationally among public universities, and 12th worldwide, for granted U.S. patents. In 2018, USF was awarded a Phi Beta Kappa Society chapter and was named a Preeminent Public Research University by the State University System Board of Governors, becoming only the third Florida institution to earn this prestigious designation. She has one U.S. patent and is a member of the USF chapter of NAI.

Durham Kenimer Giles | *University of California, Davis*

Durham Kenimer Giles, Ph.D., is professor emeritus of biological and agricultural engineering at the University of California, Davis (UC Davis), and an expert in agricultural and industrial spray applications. He created the pulsed-width modulation spray control system that is now the industry standard for environmental protection and other sensor-based spray systems for crops, leading to significantly reduced pesticide use. He is the recipient of the Case Gold Medal Award for Exceptional and Meritorious Engineering Achievement and the Engineering Concept of the Year Award from the ASABE, UC Davis College of Engineering Innovators Award and the University of Georgia's Alumni of Distinction Award. He holds 16 U.S. patents and 17 foreign patents with most licensed and commercialized. He has created 10 SBIR projects and serves as manager of the review process for USDA SBIR grants. Giles is fellow of ASABE.

George T. Gillies | *University of Virginia*

George T. Gillies, Ph.D., is research professor of mechanical and biomedical engineering at the University of Virginia (UVA). He received UVA's Edlich-Henderson Inventor of the Year Award, ASME's Lewis F. Moody Fluids Engineering Award, UVA's President and Visitors Research Award and the Candle Foundation's Innovation Award. He is a medical physicist by training, but has invented devices ranging from cell delivery systems, high temperature thermocouples, solid organ drug delivery devices and intravascular devices. The importance of his inventions is reflected in how successful he has been in licensing, and securing research and development support from entities ranging from the U.S. Naval Warfare and Lockheed Martin Marietta Energy Systems, to numerous medical device companies. He holds 28 issued U.S. patents and five foreign patents licensed to six companies. He is a co-founder of Stereotaxis, Inc., and he has published 310 journal articles and book chapters. He is fellow of APS, AIMBE and the Institute of Physics (GB). He is also a senior member of OSA, a life senior member of IEEE and an associate member of the American Association of Neurological Surgeons.

Jay R. Goldberg | *Marquette University/Medical College of Wisconsin*

Jay R. Goldberg, Ph.D., P.E., is director of the Healthcare Technologies Management Program, and clinical professor of biomedical engineering at Marquette University and the Medical College of Wisconsin. He teaches undergraduate and graduate courses involving new product development, medical device design and innovation management. Before moving into academia, he was director of technology and quality assurance for Milestone Scientific Inc. (Deerfield, IL), a startup dental product company. His industry experience includes development of new products in urology, orthopedics, GI and dentistry for four medical device manufacturers. He has six U.S. patents for urological medical devices. Goldberg has published 54 papers, two books and two book chapters. He has written 45 columns on design education for *IEEE Pulse* magazine. In 2012 he received the Engineering Education Excellence Award from the National Society of Professional Engineers for his work in relating engineering education to professional practice.

Jeffrey I. Gordon | *Washington University in St. Louis*

Jeffrey I. Gordon, M.D., is Dr. Robert J. Glaser Distinguished University Professor and director of the Center for Genome Sciences and Systems Biology at Washington University in St. Louis. He is credited as founding the field of human microbiome research, which has provided new views of how human biology is shaped by our microbial communities. His discoveries of how diet and the gut microbiome interact have altered our understanding of two global health problems: obesity and childhood malnutrition. He is a member of NAS, AAA&S, NAM and APS, and the recipient of a number of awards, most recently the Copley Medal from the Royal Society. Gordon has been the research mentor to over 130 doctoral and medical students and post-doctoral fellows, a number of whom have become leaders in his field. He holds 23 U.S. patents.

Craig J. Gotsman | *New Jersey Institute of Technology*

Craig J. Gotsman, Ph.D., is distinguished professor and dean of the Ying Wu College of Computing at New Jersey Institute of Technology (NJIT), specializing in computer graphics and geometric modeling. He was previously a co-founder of Cornell Tech- a New York City graduate-level campus dedicated to innovation and entrepreneurship in information technologies. Prior, he was the Hewlett-Packard Professor of Computer Engineering at Technion in Israel. He received his Ph.D. from the Hebrew University of Jerusalem in 1991. Gotsman has published over 160 papers, received eight best paper awards, and served on the editorial boards of leading journals and on the program committees of the top conferences in computer graphics. Gotsman has extensive industrial and entrepreneurial experience. He holds 11 U.S. patents, some commercialized through his four startup companies (Virtue 3D, Estimotion, Geometrika, Perceptiko) and three acquired by technology giants. Gotsman is fellow of the Academy of Europe.

Linda Gay Griffith | *Massachusetts Institute of Technologyv*

Linda Gay Griffith, Ph.D., is School of Engineering Teaching Innovation Professor of Biological and Mechanical Engineering and MacVicar Fellow at Massachusetts Institute of Technology (MIT) where she directs the Center for Gynepathology Research and the Human Physiome on a Chip Project. She led the development of the Biological Engineering Bachelor of Science degree program, which was approved in 2005 as MIT's first new undergraduate major in 39 years. She has pioneered approaches in tissue engineering, including the first demonstration of tissue-engineered cartilage in the shape of a human ear; commercialization of the 3DP™ Printing Process for manufacture of FDA-approved scaffolds; commercialization of the 3D perfused "LiverChip" for drug development and synthetic matrices for morphogenesis. She is a member of NAE, an advisory committee member to the director of NIH and the recipient of a MacArthur Foundation Fellowship, Radcliffe Fellow and several awards from professional societies.

John L. Hall | *University of Colorado, Boulder*

John L. Hall, Ph.D., is senior research associate and past fellow at Joint Institute for Laboratory Astrophysics (JILA), an adjunct professor in the physics department at the University of Colorado Boulder and a senior scientist and past fellow at NIST. Hall is an internationally esteemed physicist and Nobel Laureate who pioneered countless new ultraprecise laser technologies and applications, including the femtosecond laser frequency comb, the greatest advance in laser technology since the invention of the laser in 1960. His numerous awards include the Nobel Prize in Physics, Department of Commerce Gold Medals, Frederic Ives Medal and Presidential Rank Awards. His 17 U.S. patents and two foreign patents have been licensed to four companies. Hall founded Hall Stable Lasers LLC and co-founded Stable Laser Systems LLC, and has published over 235 journal articles. Hall is an APS and OSA Fellow, an NAS and International Union of Radio Science Commission VII member and a Consultative Committee for Definition of the Meter delegate.

Tayyaba Hasan | *Massachusetts General Hospital/Harvard Medical School*

Tayyaba Hasan, Ph.D., is a professor of dermatology at Harvard Medical School and is professor of health sciences and technology at Harvard-MIT. She is a leader in photochemical approaches to treatment and diagnosis. She is an inventor of the FDA approved photodynamic treatment of the leading cause of blindness in the western world, age-related macular degeneration used in millions of treatments. Her impact on global health includes two of her inventions of simple, smart phone-based, low-cost devices, which are being evaluated in clinical studies. In recognition of her translational work and innovations, she was the recipient of the NIH's Pioneer Award in Biomedical Optics, Bench to Bedside Translation. She was awarded the Britton Chance Biomedical Optics Award in recognition of trailblazing contributions to the field of Photodynamic Therapy, clinical translation and leadership to the photonics community. She has received four lifetime achievement awards from leading scientific organizations including the International Photodynamic Association. She has approximately 300 publications and has 12 U.S. issued patents. She leads two multicenter international National Cancer Institute-funded programs for developing and translating innovative treatments of oral, pancreatic and skin cancers.

Gary M. Hieftje | *Indiana University*

Gary M. Hieftje, Ph.D., is distinguished professor and Mann Chair of Chemistry at Indiana University. His research interests include the investigation of basic mechanisms in and the development of instrumentation and techniques for atomic, molecular and biomolecular methods of analysis. He is interested in the use of time-resolved luminescence processes for analysis, application of information theory to analytical chemistry, analytical mass spectrometry, near-infrared reflectance analysis, metallomics and the use of stochastic processes to extract basic and kinetic chemical information. He has won numerous awards in analytical chemistry, chemical instrumentation and spectroscopy, has held major offices in scientific societies, delivered many named lectures and served on the editorial boards of many major journals. He has authored over 600 publications, 13 books, 20 book chapters and 22 U.S. patents. To date, 70 students have received doctorates under his direction, and scores of undergraduates and visiting scientists have performed research in his laboratories.

M. Cynthia Hipwell | *Texas A&M University*

M. Cynthia Hipwell, Ph.D., is Texas A&M Engineering & Experiment Station Eminent Professor in the department of mechanical engineering at Texas A&M University (TAMU). Hipwell is a technology and business process innovator who led the development of nanoscale technologies to increase the areal density and reliability of recording heads for hard disk drives. She is an inventor on 15 U.S. patents assigned to Seagate Technology, where she held various individual and leadership positions in the areas of reliability and advanced mechanical and electrical technology development. In addition to patented device technologies, Hipwell and her team developed proprietary modeling tools, tests and algorithms, as well as new business processes that enabled faster technology development. She currently teaches classes on innovation and entrepreneurship in nanoscale systems and leads INVENT Lab. Hipwell is a member of NAE and is an advisory board member of the startup company Chromatic 3D Materials.

Dean Ho | *National University of Singapore*

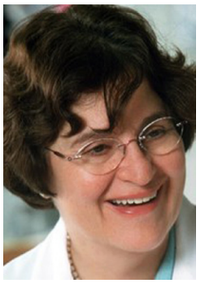
Dean Ho, Ph.D., is Provost's Chair Professor and director of the SINAPSE Institute at the National University of Singapore. Ho pioneered the application of CURATE.AI artificial intelligence to optimize N-of-1 clinical combination therapy. He co-led the first in-human CURATE.AI trial to prospectively optimize post-transplant immunosuppression and is leading additional clinical trials pertaining to advanced cancer treatment. He also pioneered the development of nanodiamond-based drug delivery. Ho served as the president of the Society for Laboratory Automation and Screening, a pharmaceutical industry/academic drug development society. He received the V Foundation for Cancer Research Scholar Award, Wallace H. Coulter Foundation Translational Research Award and NSF CAREER Award. He holds nine U.S. patents and three foreign patents, and founded KYAN Therapeutics, a clinical/revenue-stage AI drug development company. He has published over 100 articles, one book and 10 book chapters. He is on the International Advisory Board for *Advanced Therapeutics*, and is fellow of AIMBE.

Peter Høj | *The University of Queensland*

Peter Høj, FTSE, DUniv, Ph.D., is president of The University of Queensland and is responsible for running Australia's most successful university in commercialization. For over 20 years, he has led organizations in the university, government and private spheres and holds two U.S. patents. Høj is an elected foreign member of the Danish Academy of Sciences and Letters, fellow of the Australian Academy of Technological Sciences and Engineering and was awarded a Centenary Medal by the Australian Government for his service to Australia through wine research and science. Under his leadership, the Australian Wine Research Institute was awarded the Maurice O'Shea award in recognition of the pivotal role it has played in Australian wine industry's success.

Robert A. Holton | *Florida State University*

Robert A. Holton, Ph.D., is professor of chemistry at Florida State University (FSU). A leader in the field of synthetic chemistry, his research focuses on the synthesis of complex organic molecules. Holton is most often recognized for being the first to synthesize Taxol, a powerful and widely used cancer-fighting agent. Over his career, Holton's work on taxane natural products has led to significant advancements in cancer research and treatment. Besides Taxol, Holton was able to synthesize a range of natural products. After holding positions at Stanford University, Purdue University and Virginia Tech, he eventually returned to FSU in 1985 to teach and conduct research. In 1997, Holton co-founded Taxolog, Inc., along with his colleague Lewis Metts. Holton holds over 125 issued U.S. patents. His accomplishments are a testament to his dedication to science and medicine. His Taxol was the top selling anti-cancer drug in 1995 and generated over $1.6 billion in revenue by the end of the decade. In addition, Taxol generated the largest patent payout in history for a single university.



Susan Band Horwitz | *Albert Einstein College of Medicine*

Susan Band Horwitz, Ph.D., is a distinguished professor at the Albert Einstein College of Medicine in New York. Horwitz has had a continuing interest in natural products as a source of new drugs for the treatment of cancer. Her most seminal research discovery was that Taxol®, a drug isolated from the Yew tree, had a unique mechanism of action and was a prototype for a new class of antitumor drugs. These studies were important in encouraging the clinical development of the drug. Today, Taxol® is an important antitumor drug that has been given to millions of patients. Horwitz is a member of NAS, NAM, AAA&S and the APhils. Her many honors include the American Cancer Society's Medal of Honor, AACR Lifetime Achievement Award in Cancer Research and The Bristol-Myers Squibb Award for Distinguished Achievement in Cancer Research.

Matthew A. Howard, III | *University of Iowa, Carver College of Medicine*

Matthew A. Howard, III, M.D., is professor and chairman of neurosurgery at the University of Iowa, Carver College of Medicine. Howard is a neurosurgeon-scientist and medical device inventor and directs the Human Brain Research Laboratory that has been continuously funded by NIH since 1996. He serves on numerous NIH review panels and is a former director of the American Board of Neurological Surgery. In 2014, Howard was awarded the Winn Prize by the Society of Neurological Surgeons, which is the highest research career achievement award in the field of neurosurgery. He holds 31 U.S. patents, three foreign patents, nine pending U.S. patent applications, and 16 pending PCT or foreign applications. Howard has licensed his patents and patent applications to Stereotaxis, Braintronics, Surgical Solutions, Silere Medical Technology, Direct Spinal Therapeutics and KLS Martin. He is a founder of four startup companies. Howard is an elected member of the Society of Neurological Surgeons, Neurosurgical Society of America and the American Academy of Neurological Surgery.

Alex Qin Huang | *The University of Texas at Austin*

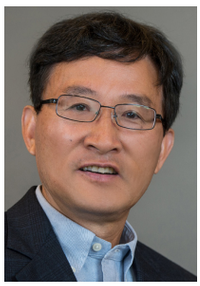
Alex Qin Huang, Ph.D., is Dula D. Cockrell Centennial Chair of Engineering in the department of electrical and computer engineering at The University of Texas at Austin (UT Austin). He is also the director of UT Austin's Semiconductor Power Electronics Center (SPEC). Huang is a leader in public and private innovation and research and has participated and/or led the establishments of the first power electronics engineering research center (CPES ERC, 1998), the first smart grid engineering research center (FREEDM ERC, 2008) and the $140 million DOE PowerAmerica Manufacturing Institute in 2014. Huang is a world-renowned expert of power semiconductor devices and power electronics. Huang is fellow of IEEE. He has also authored seven books and book chapters. He has received 28 honors and awards with global impact. Huang is the inventor of more than 24 U.S. patents including several patents on the Emitter turn-off (ETO) thyristor technology that received a prestigious R&D 100 award in 2003.

Shu-Yuen Ron Hui | *The University of Hong Kong/Imperial College London*

Shu-Yuen Ron Hui, Ph.D., is professor of power electronics at The University of Hong Kong. He has 40 issued U.S. patents adopted by industry worldwide. His inventions in planar wireless charging technology underpin key dimensions of the world's first wireless charging standard "Qi" for portable consumer electronics. His inventions make it possible to embed planar coreless transformers into commercial isolation gate drive semiconductor integrated circuits. His inventions on sustainable lighting enable commercial LED drivers for street lighting to have lifetime exceeding 10 years and over 80% product material recyclable. For his significant contributions, he has been independently recognized by the IEEE and IET with the prestigious IEEE Technical Field Award (IEEE William Newell Power Electronics Award) and IET Achievement Medal (Crompton Medal). He has also been recognized by two national academies. He has been elected as fellow of the Royal Academy of Engineering and the Australian Academy of Technology and Engineering.

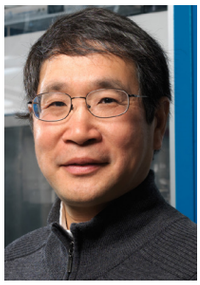
Bahram Javidi | *University of Connecticut*

Bahram Javidi, Ph.D., is Board of Trustees Distinguished Professor at the University of Connecticut. Javidi has made important innovative contributions in the field of information optics, multi-dimensional imaging, biomedical-optics, optics for information security and 3D displays. He is the recipient of the OSA Fraunhofer Award, European Physical Society, Quantum Electronics and Optics Prize, Alexander von Humboldt Prize for senior scientists, IEEE Donald G. Fink Paper Prize, SPIE Dennis Gabor Award in Diffractive Wave Technologies, George Washington University Distinguished Alumni Scholar Award, SPIE Technology Achievement Award, Guggenheim Foundation fellowship and NSF Presidential Young Investigator Award. He holds a total of 30 U.S. patents, two of which have been licensed to a company. He is the founder of two startup companies. Javidi is fellow of prestigious organizations such as IEEE, OSA, SPIE, Institute of Physics, European Optical Society, AIMBE and Imaging Science & Technology.



Quanxi Jia | *University at Buffalo, The State University of New York*

Quanxi Jia, Ph.D., is an Empire Innovation Professor and National Grid Professor of Materials Research at the University at Buffalo (UB), the State University of New York and the scientific director of the New York State Center of Excellence in Materials Informatics. Prior to joining UB in 2016, he was the director of the Center for Integrated Nanotechnologies, a DOE Nanoscale Science Research Center operated jointly by Los Alamos and Sandia National Laboratories. Jia has made pioneering contributions to the development of superconducting coated-conductors and to the advancement of processing and application of metal-oxide materials. He holds 49 U.S. patents, has authored/co-authored over 480 peer-reviewed journal articles and serves as the co-editor-in-chief of *Materials Research Letters*. His notable awards and honors include two R&D 100 Awards, 2005 Asian-American Engineer of the Year Award and Federal Laboratory Consortium for Technology Transfer Awards for Excellence in Technology Transfer. Jia is fellow of AAAS, ACerS, APS, IEEE, MRS and Los Alamos National Laboratory.

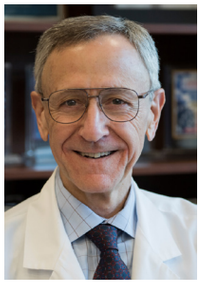


Hongxing Jiang | *Texas Tech University*

Hongxing Jiang, Ph.D., is Edward Whitacre Endowed Chair and Horn Distinguished Professor in the department of electrical and computer engineering at Texas Tech University (TTU). He is an original inventor of micro-LEDs, which led to the realization of self-emissive microdisplays and micro-LED flat panel displays, as well as high voltage AC/DC LEDs for general illumination. He holds 17 U.S. patents and two foreign patents in these areas. He is a co-founder of III-N Technology, Inc. and AC-LED Lighting, LLC. He relocated his research group to TTU in 2008 from Kansas State University where he was a university distinguished professor of physics. Jiang has 420 publications and is fellow of AAAS, APS, OSA and SPIE.

Jingyue Ju | *Columbia University*

Jingyue Ju, Ph.D., is Samuel Ruben-Peter G. Viele Professor of Engineering, professor of chemical engineering and pharmacology and the director of Center for Genome Technology & Biomolecular Engineering at Columbia University. Ju's research has led to the development of novel approaches for DNA sequencing and genetic analysis, the essential technology for precision medicine. He is a recipient of the Packard Fellowship in Science and Engineering and the Outstanding Chinese Scholar Achievement Award from Columbia University's Chinese Students and Scholars Association. Ju was a DOE Human Genome Distinguished Postdoctoral Fellow at University of California, Berkeley. He holds 50 U.S. patents and has published 98 articles. His inventions have been licensed to five biotech companies. Ju has served as the chair of several prominent international conferences, including the Next Generation Sequencing Conference and the International Conference on Genomics. He also served on numerous NIH review panels.



Kenneth Kaushansky | *Stony Brook University*

Kenneth Kaushansky, M.D., MACP, is senior vice president for health sciences at Stony Brook University and dean of the School of Medicine. Kaushansky is a world renowned hematologist, physician-scientist and teacher whose transformative contributions to understanding hematopoiesis have been recognized by his election into NAM and NAS. His research has led to several significant discoveries, for which he received the Dameshek Award from the American Society of Hematology, the Outstanding Investigator Award from the American Society for Medical Research and the Ernest Beutler Award from the American Society of Hematology. Kaushansky is an inventor on six issued U.S. patents that have been licensed or assigned to two companies. Kaushansky is fellow and master of the American College of Physicians and a member of AAA&S.

Pradeep K. Khosla | *University of California, San Diego*

Pradeep K. Khosla, Ph.D., is University of San Diego (UCSD)'s eighth chancellor, and is an internationally renowned electrical and computer engineer recognized for his seminal contributions in secure software, intelligent robot systems and design. He provides vision and strategy for the university, leading a campus with more than 35,000 students, six undergraduate colleges, five academic divisions, five graduate and professional schools, a preeminent health system and the prestigious Scripps Institution of Oceanography. Khosla has positioned UCSD to define the future of the public research university by activating the institution's first strategic plan and launching the Campaign for UCSD—an ambitious and bold $2 billion endeavor aimed at transforming the university physically and intellectually. Khosla has expanded college access and affordability for underserved populations, initiated campus-wide interdisciplinary research initiatives to foster collaboration and solve societal challenges and strengthened university and community relationships and partnerships to drive regional impact. Khosla holds one U.S. patent and is member of IEEE, ASME, AAAS and AAAI.

Robert P. Kimberly | *The University of Alabama at Birmingham*

Robert P. Kimberly, M.D., is Howard L. Holley Professor of Medicine in the division of clinical immunology and rheumatology at The University of Alabama at Birmingham. Kimberly is internationally recognized as a translational scientist focused on the role of genetic factors. He is a Rhodes Scholar and is the recipient of honors and awards including the Outstanding Speaker Award from the Arthritis Foundation, Best Doctors in America (2002-present), and fellowships with the American College of Physicians and American College of Rheumatology. He holds 20 U.S. patents and patent applications and 148 foreign patents and patent applications that have been licensed to two companies. He has served on the scientific advisory boards of several biotechnology companies. Kimberly is a member of AAMC GRAND Steering Committee and a member of the ACTS Board of Directors.

Joseph W. Kloepper | *Auburn University*

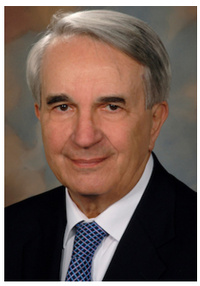
Joseph W. Kloepper, Ph.D., is professor in the department of entomology and plant pathology at Auburn University, serving as the Becker Underwood Endowed Chair in Plant Growth-Promoting Rhizobacteria (PGPR) research. Kloepper, who coined the term "PGPR", has more than three decades of research leading to a greater understanding of plant-bacterial interactions. He has made important scientific contributions to the fields of microbiology, plant pathology and agriculture, particularly in the isolation and application of PGPR strains. He has received the Auburn University's Chapter of the NAI Excellence in Innovation Award for demonstrating exceptional achievements in innovation and translational research, among other honors. Kloepper holds 11 U.S. patents and has served on the editorial board for the journal *Biological Control*. His extensive PGPR bacterial libraries and patents have been licensed or optioned to multiple companies for use in biofertilizers and biopesticides, and for improved production in aquaculture. Kloepper is the founder of the International PGPR Workshop series.

Thomas L. Koch | *The University of Arizona*

Thomas L. Koch, Ph.D., is dean of the college of optical sciences at The University of Arizona and professor of optical sciences and electrical and computer engineering. Previously Koch held the vice president position at SDL, Lucent and Agere Systems, where he was responsible for research and development of materials, device and subsystem technologies supporting optical and optoelectronic products In his many years as a researcher at Bell Laboratories, his work focused on semiconductor lasers, photonic integrated circuits, and their implementation in optical communications systems. He has 38 issued U.S. patents, has authored more than 350 journal, conference and book publications and has received numerous recognitions including the IEEE's Eric E. Sumner Award and the William Streifer and Distinguished Lecturer Awards from IEEE LEOS. Koch is fellow of Bell Labs, OSA, SPIE, IEEE and an elected member of NAE.

Philip G. Koehler | *University of Florida*

Philip G. Koehler, Ph.D., is a professor of entomology at the University of Florida (UF), the Margie & Dempsey Sapp Endowed Professor of Structural Pest Control and Florida Pest Management Association Endowed Professor of Urban Entomology. Koehler is an entomologist who develops novel methods of insect management. He is the recipient of USDA Technology Transfer Award, two USDA Superior Service Awards, USDA Award for Distinguished Service, Federal Laboratories Consortium Award for Technology Transfer and the UF Distinguished Faculty Award. He has been inducted into UF's Academy of Teaching Excellence and the Pest Management Professional Hall of Fame. He holds 19 U.S. patents and six foreign patents that have been licensed to three companies. He has published 466 articles and book chapters and serves as managing director of *PestPro Magazine.* Koehler is a member of Entomological Society of America and honorary member of Florida Pest Management Association and Certified Pest Control Operators of Florida.



Jindřich H. Kopeček | *The University of Utah*

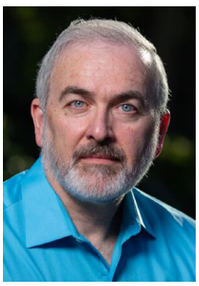
Jindřich H. Kopeček, Ph.D., D.Sc, is distinguished professor of pharmaceutics and pharmaceutical chemistry and distinguished professor of biomedical engineering at The University of Utah. Kopeček is well known for designing biocompatible hydrogels and macromolecular therapeutics. His work stimulated worldwide research and applications of polymeric drug carriers to modulate the pharmacokinetics and biodistribution of therapeutic agents. Recently, Kopeček designed a new 'drug-free' paradigm in nanomedicines, where apoptosis is initiated by self-assembly of complementary nanoconjugates at cell surface. Kopeček has 20 U.S. patents issued, five U.S. applications and numerous foreign patents. Hydrogels from his laboratory have been in clinical use and water-soluble polymer-anticancer drug conjugates in clinical trials. Kopeček's h-index is 94; his publications have been cited 30,160 times. He is a member of scientific editorial boards of 14 international scientific journals, fellow of AAPS, AIMBE, CRS and International Union of Societies of Biomaterials, and member of NAE.

Sally Kornbluth | *Duke University*

Sally Kornbluth, Ph.D., is provost of Duke University (Duke) and was recently reappointed to a second term to begin in July, 2019. She also serves as the Jo Rae Wright University Professor of Biology at Duke. Her research focuses on the regulation of complex cellular processes, including cell cycle progression and programmed cell death (apoptosis). She holds one issued U.S. patent and has published nearly 80 articles and 20 journal reviews. Kornbluth served as the vice dean for basic science in the Duke University School of Medicine from 2006 - 2014. She is trustee of the North Carolina School of Science and Mathematics, member of NAM and fellow of AAAS.

William J. Koros | *Georgia Institute of Technology*

William J. Koros, Ph.D., is a professor of chemical engineering at Georgia Institute of Technology (Georgia Tech). He is the GRA Eminent Scholar in Membranes and the Roberto C. Goizueta Chair for Excellence in Chemical Engineering. In 1983, Koros received the Alcoa Foundation Award for Outstanding Research Accomplishments and was promoted to the rank of professor. In 1984, he moved to The University of Texas at Austin where he served as chairman of chemical engineering. Koros joined the School of Chemical Engineering at Georgia Tech in 2001. In 2008, Koros received the Alan S. Michaels Award for Innovation in Membrane Science and Technology from the North American Membrane Society. He has 34 U.S. patents, is member of NAE and fellow of AIchE and AAAS.



Adrian R. Krainer | *Cold Spring Harbor Laboratory*

Adrian R. Krainer, Ph.D., is St. Giles Foundation Professor at Cold Spring Harbor Laboratory. Krainer is a researcher in the field of RNA splicing, and one of the inventors of the RNA-targeted antisense therapeutic nusinersen (Spinraza), the first approved drug to treat the neurodegenerative disease spinal muscular atrophy. He is the recipient of 2019 Life Sciences Breakthrough Prize and the 2017 New York Intellectual Property Lawyers Association's Inventor of the Year Award. He holds seven U.S. patents and 83 foreign patents that have been licensed or sublicensed to three companies. He is a co-founder of Stoke Therapeutics. He has published over 200 peer-reviewed articles and serves on the editorial boards of RNA, and Protein & Cell. Krainer is fellow of AAA&S and the Royal Society of Medicine.

Tei-Wei Kuo | *National Taiwan University*

Tei-Wei Kuo, Ph.D., is interim president and professor of computer science and information engineering at National Taiwan University. He published over 250 papers in journals and conferences and serves as founding editor-in-chief of ACM Transactions on Cyber-Physical Systems and is on the editorial board of ACM Transactions on Design Automation of Electronic Systems, IEEE Transactions on Industrial Informatics and IEEE Design & Test. He received the Outstanding Technical Achievement and Leadership Award from IEEE Technical Committee on Real-Time Systems in 2017. He holds 28 U.S. patents, eight pending patents and 20 foreign patents. Most of his patents are licensed to or filed by companies including Acer, MediaTek, Macronix and Genesys Logic. He was on the director's board of Genesys Logic and MStar Semiconductor (merged with MediaTek in 2014). He is recognized as fellow of IEEE and ACM for his technical contributions to real-time embedded systems and flash-memory storage systems.

Joshua LaBaer | *The Biodesign Institute at Arizona State University*

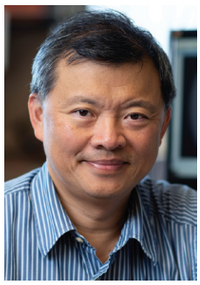
Joshua LaBaer, M.D., Ph.D., is executive director of The Biodesign Institute, Virginia G. Piper Chair of Personalized Medicine and Dalton Endowed Chair of Cancer Research at Arizona State University (ASU). He is one of the foremost investigators in personalized medicine. His inventions of novel biomarkers provide early warning diagnostics for illnesses, including cancer and diabetes. A new blood-based diagnostic for breast cancer is one example of the impact of his work. LaBaer has received the Breast Cancer Research Foundation's Play for PINK Award and the Human Proteome Organization 2016 Translational Proteomics Award. He holds eight U.S. patents licensed to five companies. LaBaer is on the board for the American Type Culture Collection (ATCC). He has published 184 articles, three books and serves as editor of the Journal of Proteome Research and associate editor of *Analytical Biochemistry* and *Molecular Biosystems.*

Roger A. Laine | *Louisiana State University*

Roger A. Laine, Ph.D., is professor in the departments of biological sciences and chemistry at Louisiana State University (LSU). Laine also serves as CEO, president, founder or member of seven technology based startups, including Glycomed, Inc., Anomeric, Inc., Citrazone, LLC, TumorEnd, LLC, TumorVet, LLC, GlyconPharma, Inc. and Enzomeric, LLC. He maintains multiple ties with academia and private industries where he continues his influential role in research and innovative technologies. He holds 31 U.S. patents and several related foreign patents in a variety of areas. He has authored 143 peer-reviewed publications, 23 book chapters and organized several national and international scientific meetings. Laine founded the Gordon Conference on Glycolipid and Sphingolipid Biology, and is a past or present member of ACS, Society for Glycobiology, American Society for Mass Spectrometry, American Society of Biological Chemists, AAAS, American Chitoscience Society and European Chitoscience Society.

Edmond J. LaVoie | *Rutgers, the State University of New Jersey*

Edmond J. LaVoie, Ph.D., is professor of medicinal chemistry in the Ernest Mario School of Pharmacy at Rutgers University. LaVoie is a five-time recipient of the William Levine Teacher of the Year award. He is the recipient of NIH's Merit Award, Johnson and Johnson Research Discovery Fellowship and Barley J. Sciarrone Award for Compassion and Caring in Pharmacy. He holds 52 U.S. patents and 91 foreign patents. He has published 225 articles, books and chapters and has served as associate editor of *Letters in Drug Design and Discovery,* associate editor of *Current Medicinal Chemistry* and editorial board member of *Current Medicinal Chemistry-Anticancer Agents.* LaVoie has been a member of AAPS, American Society of Pharmacognosy, Internal Advisory Board for the Cancer Institute of New Jersey, AACR, ACS and European Society of Clinical Microbiology and Infectious Disease.



Abraham P. Lee | *University of California, Irvine*

Abraham P. Lee, Ph.D., is William J. Link Professor and Chair of Biomedical Engineering in the School of Engineering at the University of California, Irvine. He is a pioneering inventor in biomedical devices and biotechnologies, including microdevices for interventional neuroradiology and microfluidic platforms for point-of-care and molecular diagnostics. He has held key leadership positions including group leader at Lawrence Livermore National Lab, program manager at DARPA, senior technology advisor at NCI and director of DARPA and NSF Microfluidics Centers. He received two Federal Laboratory Consortium Awards for Excellence in Technology Transfer and the 2009 Pioneers in Miniaturisation Prize. He holds 46 U.S. patents and 18 of them have been licensed to seven companies. He is founder of four startup companies with several others partially founded on his technologies. Lee is fellow of AIMBE, ASME and the Royal Society of Chemistry.

Anna M. Leese de Escobar | *SPAWAR Systems Center Pacific*

Anna M. Leese de Escobar is the U.S. Navy's Distinguished Scientist for Cryogenic Electronics at SPAWAR Systems Center Pacific (SSC Pacific). She has a 30-year career in experimental physics research, cryogenic and superconducting materials and devices for electromagnetic systems and founded the Cryogenic Exploitation of Radio Frequency (CERF) Laboratory. She is a recipient of SSC Pacific's Exemplary Achievement Award and its highest award, the Lauritsen-Bennett Award for Excellence in Science, the U.S. Navy's Meritorious Civilian Service Award, SPAWAR Team Innovation Award and two Federal Laboratory Consortium Awards for Technology Transfer. She is author of 40 publications with over 255 citations, 18 U.S. patents issued or pending and 26 additional patent applications in process. Three of her inventions have been commercially licensed. She is senior member of IEEE and deputy chair of the SSC Pacific NAI Chapter. She is a board member and chair of the U.S. Committee for Superconducting Electronics, and sits on the board for the Applied Superconductivity Conference.

Warren J. Leonard | *National Institutes of Health*

Warren J. Leonard, M.D., is an NIH Distinguished Investigator and director of the Immunology Center at National Heart, Lung and Blood Institute (NHLBI) at National Institutes of Health (NIH). Leonard has made major contributions to the field of cytokines. He cloned the first receptor component for a type-I cytokine, IL-2 receptor α-chain, co-discovered IL-2Rβ, and showed IL2RG mutations cause human X-linked severe-combined immunodeficiency (XSCID), allowing precise diagnosis and XSCID gene therapy. Overall, Leonard has defined disease mechanisms leading to new diagnostics and therapeutics. He has 19 U.S. patents and 370 publications. He served as president of the International Cytokine Society, vice president of the Foundation for Advanced Education in the Sciences and a council member of the AAP. He received the Federal Laboratory Consortium Technology Transfer Mid-Atlantic award, the American Association for Immunologists Meritorious Career Award and is member NAS, NAM and AAA&S.

Johannes A. Lercher | *Technical University of Munich/ Pacific Northwest National Laboratory*

Johannes A. Lercher, Ph.D., is professor of chemistry at the Technical University of Munich and the Catalysis Research Institute, as well as director of the Institute for Integrated Catalysis at the Pacific Northwest National Laboratory. Johannes obtained his doctoral degree at Vienne University of Technology (TU Wien). After a year at Yale University, he returned to TU Wien as associate professor. In 1993, he was appointed professor of chemical technology at the University of Twente, Netherlands, and in 1998 as professor of chemistry at the Technische Universität München, Germany. He is currently director of the Institute of Integrated Catalysis, editor-in-chief of the Journal of Catalysis and member of the Austrian Academy of Sciences, NAE, Academia Europaea and the European Academy of Sciences. He holds six U.S. patents. His contributions to research in catalysis have been recognized by several awards including the ENI award on Hydrocarbon Chemistry and the Robert Burwell Lectureship in Catalysis of the North American Catalysis Society.

Teik C. Lim | *The University of Texas at Arlington*

Teik C. Lim, Ph.D., P.E., is provost and vice president for academic affairs at the University of Texas at Arlington (UT Arlington). Lim is internationally recognized as a leading scholar in the field of structural vibrations and acoustics as well as modeling and simulation technology, and has numerous inventions, two of which have been patented in the U.S. Much of Lim's research has been done collaboratively with corporations and his inventions that are now widely used within many automotive, off-highway equipment and consumer product companies. Through his work with Ford, Procter & Gamble and numerous other companies, Lim has turned his ideas and modeling innovations into applications used worldwide. His focus on problems of importance to industry led to the significant adoption of his inventions and created a legacy of impact. He is fellow of ASME and the Society of Automotive Engineers.

Craig W. Lindsley | *Vanderbilt University*

Craig W. Lindsley, Ph.D., FRSC, is professor of chemistry and pharmacology and biochemistry at Vanderbilt University within the Center for Neuroscience Drug Discovery. Lindsley has created new small molecule series of potential therapeutics for multiple neuropsychiatric and neurodegenerative disorders which have gone on untreated or without any new therapies for years. He holds numerous awards and has 85 pending or issued U.S. patent families. This has led to past licenses with AstraZeneca, Janssen Pharmaceuticals, Lundbeck and others. He has published almost 400 primary literature articles and served as guest editor or full editor at six different journals, including founding editor-in-chief of *ACS Chemical Neuroscience.*

Elizabeth G. Loboa | *University of Missouri*

Elizabeth G. Loboa, Ph.D., currently serves as the vice chancellor for strategic partnerships and dean of the college of engineering at the University of Missouri. She is the first female dean of the college in the university's 178 year history. Loboa has made important contributions to the field of tissue engineering and regenerative medicine, with particular impact in mechanobiology, 3D printing and textile based approaches to tissue engineering. Loboa has been recognized with honors including the Insight Into Diversity Giving Back Award, UC Davis Distinguished Engineering Alumni Award, NC State Chancellor's Innovation Award, NC State Faculty Scholar Award, Sigma Xi Faculty Research Award, UK-US Stem Cell Collaboration Development Award and the Stanford University Distinguished Alumni Scholar Award. She has one U.S. patent and is fellow of BMES and AIMBE.

Ted L. Maddess | *Australian National University*

Ted L. Maddess, Ph.D., is professor of ophthalmology at the Australian National University (ANU). Maddess is the inventor of commercialized ophthalmic technologies: the FDT and Matrix visual field tests, a newer objective version has FDA clearance, which is being commercialized by Konan Medical USA. He holds nine U.S. patents and 22 foreign patents that have been licensed to four companies. Maddess is past director of two large vision science and ophthalmic research institutes including the five-university ARC Centre of Excellence in Vision. He received a 2002 Clunies Ross Award, Australia's highest award for applied research. He has published 121 journal articles and book chapters. Maddess served on the editorial boards of Clinical and Experimental Ophthalmology and Graefe's Archive for Clinical and Experimental Ophthalmology. He is member of six international scientific societies including the American Academy of Ophthalmology, Association for Vision Research and Ophthalmology and OSA.

Elizabeth M. McNally | *Northwestern University*

Elizabeth M. McNally, M.D., Ph.D., directs the Center for Genetic Medicine at Northwestern University's Feinberg School of Medicine. As the Elizabeth J. Ward Professor of Genetic Medicine, McNally is a cardiologist with expertise in cardiac genetics. Her work focuses on understanding genetic mechanisms of cardiovascular disease and using genetic signals to drive therapy development. Her translational work was recognized by an award from the Burroughs Wellcome Foundation and as a recipient a Distinguished Clinical Scientist Award from the Doris Duke Charitable Foundation. She serves on the advisory boards for the Muscular Dystrophy Association, Parent Project Muscular Dystrophy and is the vice chair for the Council on Basic Cardiovascular Sciences of the AHA. She is past president of American Society for Clinical Investigation and member of AAP. She is the founder of Ikaika Therapeutics and has three U.S. patents.

Muriel Médard | *Massachusetts Institute of Technology*

Muriel Médard, Ph.D., is Green Professor in the electrical engineering and computer science department at Massachusetts Institute of Technology (MIT). She leads the Network Coding and Reliable Communications Group at the Research Laboratory for Electronics at MIT. She co-founded three companies to commercialize network coding. She was 2012 president of the IEEE Information Theory Society, and received its 2017 Wyner Award. She has served as technical program committee co-chair of many of the major conferences in information theory, communications and networking. She received the 2002 IEEE Kirchmayer Award, 2009 IEEE Communication Society and Information Theory Society Joint Paper Award, 2009 Bennett Prize, 2016 IEEE Vehicular Technology Evans Award, 2016 IEEE Women in Communication Engineering Outstanding Achievement Award, 2017 IEEE Communications Society Armstrong Award, 2018 ACM Sigcomm Test of Time Award and several conference paper awards. She is fellow of IEEE, holds 56 U.S. patents and is editor-in-chief of the *IEEE Journal on Selected Areas in Communications.*

Ellis Meng | *University of Southern California*

Ellis Meng, Ph.D., is professor in the department biomedical and electrical engineering, director of the Biomedical Microsystems Laboratory and principal investigator of the Coulter Translational Research Partnership Program. She holds the Gabilan Distinguished Professorship in Science and Engineering. Meng is a leader in implantable medical microtechnologies enabled by her innovations in polymer micromachining, micro sensors and actuators, microfluidics and biomedical microelectromechanical systems (bioMEMS). She chaired the 2017 IEEE Micro Electro Mechanical Systems Conference and 2013 Microtechnologies in Medicine and Biology Conference. She holds 17 U.S. patents, including five that have been licensed to two companies. She is co-founder of Fluid Synchrony, LLC (implantable infusion pumps) and Senseer, LLC (medical sensors). Her research also resulted in Replenish, Inc. (intraocular micropumps). Meng is fellow of AIMBE, ASME, BMES and IEEE. She is member of the IEEE Engineering in Medicine and Biology Administrative Committee and on the board for the Transducers Research Foundation.

Joachim Messing | *Rutgers, The State University of New Jersey*

Joachim Messing, Dr.Rer.Nat., is Distinguished University Professor of Molecular Biology and director of the Waksman Institute of Microbiology at Rutgers University, where he also holds the Waksman Chair in Molecular Genetics. Messing invented shotgun DNA sequencing implemented with novel DNA cloning techniques, which also provided industry the tools to produce new pharmaceuticals and crop traits. The resulting advances have saved countless lives from illness and starvation and made him the most frequently cited scientist from 1981-1990. Messing received the 2013 Wolf Prize in Agriculture "for innovations in recombinant DNA cloning, which revolutionized agriculture, and for deciphering the genetic codes of crop plants." The American Society of Microbiology recognized Messing with the 2014 Promega Biotechnology Award for "his significant contributions to the start of the genomics revolution." He is fellow of AAAS, AAM, AAA&S and member of the U.S. and German National Academies of Sciences. He holds seven U.S. patents.

Lalit K. Mestha | *The University of Texas at Arlington*

Lalit K. Mestha, Ph.D., is adjunct professor at The University of Texas at Arlington and director of biometric research at KinetiCor, Inc. Mestha is a pioneer, a leader and a prolific innovator in sensing, controls and biomedical fields. His inventions are applied to particle accelerators, digital production printers, biomedical systems and critical infrastructures. He is a recipient of the 2014 Engineer of the Year Award by the Rochester Engineering Society, 2006 IEEE Control System Technology Award by the Control System Society, 2010 Anne Mulcahy Inventor Award by Xerox Corporation and 2006 R&D100 award by R&D Magazine which recognized 100 of the top innovations in 2006. He has published three books, over 80 technical papers, holds 246 U.S. patents and over 80 pending applications with more than 50% in products. More than six companies are using these patents of which more than 30 patents are licensed to three startup companies. He is fellow of IEEE.

Lyle R. Middendorf | *University of Nebraska-Lincoln*

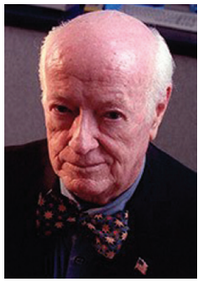
Lyle R. Middendorf, P.E., is senior vice president and chief technology officer at LI-COR Biosciences. Middendorf also serves as a member of the department of electrical and computer engineering's external advisory board and the Nebraska Research Initiative for the University of Nebraska system. He is one of the first inventors of automated DNA sequencing technology; a pioneer in the use of near-infrared fluorescence, chemistries, and instrumentation for biological assays; and developer of optical instrumentation for measuring light and for plant physiology research. In 2003, he received the University of Nebraska prestigious Alumni Master designation, and is the co-recipient of the 2010 Nebraska Governor's Bioscience Award. He holds over 25 U.S. patents and multiple corresponding foreign patents that have been utilized in LI-COR's product lines and out-licensed. He has published 13 peer-reviewed articles and four book chapters and served on the editorial board of *Journal of Fluorescence*. From 1993-2017, he was a member of Nebraska's Established Program to Stimulate Competitive Research State Committee, serving as chair from 2006-2017. Middendorf served as a regent for Concordia University Nebraska from 2009-2015.

Shaker A. Mousa | *Albany College of Pharmacy and Health Sciences*

Shaker A. Mousa, Ph.D., M.B.A., is professor of pharmacology at Albany College of Pharmacy and Health Sciences and is executive vice president and chairman of the Pharmaceutical Research Institute (PRI) which he founded in 2002. PRI is a research and development institute dedicated to cutting-edge research, mentoring and education. Mousa's work has been reported in over 1,000 peer-reviewed publications and holds over 350 U.S. and foreign patents. Mousa has contributed to the discovery and development of several products/clinical candidates: Cardiolite (myocardial imaging), anti-thrombotic agents, advanced several key concepts in vascular, cardiovascular, oncology and ophthalmological diseases. Mousa is fellow of the American College of Cardiology, the National Academy of Clinical Biochemistry and Kuwait Foundations for the Advancement of Sciences laureate. He is editor-in-chief of Biomedicines Journal, and on editorial boards of several journals, serves as a member of NIH study sections and other international scientific review panels.

William L. Murphy | *University of Wisconsin-Madison*

William L. Murphy, Ph.D., is Harvey D. Spangler Professor of Biomedical Engineering, professor of orthopedics and rehabilitation and director of the Forward BIO Institute at the University of Wisconsin-Madison. He has invented and developed multiple new classes of biomaterials inspired by the materials found in nature. Murphy's research group has used new biomaterials to manufacture medical devices, human cells and human tissues. These products are now being applied to emerging applications in regenerative medicine. He has published more than 170 scientific manuscripts, 10 book chapters, and two books, filed over 50 U.S. patents, co-founded multiple startup companies and received awards that include the NSF Career Award, Wisconsin Vilas Associate Award and H.I. Romnes Faculty Fellowship. He is fellow of AIMBE.



William P. Murphy, Jr. | *Florida International University*

William P. Murphy, Jr., M.D., is entrepreneur in residence in the college of engineering at Florida International University (FIU). Murphy is a pioneer in applying engineering principals to the field of medicine and is the inventor of numerous groundbreaking inventions in the medical field including: a compression system for sealed blood bags that allows for efficient and safe pressure transfusions; the first physiologic cardiac pacemakers and subsequently the first externally programmable and the first dual chamber demand pacemakers; angiographic injectors; hollow fiber artificial kidneys; disposable medical procedure tray; and the first disposable catheters. He is the recipient of Lemelson-MIT Lifetime Achievement Award and the NIH 7th Frank Hastings Award. He holds 17 U.S. patents and is the founder of Cordis Corporation and Small Parts, Inc. He has published 30 articles in medical journals. Murphy has also been inducted into NIHF.

Prakash S. Nagarkatti | *University of South Carolina*

Prakash S. Nagarkatti, Ph.D., is vice president for research and Carolina Distinguished Professor at the University of South Carolina (USC). Nagarkatti is internationally known for basic and translational research in the areas of inflammation, autoimmune diseases and cancer. As VPR, he also provides leadership to the entire USC system in all areas of advanced research, and technology innovation. He also serves as a director of two NIH and one NSF-funded research centers. He holds numerous patents, two of which have been licensed to pharmaceutical companies. His discovery on use of Cannabidiol to treat autoimmune hepatitis has been ground-breaking and approved by the FDA as an orphan drug. Nagarkatti has published over 270 papers and has mentored over 100 students: postdoctoral and junior faculty. He is fellow of AAAS, and the Academy of Toxicologists, as well as the recipient of Voz Lifetime Achievement Award by the Society of Toxicology.

Nathan Newman | *Arizona State University*

Nathan Newman, Ph.D., is Lamonte H. Lawrence Professor in Solid State Science at Arizona State University (ASU). Newman's contributions to invention, field of research and area of leadership is in the field of solid-state physics and electronics. His specific interest is in synthesis, characterization and modeling of novel semiconductor material, novel superconductor junctions and materials and low loss dielectrics for microwave communication. Newman has 13 U.S. patents and is the recipient of the IEEE Van Duzer award, fellow of IEEE and APS and has won teaching awards at Northwestern University and ASU. He has authored or co-authored over 220 research articles in 180 archival journals, six books, four technical magazines and 30 conference proceedings. He has served as associate editor of *Materials, IEEE Transactions of Applied Superconductivity* and as chair and board member of the U.S. committee for Superconductor Electronics.

Bert W. O'Malley | *Baylor College of Medicine*

Bert W. O'Malley, M.D., is Thompson Professor of Molecular and Cellular Biology and chancellor at Baylor College of Medicine. He is recognized as the "father of molecular endocrinology" and was the first to prove the genetic pathways by which intracellular hormones regulate specific mRNAs and proteins in a target cell. He discovered the superfamily of nuclear hormone coactivators, their mode of action and their relevance to diseases and as therapeutic targets. He is an inventor on 26 U.S. patents and founded five companies. He is fellow of NAM and AAP.

Aydogan Ozcan | *University of California, Los Angeles*

Aydogan Ozcan, Ph.D., is Chancellor's Professor at University of California, Los Angeles (UCLA), an HHMI Professor with the Howard Hughes Medical Institute (HHMI) and associate director of the California NanoSystems Institute at UCLA. Ozcan holds 38 U.S. patents, and more than 20 pending patent applications for his inventions in telemedicine, mobile-health, computational imaging, microscopy and nonlinear/fiber optics, with several of these patents licensed to companies, including two startups he founded. Ozcan is fellow of AAAS, SPIE, OSA, AIMBE, IEEE, the Royal Society of Chemistry and the Guggenheim Foundation, and received major awards including the Presidential Early Career Award for Scientists and Engineers, International Commission for Optics Prize, Biophotonics Technology Innovator Award and Rahmi M. Koç Science Medal.

Muthukumaran Packirisamy | *Concordia University*

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Roderic I. Pettigrew, Ph.D., M.D., is CEO of Engineering Health (EnHealth) and executive dean for engineering medicine (EnMed) at Texas A&M University and Houston Methodist Hospital. He has made seminal innovations in four-dimensional MR imaging of the cardiovascular system. He was founding director of the National Institute of Biomedical Imaging and Bioengineering (NBIB) at NIH. Under Pettigrew's leadership, NBIB had the highest patent production per dollar of any U.S. agency, averaging 146 per year. Pettigrew received the Pierre Galletti Award- AIMBE's highest award, Distinguished Service Award of both the International Society of Magnetic Resonance in Medicine and National Medical Association, Inaugural Gold Medal of the Academy of Radiology Research and the Gold Medal of RSNA. He holds two U.S. patents on MRI technology, helped develop the first cardiovascular imaging for Picker International and the early Philips MRI scanners. He is an AHA Fellow and member of NAM and NAE.

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Apparao M. Rao, Ph.D., is R. A. Bowen Professor of Physics, founding director of the Clemson Nanomaterials Institute and associate dean for discovery at Clemson University. Rao pioneered liquid-based methods for scalable manufacturing of carbon nanotubes with controlled morphologies and/or dopant concentrations. His novel approaches operate at ambient pressure and lead to the growth of high purity oriented carbon nanotubes, which are widely used in flexible supercapacitor and battery electrodes. He holds 12 U.S. patents and one provisional patent in addition to a patent disclosure. He co-founded Sai Global Technologies. In the past, Rao served on the advisory board of *Journal of Nanoscience and Nanotechnology* and *Nano Brief Reports and Reviews.* He serves on the advisory board of *Encyclopedia of Nanotechnology, Nature Scientific Reports*, and *Recent Patents on Materials Science*. Rao is the recipient of the 2014 Governor's Award for Excellence in Scientific Research, South Carolina, and is fellow of APS and AAAS

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Theodore Scott Rappaport, P.E., Ph.D., is the David Lee/Ernst Weber Professor at New York University (NYU). His research led the way for modern wireless communication systems. His work proved that millimeter waves were viable for mobile communications, and the global industry adopted his vision for 5th generation (5G) cellphone networks. He founded three wireless research centers at Virginia Tech, University of Texas and NYU that have produced thousands of engineers and educators. He has co-authored over 300 papers and twenty books, including the most cited books on wireless communications, adaptive antennas, wireless simulation and millimeter-wave communications. He has more than 100 patents, is fellow of IEEE, the Radio Club of America, an American Radio Relay League life member, a licensed professional engineer in Texas and Virginia and an amateur radio operator (N9NB). He received ASEE's Terman award in 2002, IEEE Communications Society Armstrong award in 2015 and the Armstrong medal from the Radio Club of America in 2018.

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Leo Rafael Reif, Ph.D., is president of Massachusetts Institute of Technology (MIT) where he leads MIT's pioneering efforts to help shape the future of higher education. A champion for both fundamental science and MIT's signature style of interdisciplinary, problem-centered research, he is also pursuing an aggressive agenda to encourage innovation and entrepreneurship. A member of MIT's faculty since 1980, he has served as director of MIT's Microsystems Technology Laboratories as head of the department of electrical engineering and computer science and as provost. In 1993, he was named fellow of IEEE. He is also an elected member of AAA&S, NAE and the Chinese Academy of Engineering. Reif is the inventor or co-inventor on 13 U.S. patents and has edited or co-edited five books.

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Joshua Rokach, Ph.D., is professor of biomedical and chemical engineering at Florida Institute of Technology (FIT). He earned his master's degree (Hebrew University) and his Ph.D. (Weizmann Institute of Science) in Israel. He joined Merck, where he was part of a beta-blocker development program leading to the discovery of Blocadren and Timoptic (glaucoma). Also at Merck, Rokach was instrumental in the discovery of Singulair, an FDA-approved treatment for asthma and allergic rhinitis. He developed a nomenclature system for isoprostanes, now used universally. Among his many awards and prizes are the Canadian Society for Chemistry (Labatt Award); Prix Urgel Archambault (Canada); Gordon Nelson Award (ACS); and the Prix Paul Ehrlich (France). In 1989, Rokach joined FIT where he identified a new class of natural products (isoprostanes) and developed a universally recognized nomenclature system for them. The study of free-radical damage in diseases is among his other projects. Rokach has 119 U.S. and foreign patents.

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Yoram Rudy, Ph.D., is Fred Saigh Distinguished Professor of Engineering and director of the Cardiac Bioelectricity and Arrhythmia Center at Washington University in St Louis (WUSTL). Rudy is developer of Electrocardiographic Imaging (ECGI) – a noninvasive method for mapping the electrical activity of the heart and cardiac arrhythmias. His laboratory developed mathematical models of cardiac cells for studies of cardiac arrhythmias and drug discovery. He was president of the Cardiac Electrophysiology Society. He is the recipient of an NIH Merit award, Distinguished Scientist Award from Heart Rhythm Society, Distinguished Alumni Award of Case Western Reserve University and Distinguished Lectureship Award from the Biomedical Engineering Society, and Oxford University Royal Academy of Engineering Distinguished Visiting Fellow and Visiting Research Fellow at Merton College. He is inventor on eight U.S. patents, has published over 200 articles and 40 book chapters and is member of NAE.

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Wheeler Ruml, Ph.D., is professor of computer science at the University of New Hampshire (UNH) and a researcher in heuristic search, a subarea of artificial intelligence concerned with planning, decision-making and problem-solving. He is the recipient of four Best Paper awards at leading conferences in his area, as well as the 2012 UNH Outstanding Assistant Professor Award, the 2005 PARC Most Valuable Patent award and a letter of commendation from the President of Xerox R&D. He holds 17 U.S. patents and 12 foreign patents, several of which have been commercially licensed. He co-founded the International Symposium on Combinatorial Search and served as president from 2008-2016. He served as associate editor for the *Journal of Artificial Intelligence Research* and currently serves as treasurer for the International Conference on Automated Planning and Scheduling. Ruml was elected a senior member of the AAAI in 2016.

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Thomas P. Russell, Ph.D., is Silvio O. Conte Distinguished Professor in the polymer science and engineering department at University of Massachusetts Amherst (UMass Amherst), visiting faculty in materials sciences at Lawrence Berkeley National Laboratory, and a past research staff member at IBM Almaden. He has pioneered the use of block copolymers as templates and scaffolds for the fabrication of nanostructured materials and nanoparticles for structuring liquids. He is member of NAE, received the APS Polymer Physics Prize, ACS Applied Polymer Science Award and Cooperative Research Award, Dutch Polymer Award, International Prize of the Society of Polymer Science Japan and is fellow of APS, ACS, MRS, AAAS, NSSA and the Chinese Chemical Society (honorary). He holds over 34 U.S. patents, 15 book chapters and co-authored four books. He is an associate editor of *Macromolecules* and serves on the editorial advisory board of seven international journals.

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Jagannathan Sarangapani, Ph.D., is the Rutledge Emerson Distinguished Professor at Missouri University of Science and Technology (Missouri S&T). He served as the site director of the graduated NSF Industry/University Cooperative Research Center on Intelligent Maintenance Systems. He is responsible for the invention of a new class of feedback control systems that find applications in manufacturing process control, robotics, automotive, aircraft and aerospace control, unmanned systems and other engineered systems and that are currently used in industry. Industry applications include engines, autonomous vehicles, prognostics, HVAC systems and energy harvesting. He is the recipient of IEEE CSS Transition to Practice Award, Boeing Pride Achievement Award, Caterpillar Research Excellence Award, NSF Career Award and others. He holds 21 U.S. patents. He has published 160 journal articles, 273 refereed conference papers, six books, 16 book chapters and currently serves on many editorial boards. Sarangapani is fellow of IEEE, IET and UK's Institute of Measurement & Control.

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Vinod K. Sarin, Sc.D., is professor in the material science division and department of mechanical engineering at Boston University (BU). Sarin has established and developed several material research laboratories for education, training and research with research activities focused in the areas of high temperature Ceramic Composites, Transparent Optical Ceramics (TOC), Surface Modification Technology and Super Hard Materials. He is the recipient of several technical, achievement and industrial awards, invited distinguished scientist at the Max Planck Institute (Germany), visiting professor at the Universities of Linkoping and Lund (Sweden), Professor Universilat Politecnica de Catalunya (Spain) and a global industrial R&D consultant. He holds 90 U.S. and foreign patents, has edited numerous books, authored or co-authored several chapters and has published over 100 technical articles. He is the co-founder of the *Science of Hard Materials Conference* series, a member of the editorial board of several journals and has chaired multiple conferences and technical sessions all over the world.

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Rahul Sarpeshkar, Ph.D., is the Thomas E. Kurtz Professor of Engineering, Physics, Microbiology & Immunobiology, and Molecular and Systems Biology at Dartmouth College. Sarpeshkar is a world leader in the field of analog, ultra-low-power, bio-medical, bio-inspired and biological circuits and systems. He is the recipient of multiple highly competitive research honors including CAREER, EFRI, ONR and Packard awards. He holds 39 U.S. patents and one foreign patent that have been licensed to three companies including his own startups. Sarpeshkar is fellow of IEEE. His work on ultra-low-power neural prosthetics for cochlear, brain, retinal, diabetic and arthritic implants has made glucose-powered medical devices eminently feasible. Recently, he has invented techniques that utilize classical analog circuits to efficiently emulate and to design novel quantum and quantum-inspired analog computers, some of which emulate the best computational paradigms in physics, chemistry and biology.

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Steven J. Sasson, M.S., is a professor in the Institute for Advanced Discovery & Innovation at the University of South Florida (USF). Sasson is the inventor of the electronic still camera and playback system, and led the development of the first prototype mega pixel electronic digital camera utilizing DCT compression that stored images to flash memory cards. He also developed one of the first photographic quality thermal printing systems, derivatives of which are still in use in self-service imaging kiosks around the world, and led the team which developed and commercialized printers based on AgX, laser thermal and Inkjet marking technologies. He is a recipient of the U.S. National Medal of Technology and Innovation; inductee of the NIHF and the Consumer Electronics Hall of Fame; and recipient of honorary doctor of engineering from Rensselaer Polytechnic Institute and honorary doctor of science from The University of Rochester. He holds ten U.S. patents, all of which have been licensed.

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Zheng John Shen, Ph.D., is Grainger Endowed Chair Professor in Electrical and Power Engineering at the Illinois Institute of Technology. His current research interests include power semiconductor devices, power electronics, automotive electronics and renewable energy systems. He is the inventor of the megahertz-frequency, sub-milliohm power MOSFET technology that has been widely adopted in supercomputers and high performance servers. He is the recipient of the 2012 IEEE Region 3 Outstanding Engineer Award, and two IEEE Transactions Best Papers awards. He holds 18 U.S. patents, and has published over 200 journal and conference articles and three book chapters. Shen has served as the general chair of several major IEEE conferences, including the 8th IEEE Energy Conversion Congress and Exhibition (ECCE2016) and the 30th International Symposium on Power Semiconductor Devices and ICs (ISPSD2018). Shen is fellow of IEEE.

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Thomas E. Shenk, Ph.D., is James A. Elkins Jr. Professor of Life Sciences in the department of molecular biology at Princeton University. He is a virologist who has investigated gene functions and pathogenesis of adenovirus, a DNA tumor virus and human cytomegalovirus-a member of the herpes family of viruses. His laboratory's current areas of focus include the dissection of cytomegalovirus gene functions, persistence and latency. He co-founded and served as chairman of Princeton's department of molecular biology, and has served as a founding co-director of Princeton's Program in Global Health and Health Policy. He is past president of the American Society for Virology and the American Society for Microbiology. Shenkhas 21 U.S. patents and holds memberships in AAA&S, NAS, NAM and APhilS.

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Mark B. Shiflett, Ph.D., P.E., is a Foundation Distinguished Professor at The University of Kansas (Kansas) in the department of chemical and petroleum engineering. Prior to beginning his career at Kansas, Shiflett was fellow in the DuPont Company where he spent 28 years inventing new products and processes. His most notable inventions include three energy-efficient refrigerant mixtures for replacing chlorofluorocarbons (CFCs) used in supermarket display cases, commercial ice machines and refrigerated transportation. He is the recipient of the 2016 AIChE Industrial R&D Award, 2007 University of Delaware Presidential Citation Award, 2006 ACS Heroes of Chemistry Award and the 2004 DuPont Bolton Carothers Innovative Science Award. He holds 44 U.S. patents, three of which protect commercial DuPont products, has published 80 articles, edited two books and serves on the editorial advisory board for *Industrial & Engineering Chemistry Research.* He is fellow of AIChE and ACS and a registered professional engineer in Delaware.

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Michael L. Simpson, Ph.D., is professor of materials science and engineering at the University of Tennessee, Knoxville, and a corporate fellow at the Oak Ridge National Laboratory. Simpson's innovations are in the fields of nuclear physics instrumentation, carbon nanomaterials and whole-cell biosensors, and have greatly influenced innovation in these fields. He was named a Battelle Memorial Institute Distinguished Inventor (2007), won the Kermit Fischer Environmental Award (1998) and was a finalist for a *Discover Magazine* Technology Innovation Award (1998). He holds 35 U.S. patents that have been licensed to two companies. He has published more than 200 articles (including 164 peer-reviewed journal articles) and served on the editorial boards of several journals. Simpson is fellow of AAAS, IEEE and AIMBE.

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Koji Sode, Ph.D., is a Kenan Distinguished Professor in the joint department of biomedical engineering at The University of North Carolina at Chapel Hill (UNC-Chapel Hill) and North Carolina State University (NC State). Sode has created novel molecules for diagnostics and novel bioprocesses based on biomolecular engineering. His highest impact inventions are enzymes for electrochemical glucose monitors for both 2nd (finger prick) and 3rd generation (continuous monitoring) systems. Sode's work has been recognized by the Japan Science and Technoogy CREST grant for bioenergy production from algae and 2018 Diabetes Technology Society Leadership Award, among other awards. He holds 41 issued U.S. patents that are licensed, co-assigned or assigned to companies which include suppliers of blood glucose monitoring products in the world. He is the founder of Ultizyme International Ltd. He has published over 300 refereed papers and serves as editor for *Biosensors and Bioelectronics* and as congress committee of The World Congress of Biosensors.

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Costas M. Soukoulis, Ph.D., is a senior scientist in the Ames Laboratory and a distinguished professor of physics at Iowa State University. He received his B.Sc. from University of Athens in 1974. He obtained his Ph.D. in physics from the University of Chicago in 1978. His research interest is to develop theoretical understanding of the properties of disordered systems, with emphasis on electron and photon localization, photonic crystals, random lasers, graphene, plasmonics and metamaterials. Soukoulis achieved world-leading experimental, theoretical and computational research in the discovery, design, synthesis, understanding and control of novel sustainable materials. Soukoulis has been a member or a chairman of various international scientific committees responsible for many international conferences. He has served on several boards and committees for organizations, including NSF, DOE and European Union. He holds five U.S. patents.

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John W. Spirk is a trustee of Cleveland Clinic, designer, inventor and entrepreneur. As co-founder of Nottingham Spirk, a leading product innovation firm, he has contributed significantly to the fields of consumer and medical product innovation. He holds 232 U.S. patents and 113 foreign patents that have been licensed to over 100 companies creating over $50 billion in sales. Over 95% of Spirk's patents have been commercialized. He is the co-founder of over 30 technology venture companies. Spirk and his product innovations have been featured on The Today Show, CNN, NBC News, Wall Street Journal, Fortune, Forbes, Japan Forbes, Bloomberg BusinessWeek, New York Times, Wired and Fast Company. Spirk is a member of Case Western Reserve University (CWRU) Commercialization Board, and boards of CWRU think[box] maker space, Cleveland Institute of Art as well as several venture company boards.

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Gary Stacey, Ph.D., serves as a Curators' Distinguished Professor at the University of Missouri (MU). Stacey has made important contributions to plant science through invention and innovation, as well as providing leadership locally, nationally and internationally. He was among the most cited plant researchers by the American Society of Plant Biology, and was awarded the Frederick B. Mumford award for outstanding faculty by College of Agriculture, Food and Natural Resources. Stacey received distinguished research awards from both MU and University of Tennessee. He holds 13 patents, two of which underpin the product Optimize™. He co-founded the not-for-profit corporation Missouri Energy Initiative in 2009, serving as executive director from 2009-2011. He has published 250 peer-reviewed articles, 78 book chapters and edited 16 published books or reports. Stacey is an elected fellow of AAAS, American Society for Plant Biology and AAM.

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F. William Studier, Ph.D., is senior biophysicist emeritus at Brookhaven National Laboratory. Studier's basic research revealed how bacteriophage T7 diverts the E. coli bacterium from its own growth to the production of T7 virus particles. This understanding led to development of the highly effective T7 expression system, in which crucial fragments of T7 DNA redirect most protein production in E. coli cells to producing a single protein specified by a cloned gene. He holds 15 U.S. patents, and those related to the T7 expression system have been licensed to more than 800 companies. He designed devices for slab-gel electrophoresis that greatly expanded the capacity and convenience of analyzing proteins and nucleic acids. The plans were freely distributed, and commercial versions derived from his designs are used worldwide. He has published over 100 articles and book chapters. Studier is member of NAS and fellow of AAAS.

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Samuel I. Stupp, Ph.D., is a pioneer on self-assembling materials for biomedical, energy and electronic applications. He introduced the first platform of supramolecular biomaterials for regenerative medicine, based on bioactive molecules that self-assemble into biomimetic extracellular matrices. He has co-authored 50 U.S. patents as well as two foreign patents, licensed to three companies, and founded one startup company. He is an author of 435 publications and has served in 19 editorial boards for peer-reviewed journals. He is a member of NAE, AAA&S and the Spanish Royal Academy. His awards include the DOE Prize for Outstanding Achievement in Materials Chemistry, MRS Medal Award, ACS Award in Polymer Chemistry, ACS Ronald Breslow Award for Achievement in Biomimetic Chemistry and the U.K. Royal Society of Chemistry Award in Soft Matter and Biophysical Chemistry and three honoris causa doctorates.

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Koduvayur P. Subbalakshmi, Ph.D., is the founding director of the Stevens Institute for Artificial Intelligence and a professor of electrical and computer engineering at the Stevens Institute of Technology. She was named a Jefferson Science Fellow in 2016 and spent the 2016-2017 academic year as a senior science and technology adviser to the U.S. Department of State. In that role, she worked on technology policy issues in IoT, 5G communications as well as Artificial Intelligence and ML. Subbalakshmi is a recipient of the New Jersey Inventors Hall of Fame Innovator Award. She is a co-founder of four startup companies. The two most recent companies commercialize her research in cognitive radio networks and her suite of AI/NLP tools for cybersecurity. She serves/has served as an associate editor on several international journals. She regularly organizes IEEE conferences and workshops and has given keynote addresses and tutorials international conferences. She has five U.S. patents.

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Bruce A. Sullenger, Ph.D., is the Joseph and Dorothy Beard Professor of Surgery at Duke University. Sullenger is a leader in the invention of RNA therapeutics. He is the recipient of the 2015 Outstanding Achievement Award from the American Society of Gene and Cell Therapy and 2017 Distinguished Alumnus Award from Weill Cornell Graduate School. He holds 22 issued U.S. patents and over 50 issued foreign patents. He is a founder of four biotechnology companies, two of which completed IPOs. He has published over 150 papers with over 30 appearing in *Science, Nature, Nature Medicine, Nature Biotechnology, Nature Chemical Biology, PNAS, JCI* and *Cell.* He serves as the co-editor and chief for *Nucleic Acids Therapeutics* and editorial board member for *Molecular Therapy.* Sullenger is fellow of AAAS and he testified to the U.S. Senate's Committee on Health, Education, Labor and Pensions about the importance of biomedical innovation in 2015.

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Jing Sun, Ph.D., is Michael G. Parsons Collegiate Professor and chair of the naval architecture and marine engineering department at the University of Michigan. She has joint appointments in the department of electrical engineering and computer science and the department of mechanical engineering. She holds 40 U.S. patents. She was the technical leader of the Ford Direct Injection Stratified Charge (DISI) engine control system development project while working at Ford Research, and led a team that pioneered the development of the control system for the renowned Eco-boost technology. Her work led to several Ford internal innovation awards in the period of 1998-2003 and the IEEE Control System Technology Award in 2003. Her book "Robust Adaptive Control" is a classic work on adaptive control and has been cited more than 5,000 times. She has served on many control journal editorial boards, including the IEEE Transactions on Control System Technology. She is fellow of IEEE and SNAME.

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Xiuzhi Susan Sun, Ph.D., is a University Distinguished Professor at Kansas State University. Sun is an outstanding principle investigator of plant derived biopolymers, particularly in protein and lipids structural design, functions and fabrication at monomers and polymers levels for self-assembling hydrogels and biobased resins for environmental safe materials and biomedical applications. She is the recipient of Higuchi Research Achievement Award, KS, the 50 Kansans You Should Know recognition by Ingram's KS and the Lifetime Achievement Award from Bioenvironmental Polymer Society. She holds 15 patents that have been licensed to four companies. Her patent Novel Peptide Hydrogel was selected by the USPTO for the 2015 Innovation Festival held at the Smithsonian National Museum. She is the founder of two startup companies. She has published 205 articles and books. Sun is fellow of ASABE.

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Yu Sun, Ph.D., is a professor in the department of mechanical and industrial engineering at the University of Toronto. He is an internationally recognized micro-nanotechnologist and a leader in developing robotics and automation technologies for manipulating and characterizing cells, molecules and nanomaterials. Sun is the Tier 1 Canada Research Chair in Micro and Nanoengineering Systems, and was elected fellow of ASME, IEEE, AAAS and the Canadian Academy of Engineering. He holds 12 U.S. patents and one PCT. He is the recipient of numerous awards including the IEEE Robotics and Automation Society Early Career Award, First Prize in Technical Achievement of ASRM, IEEE C.C. Gotlieb Computer Award and the University of Toronto Connaught Innovation Award. He is a senior editor or editorial board member of five international journals.

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Wanchun Tang, M.D., is the director of the Weil Institute of Emergency and Critical Care Research and professor of emergency medicine at Virginia Commonwealth University (VCU). Tang has dedicated his career to cardiopulmonary resuscitation and critical care medicine, beginning as a practicing cardiothoracic surgeon, and presently as a physician-scientist leading the preeminent basic science cardiopulmonary resuscitation research institute. Notable among his achievements, Tang is a master fellow of the American College of Critical Care Medicine and has been six times awarded the Society of Critical Care Medicine President's Citation Award. Tang is a named inventor on 19 issued U.S. patents, with several licensed to two companies. Tang currently serves on the editorial board for the Journals of *Critical Care Medicine, Resuscitation, Shock, Taiwan Journal of Critical Care Medicine,* and the *Chinese Journal of Emergency Medicine.*

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Susan S. Taylor, Ph.D., is professor of pharmacology and of chemistry and biochemistry at University of California, San Diego (UCSD). Known for advancing our understanding of protein kinases, Taylor's breakthroughs in how protein kinase A (PKA) works have led to a better understanding of bodily changes over time, including memory, development and cell growth and death. Taylor has been recognized with numerous awards and prizes including the Vanderbilt Prize in Biomedical Sciences, ASBM William C. Rose Award, ACS's Garvan-Olin Medal, IEEE's Forefronts of Large Scale Computation Award and the NIH Merit Award. She was named a HHMI in 1997 and serves as a senior fellow in the San Diego Supercomputer Center. Taylor has three U.S. patents and is an elected member of AAA&S, NAS and the Institute of Medicine. She is fellow of AAAS.

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Bhavani Thuraisingham, Ph.D., D.Eng., is the Louis A. Beecherl, Jr. Distinguished Professor of Computer Science and the executive director of the Cyber Security Research and Education Institute at the University of Texas at Dallas (UT Dallas). She is also a visiting senior research fellow at Kings College, University of London. She received her Ph.D. from the University of Wales, Swansea, UK, and the prestigious earned higher doctorate (D. Eng) from the University of Bristol, UK. She has received several awards including the IEEE CS 1997 Technical Achievement Award, ACM SIGSAC 2010 Outstanding Contributions Award and the ACM SACMAT 10 Year Test of Time Award. She has worked in industry (Honeywell), federal laboratory (MITRE), U.S. government (NSF) and her work has resulted in 120 journal articles, 250 conference papers, 130 keynote and featured addresses, six U.S. patents and 15 books as well as technology transfer. Thuraisingham is fellow of ACM, IEEE and AAAS.

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David A. Tirrell, Ph.D., is the Ross McCollum-William H. Corcoran Professor of Chemistry and Chemical Engineering and provost at the California Institute of Technology (Caltech). Tirrell was educated at MIT and at UMASS. He joined the department of chemistry at Carnegie-Mellon University as an assistant professor in 1978, returned to UMass in 1984 and served as director of the Materials Research Laboratory before moving to Caltech in 1998. He served as chairman of the division of chemistry and chemical engineering from 1999 until 2009, and as director of the Beckman Institute from 2011 until 2018. Tirrell's research interests lie in macromolecular chemistry and in the use of non-canonical amino acids to engineer and probe protein behavior. He is an elected member of AAA&S, NAS, NAE and NAM, and holds 11 U.S. patents.

Don M. Tucker | *University of Oregon*

Don M. Tucker, Ph.D., is professor of psychology and director of the NeuroInformatics Center at the University of Oregon (UO) as well as CEO and chief scientist of the Brain Electrophysiology Laboratory Company. Tucker is a leader in encephalography and a pioneer of university-industry collaboration at UO. He holds 11 U.S. patents and one foreign patent that has been commercialized through four companies. He is a founder of Electrical Geodesics, Inc. (EGI), Cerebral Data Systems, The Brain Electrophysiology Laboratory Company and NADA, LLC. Tucker was awarded over $25 million in research funding as the lead or co-investigator, and has supervised over 20 doctoral students, 12 master's students and over 30 undergraduate students, a third of which are working in EGI today.

Jeffrey S. Vitter | *The University of Mississippi*

Jeffrey S. Vitter, Ph.D., is Distinguished Professor of Computer & Information Science at the University of Mississippi, where he served as the 17th chancellor. Vitter is a renowned computer scientist with research expertise in big data and data science, especially the algorithmic aspects of processing, compressing and communicating massive amounts of information. He holds five U.S. patents on optimizing I/O throughput, approximate data structures, online predictors for machine learning and external sorting. He is a strong champion of entrepreneurship and technology commercialization. He is fellow of the Guggenheim Foundation, AAAS, ACM and IEEE. He is an NSF Presidential Young Investigator, a Fulbright Scholar and an IBM Faculty Development Awardee.

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Israel E. Wachs, Ph.D., is the G. Whitney Snyder Endowed Professor at Lehigh University in the department of chemical and biomolecular engineering of the Rossin College of Engineering and Applied Sciences. Wachs has made innovative contributions to fundamental catalysis that has been applied in the manufacture of chemicals and air pollution control, and has held many leadership positions. He has many awards for his accomplishments including EPA, ACS, AIChE, Catalysis Societies, Fulbright Fellowships, Alexander von Humboldt Award, Vanadis Award and Lee Hsun Research Award. He holds 38 U.S. patents and 85 foreign patents with some licensed to industry. He has published two books, 400 peer-reviewed papers/book chapters/proceedings, listing him among Google Scholar's ISI Golden 100 researchers, and served(s) as editorial board member and guest editor for *ACS Catalysis, Catalysis Today, Catalysis Letters* and *Chemical Reaction Intermediates.*

Albert Z. H. Wang | *University of California, Riverside*

Albert Z. H. Wang, Ph.D., is a professor of electrical and computer engineering at the University of California, Riverside (UC Riverside). He is a recipient of NSF CAREER Award. He holds 15 U.S. patents that have been licensed by the industry. Particularly, his patents of design-for-reliability have direct impacts on integrated circuit and system products worth billions of dollars annually, hence making extraordinary economic and societal impacts globally. He has published one textbook and more than 250 peer-reviewed papers. Wang was president of IEEE Electron Devices Society. Wang is an IEEE Fellow and AAAS Fellow.

Michael S. Waterman | *University of Southern California*

Michael S. Waterman, Ph.D., is university professor and professor of biological science, mathematics and computer science at the University of Southern California (USC). He invented the sequence-analytic approaches that ignited computational biology and bioinformatics and propelled a revolution in molecular biosciences, biomedicine, forensics and genealogy He is a Guggenheim Foundation Fellow and the first fellow of Celera Genomics. He is Cao Xingcheng Chair Professor at Tsinghua University, and Distinguished Professor at Fudan University, Shanghai. He holds five U.S. patents and is member of NAS and NAE, the French Academy of Sciences and the Chinese Academy of Sciences. He is fellow of AAA&S, AAAS, the Institute of Mathematical Statistics and is inaugural fellow of both the Society for Industrial and Applied Mathematics and the International Society of Computational Biology.

Alan W. Weimer | *University of Colorado Boulder*

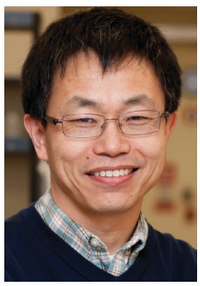
Alan W. Weimer, Ph.D., H.T., is the Sears Memorial Professor of Chemical and Biological Engineering at the University of Colorado Boulder (CU). He joined the faculty in 1996 after a 16-year career with the Dow Chemical Company (Dow). He is a world-recognized expert in particle and nanoparticle functionalization where he pioneered primary particle surface modification by atomic layer deposition (Particle ALD). Particle ALD laid the foundation for his successful startup company, ALD NanoSolutions, founded in 2001. Weimer's intellectual property was key to success. He has received five major awards from AIChE including the 2017 AIChE Lifetime Achievement Award in Particle Technology. He was named Inventor of the Year at both CU and Dow and received the Dow Excellence in Science Award in 1995 for his "persistence to commercialize." He holds 39 issued U.S. patents, has published 200 peer-reviewed articles and serves as an associate editor for the *Journal of Nanoparticle Research.*

Louis M. Weiner | *Georgetown University*

Louis M. Weiner, M.D., is director of Georgetown Lombardi Comprehensive Cancer Center, the Francis L. and Charlotte G. Gragnani Chair, professor and chair of the department of oncology at Georgetown University Medical Center and director of the MedStar Georgetown Cancer Institute. His laboratory and clinical research focuses on new immunotherapy approaches to fight cancer. He has more than 250 publications and 10 U.S. patents. He is an active member of the American Society of Clinical Oncology and founded the AACR's Cancer Immunology Working Group. He recently served as chair of the NCI Board of Scientific Counselors for Clinical Sciences and Epidemiology, as a member of the NCI's Clinical Trials Advisory Committee (CTAC) and on the NCI's blue ribbon panel working group on immunotherapy for the National Cancer Moonshot Initiative.

Robert G. Wilhelm | *University of Nebraska-Lincoln*

Robert G. Wilhelm, Ph.D., is vice chancellor of research and economic development and Kate Foster Professor of Mechanical and Materials Engineering at the University of Nebraska-Lincoln (UNL). A recognized expert in precision engineering and advanced manufacturing, he began his career at Cincinnati Milacron, the Rockwell Science Center and his own advanced manufacturing company. He holds three U.S. patents. Wilhelm held important leadership roles nurturing and growing innovation as vice chancellor for research and economic development at the University of North Carolina-Charlotte and executive director of the Charlotte Research Institute. There, he successfully integrated innovation and commercialization as pillars of the academic and business community. He is fellow of the International Academy for Production Engineering and has served on many boards, including the North Carolina Board of Science, Technology, and Innovation; North Carolina Biotechnology Center; Ventureprise; Nebraska Innovation Campus; National Strategic Research Institute and NUtech Ventures.



Yushan Yan | *University of Delaware*

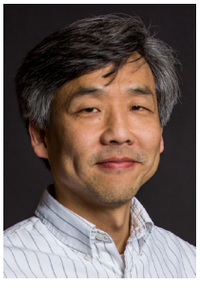
Yushan Yan, Ph.D., is distinguished engineering professor and associate dean for research and entrepreneurship in the College of Engineering at the University of Delaware. Yan is an internationally recognized expert and innovator in the field of electrochemical energy engineering, electrocatalysis and polymer electrolytes for fuel cells, electrolyzers and flow batteries. His fuel cell research is focused on developing affordable platinum-free hydroxide exchange membrane fuel cell (HEMFC) technology that can be used in zero-emission automobiles. He is the recipient of Energy Technology Division Research Award (ECS), Nanoscale Science and Engineering Forum Award (AIChE) and the Donald Breck Award (International Zeolite Assoc.). He is fellow of AAAS. He holds over 15 issued U.S. patents, some of which are licensed to seven companies. He is co-founder of several startup companies including W7energy, LLC. He has published more than 250 journal articles, six book chapters and served as editor for two books.

Eui-Hyeok Yang | *Stevens Institute of Technology*

Eui-Hyeok Yang, Ph.D., is a professor at Stevens Institute of Technology. Yang's research is aimed at translating discoveries in material growth and nanofabrication into practical applications through new design and fabrication strategies of materials, structures and devices using 1D and 2D materials. His approach is to innovate by combining fundamental studies with forward-looking engineering efforts that can lead to advanced technologies in fields ranging from electronics and photonics to sustainable energy. His inventions from these research efforts have resulted in eight issued patents and four provisional patents. Yang is the recipient of multiple awards, including the prestigious Lew Allen Award for Excellence for advancing the use of MEMS-based actuators for NASA's space applications. He has served as an associate editor of the *IEEE Sensors Journal* since 2008 and is a member of the editorial board of *Nature Scientific Reports and Elsevier NANOSO*, and associate editor of *ASME Journal of Electrochemical Energy Conversion and Storage.*

Jian Yang | *The Pennsylvania State University*

Jian Yang, Ph.D., is a professor of biomedical engineering at The Pennsylvania State University (Penn State). Yang has more than 90 patent applications of which 21 patents (14 U.S. patents and seven foreign patents) were issued. To name a few, his technology innovation has led to new metabonegenic orthopedic implants, a low-cost sensor for cystic fibrosis diagnosis and an elastic tissue adhesive for sutureless wound closure. 15 of the 21 patents have been licensed to industry and his own startup company, Aleo BME, which has received FDA 510K clearance for its Elaskin™ bandage in 2018. Yang received the NSF CAREER Award (2010) and PSEAS Outstanding Research Award (2018) and was elected to the College of Fellows of AIMBE (2016). Yang is an associate editor for both *Frontiers in Biomaterials* and *Bioactive Materials* and published 115 journal articles and contributed eight book chapters.



Mark H. Yim | *University of Pennsylvania*

Mark H. Yim, Ph.D., is a professor in the mechanical engineering and applied mechanics department at the University of Pennsylvania (Penn). His group designs and builds small flying robots, self-assembling structures and modular self-reconfigurable robots. Recently, his work has followed a theme of simplicity and low cost. His other research interests include product design, reactive art and architecture, snake locomotion, urban search and rescue and mobile manipulation. Prior to Penn, he was principal scientist at the Palo Alto Research Center (formerly Xerox PARC). Honors include the Lindback Award for Distinguished Teaching (Penn's highest teaching honor), induction as World Technology Network Fellow and induction to MIT's TR100 in 1999. He has over 200 publications and patents issued (perhaps the most prominent patents are related to the video game vibration control which resulted in over $100 million in litigation and settlements). He has started two companies, one in robotics and one medical device company, and has 35 U.S. patents.

Michael J. Yost | *Medical University of South Carolina*

Michael J. Yost, Ph.D. is professor of surgery and bioengineering and vice chairman of research in the department of surgery at the Medical University of South Carolina (MUSC). Yost has made substantial contributions to engineering and science in tissue engineering and inflammation modulation, muscle repair and regeneration, 3D bioprinting and the use of collagen as a biomaterial for regenerative medicine. Yost is an inventor of six U.S. patents including connexin mimetic peptide, which has been shown to modulate early inflammatory events. This peptide has also been shown to have anti-tumorigenic properties in glioblastoma, pancreatic and colon cancer. He holds seven patents and is the founder of four startup companies. He has published 93 peer-reviewed articles, nine book chapters and served on editorial boards in his field. Yost is fellow of AIMBE and a member of the MUSC Foundation for Research Development Board of Directors.

James M. Zavislan | *University of Rochester*

James M. Zavislan, Ph.D., is Mercer Brugler Distinguished Teaching Professor and associate professor of optics, biomedical engineering, ophthalmology and visual science at the University of Rochester (UR). He serves as the associate dean for education of the UR Hajim School of Engineering and Applied Science. Zavislan graduated from The Institute of Optics, UR with a B.S. and Ph.D. where he was a Fannie and John Hertz Fellow. After graduating, he worked at IBM Almaden Research Center. He co-founded Lucid, Inc. and served as senior vice president of technology and CTO, where he led the company's research, development and clinical testing of its in-vivo and ex-vivo clinical imaging systems and the development of its spectrometers and election ballot sensors. He is an inventor on 63 U.S. patents and 151 foreign patents and has 50 publications. He is fellow of OSA and senior member of IEEE.

Ruiwen Zhang | *The University of New Mexico*

Ruiwen Zhang, M.D., Ph.D., is tenured professor of pharmacology and toxicology, Robert L. Boblitt Endowed Professor in Drug Discovery, and director of Drug Discovery Institute at University of Houston. Zhang is recognized for his major contributions in discovery of dihydropyrimidine dehydrogenase (DPD) pharmacogenomic syndrome, discovery of novel mechanisms of function of MDM2 oncogene and discovery and development of novel DNA/RNA-based therapeutics. Zhang is a board-certified toxicologist by the American Board of Toxicology (D.A.B.T.) and served on ABT Board of Directors between 2009 and 2013. He has been an FDA advisory committee member since 2003 and received NIH and FDA service awards. He holds 14 U.S. patents and three foreign patents. Zhang is editor-in-chief of *Current Cancer Drug Targets* and executive editor-in-chief, associate editor-in-chief, associate editor or editorial board member of more than 26 scientific journals. Zhang is fellow of AAAS.

Huda Y. Zoghbi | *Baylor College of Medicine*

Huda Y. Zoghbi, M.D., grew up in Beirut, Lebanon before immigrating to the U.S. during the civil war. She is the Ralph D. Feigin Professor of Pediatrics, Neuroscience, and Molecular and Human Genetics at Baylor College of Medicine, an investigator with the Howard Hughes Medical Institute (HHMI), and the founding director of the Jan and Dan Duncan Neurological Research Institute at Texas Children's Hospital. Her patient-inspired research led to the discovery of the spinocerebellar ataxia type 1 gene and mechanisms mediating neurodegeneration (with Harry Orr), and the discovery of the Rett syndrome gene and its effects on the brain. Her curiosity-driven research led to the discovery that Atoh1 governs development of neurons critical for balance, hearing and breathing. Zoghbi has received over 40 awards and honors including membership to NAM and NAS, the 2017 Canada Gairdner International Award and the 2017 Breakthrough Prize in Neurodegeneration. She is an inventor on 15 U.S. patents. She has published 283 papers, 60 reviews and editorials and 50 book chapters.

2018 FELLOWS SELECTION COMMITTEE

Mary Albertson | *Association of University Technology Managers*

Mary Albertson is immediate past president of Association of University Technology Manager and senior associate at Stanford University's Office of Technology Licensing, where she has worked for more than two decades supporting academic research commercialization. Albertson manages technologies – from evaluation through to licensing – in the life sciences and medical devices fields. She is involved in information management, the analysis of technology transfer business processes and information collection systems.

Norman R. Augustine | *Lockheed Martin Corporation*

Norman R. Augustine is retired Chairman and CEO of the Board of the Lockheed Martin Corporation. Prior to joining Lockheed Martin Corporation, he served as assistant secretary of the Army (R&D) from 1973-75 and undersecretary from 1975-77. He was also a professor at Princeton, his alma mater, from 1997-99. Augustine has been presented the National Medal of Technology by the President of the United States and received the Joint Chiefs of Staff Distinguished Public Service Award. He has five times received the Department of Defense's highest civilian decoration, the Distinguished Service Medal. He has been elected to membership in the American Philosophical Society, NAS, AAA&S, Explorers Club, Tau Beta Pi, Phi Beta Kappa and Sigma Xi.

Karen J.L. Burg | *University of Georgia*

Karen J.L. Burg, Ph.D., is professor and Harbor Lights Endowed Chair in the Department of Small Animal Medicine and Surgery at the University of Georgia (UGA). Prior to joining UGA, she served as vice president for research and professor of chemical engineering at Kansas State University. Burg received the Presidential Early Career Award for Scientists and Engineers, inaugural Swiss AO Research Prize, and recognition as Massachusetts Institute of Technology's TR100 Young Innovator. She has given over 200 invited presentations and authored over 140 peer reviewed publications on the subject of engineered tissues. Burg holds seven issued U.S. patents, fifteen disclosures and/or provisional patent applications recorded, with licenses serving as the foundation for a thriving diagnostics company. One of Burg's inventions was one of ten technologies featured in the inaugural Avon Foundation for Women – NIH – Center for Advancing Innovation Breast Cancer Start-Up Challenge. She was the principal investigator for the 2015 NSF I-Corps L Team Flipped Research Mentoring and a member of the 2016 NSF I-Corps L teaching team. She served as a member of the United States delegation at the 2017 Global Entrepreneurship Summit in Hyderabad, India. Burg is a Fellow of AIMBE, American Council on Education, International Union of Societies for Biomaterials Science and Engineering, and Biomedical Engineering Society. She is a U.S. DOD Era of Hope Scholar, and an AAAS-Lemelson Invention Ambassador. Burg is a member of the board of directors and Fellow of the NAI.

Anne H. Chasser | *United States Patent and Trademark Office*

Anne H. Chasser is an author and intellectual property strategist and expert. From 1999-2004, Chasser served as Commissioner for Trademarks at the USPTO, appointed by the President Clinton Administration and confirmed by the United States Senate. She served in both the Clinton and Bush administrations, where she oversaw the trademark operations at the USPTO. During her term at the USPTO, the trademark operations implemented full electronic processing of trademark applications and examination and implemented the Madrid Protocol. She was recognized by Managing Intellectual Property Magazine as one of the Fifty Most Influential People in Global Intellectual Property. She co-authored two books: Brand Rewired and Domain Rewired, published by John Wiley. In 2014, Chasser was awarded the Distinguished Career Award by The Ohio State University, John Glenn School of Public Affairs.

Stephanie Couch | *Lemelson-MIT Program*

Stephanie Couch, Ph.D., is executive director of the Lemelson-MIT Program, a nonprofit with a mission to inspire young people to pursue creative lives and careers through invention. She has more than a decade of experience in science, technology, engineering and math (STEM) education policy, research, development and strategic fundraising. She leads the program's research efforts, partnership development, and guides the Lemelson-MIT Program's national awards and grants initiatives. Couch previously served as the interim Associate Vice President for Research, Bayer Executive Director at the Institute for STEM Education, and Director of the Gateways East Bay STEM Network at California State University at East Bay. Couch also helped design and launch the statewide California STEM Learning Network (CSLNet). She has won numerous awards for her leadership role in advancing STEM education in California. She was selected as one of San Francisco Business Times' Most Influential Women in Bay Area Business in 2016 and inducted into Alameda County Women's Hall of Fame in the education category. In 2015, she received the Biotechnology Educator of the Year Award from California Life Sciences Association.

Elizabeth L. Dougherty | *United States Patent and Trademark Office*

Elizabeth Dougherty is Atlantic Outreach Liaison in the Office the Undersecretary and Director at the USPTO. In this capacity, she develops, implements, and supervises programs that support the independent inventor community, small businesses, entrepreneurs, and the intellectual property interests of colleges and universities. Dougherty has spearheaded a number of special projects with federal, state and local governments, and private organizations to promote and support invention and innovation in the United States. She oversees a portfolio of ongoing and future initiatives designed to assist independent inventors, entrepreneurs, and underserved communities. She is currently on a special assignment to the USPTO's Office of the Under Secretary and Director where she serves as a Senior Advisor. Directly prior to this special assignment, Dougherty was detailed to the USPTO's Office of Government Affairs where she was and continues to assist in coordinating outreach to the Congressional Caucuses of the 115th Congress. Prior to her current assignment at the USPTO, she served in various executive service roles, most recently as Acting Deputy Director in the Office of Patent Legal Administration. In this capacity, she was responsible for the oversight and direction of a team of senior legal advisors and staff assisting the Patent Examining Corps in matters of legal policy. Having begun her career at the USPTO as a patent examiner, Dougherty examined patent applications filed in the area of Class 73, Electric Devices used for Measuring or Testing. Dougherty is a Fellow of NAI.

Eric R. Fossum | *Dartmouth College*

Eric R. Fossum, Ph.D., is a professor at the Thayer School of Engineering at Dartmouth and Director of the Ph.D. Innovation Program. While at JPL/Caltech, he invented the CMOS image sensor used in billions of camera phones, webcams, DSLRs, swallowable pill cameras, dental x-ray sensors, and many other applications. He co-founded and co-led Photobit to further develop and commercialize the technology. An early Photobit sensor and camera is on display in the National Museum of American History. He later served as CEO of MEMS startup Siimpel Corp. After working with Samsung Electronics he joined Dartmouth in 2010. He holds over 160 U.S. patents and was inducted into the NIHF and the Space Technology Hall of Fame. He has published over 280 papers, is a member of the NAE an IEEE Fellow, and received the IEEE Andrew Grove Award and the NASA Exceptional Achievement Medal. He is a founder and Past-President of the International Image Sensor Society, serves on several boards, and is a Trustee of Trinity College. He is a 2016-2017 AAAS-Lemelson Invention Ambassador. Fossum is a Fellow of NAI.

Andrew H. Hirshfeld | *United States Patent and Trademark Office*

Andrew H. Hirshfeld, Esq., is Commissioner for Patents for the USPTO. He was appointed to the position in July 2015. He leads and manages more than 10,000 employees as the patent organization's chief operating officer, and manages and directs all aspects of patent operations, examination policy, patent quality management, international patent cooperation, resources and planning and budget administration. In his previous role as Deputy Commissioner for Patent Examination Policy, Hirshfeld served as an authority on patent laws, rules and examining practice and procedure, and provided oversight and direction for the Offices of Petitions, Patent Legal Administration, and the Manual of Patent Examining Procedure. Hirshfeld previously served as Chief of Staff to the Under Secretary of Commerce for Intellectual Property and Director of the USPTO. He began his career at the USPTO in 1994 as a Patent Examiner, became a Supervisory Patent Examiner in 2001, and was promoted to the Senior Executive Service in 2008 as a Group Director in Technology Center 2100, Computer Architecture and Software. Hirshfeld holds a Bachelor of Science degree from the University of Vermont, and a J.D. from Western New England College School of Law

Linda Hosler | *United States Patent and Trademark Office*

Linda Hosler is Deputy Program Manager in the Office of the Chief Communications Officer at the USPTO. In this role, she works on the National Medal of Technology and Innovation, the nation's highest honor in technological achievement. She also manages the agency's partnership with the National Inventors Hall of Fame. Prior to working at the USPTO, she worked in science outreach, engagement, and communications for the American Association for the Advancement of Science and the Association of Zoos and Aquariums. Ms. Hosler has a master's degree in evolutionary biology from the University of Maryland, College Park, and blends her science background with her communications and outreach experience to support better engagement between scientific and public audiences.

Robert S. Langer | *Massachusetts Institute of Technology*

Robert S. Langer, Sc.D., is David H. Koch Institute Professor at Massachusetts Institute of Technology (MIT). There are 13 Institute Professors at MIT, which is the highest honor that can be awarded to a faculty member. He has written more than 1,300 articles and has over 1,250 issued and pending patents worldwide. His many awards include the United States National Medal of Science, the United States National Medal of Technology and Innovation, the Charles Stark Draper Prize (considered the engineering Nobel Prize), the Breakthrough Prize, the Kyoto Prize, Albany Medical Center Prize (largest U.S. medical prize), the Wolf Prize for Chemistry and the Lemelson-MIT prize, for being "one of history's most prolific inventors in medicine." Langer has been elected to NAM, NAE and NAS.

Cato T. Laurencin | *University of Connecticut*

Cato T. Laurencin, M.D., Ph.D., is a designated University Professor at the University of Connecticut (UConn). He is the Albert and Wilda Van Dusen Distinguished Professor of Orthopaedic Surgery and Professor of Chemical Engineering, Professor of Materials Science and Engineering, and Professor of Biomedical Engineering at the school. He serves as Director of the Institute for Regenerative Engineering, and Director of the Raymond and Beverly Sackler Center for Biomedical, Biological, Physical and Engineering Sciences at the UConn Health Center. In addition, he serves as Chief Executive Officer of the Connecticut Institute for Clinical and Translational Science at UConn. Laurencin earned a B.S.E. in chemical engineering from Princeton, his medical degree magna cum laude from Harvard Medical School and his Ph.D. in biochemical engineering/biotechnology from MIT. He is an elected member of the NAM and NAE. Internationally, he is a Fellow (Associate) of the African Academy of Sciences, an elected Fellow of The World Academy of Sciences and an Academician and Member (foreign) of the Chinese Academy of Engineering. Laurencin is a recipient of the National Medal of Technology and Innovation, America's highest honor for technological achievement and fellow of NAI.

Shirley M. Malcom | *American Association for the Advancement of Science*

Shirley M. Malcom, Ph.D., is head of Education and Human Resources Programs at AAAS. She works to improve the quality and increase access to education and careers in STEM fields as well as to enhance public science literacy. Malcom is a trustee of Caltech and a regent of Morgan State University, and a member of the SUNY Research Council. She is a former member of the National Science Board, the policymaking body of the National Science Foundation, and served on President Clinton's Committee of Advisors on Science and Technology. Malcom, a native of Birmingham, Alabama, received her PhD in ecology from The Pennsylvania State University, masters in zoology from UCLA and bachelor's with distinction in zoology from the University of Washington. She holds 16 honorary degrees.

Arthur Molella | *Smithsonian Lemelson Center for The Study of Invention & Innovation*

Arthur Molella, Ph.D., was the founding director, now emeritus, of the Smithsonian Institution's Lemelson Center for the Study of Invention and Innovation at the National Museum of American History. He received his Ph.D. in the history of science from Cornell University and a Doctor of Science, honoris causa, from Westminster University, U.K (2005). At the National Museum of American History, he served variously as curator of electricity, chairman of the Department of History of Science and Technology, and assistant director for History. At Johns Hopkins University, he has served as Senior Lecturer, Dept. History of Science, and currently Lecturer M.A. in Museum Studies, On-Line, Advanced Academic Programs. He was head curator of the Smithsonian's Science in American Life exhibition, co-curator of the international exhibition, Nobel Voices. He is co-sponsor of the International Eco-City Initiative. He has published and lectured widely on the history of science, invention, technology, and modern technological culture. His recent books include Invented Edens: Techno-Cities of the 20th Century (MIT, 2008), Places of Invention (Smithsonian, 2015), and World's Fairs on the Eve of War (Pittsburgh, 2015). He has published many articles and reviews, supplied on request. In addition to serving on the Executive Advisory Board of the National Academy of Inventors, he is on the board of the NIHF and FIHF.

Rini Paiva | *National Inventors Hall of Fame*

Rini Paiva is the Executive Vice President for Selection and Recognition, National Inventors Hall of Fame (NIHF). In this role, she oversees the annual Inductee Selection process for the NIHF, working with a wide-ranging group of experts in science, technology, engineering, intellectual property, and history to ultimately recognize the world's foremost patented inventors for their life-changing and innovative work. In addition, Paiva facilitates the Collegiate Inventors Competition (CIC), which brings recognition to the country's outstanding college students who create the technologies that shape the future. Both the NIHF and the CIC are dedicated to recognizing and fostering invention, creativity, and entrepreneurship. Paiva also provides oversight for the NIHF Museum in Alexandria, Virginia, which features the life-changing Inductees of the NIHF and demonstrates the power of intellectual property and innovation. Also integral to her work is encouraging NIHF Inductees to be involved in the organization's education programs, Camp Invention and Invention Project, so that they may serve as inspiration, encouragement, and examples to younger generations. With the National Inventors Hall of Fame since 1995, Paiva is an authority on the topic of U.S. invention.

Andrew Rathmann-Noonan | *National Science and Technology Medals Foundation*

Andy Rathmann-Noonan is the Executive Director of the National Science and Technology Medals Foundation (NSTMF). The NSTMF is a D.C. based non-profit that focuses on inspiring the next generation of STEM professionals and the general public through the incredible stories and contributions of the National Medal of Science (NMS) and National Medal of Technology and Innovation (NMTI) Laureates. The Foundation works with the White House, USPTO, and NSF to support the NMS and NMTI programs while also independently creating programs that create environments where inspiration can occur. The NSTMF focuses on bringing the accomplishments of the Laureates into the public space through the celebration and acknowledgment of America's best and brightest. Rathmann-Noonan believes that the individual narratives of each Laureate as well as their accomplishments can serve as powerful positive motivating forces for individuals both young and old.

Jessica A. Sebeok | *Association of American Universities*

Jessica A. Sebeok J.D., has served at AAU since August 2014. As the Deputy Vice President for Federal Relations and Counsel for Policy, she has primary responsibilities for issues related to intellectual property and information technology and technology transfer. She shares responsibilities for a wide range of other regulatory, compliance and legal issues that affect research universities. She is the lead staff for the AAU Council on Federal Relations and the AAU General Counsels Committee. She previously served as Counsel for Policy and International Affairs in the U.S. Copyright Office, Special Assistant to the Assistant Secretary of State for Educational and Cultural Affairs, and Assistant General Counsel of Yale University. She received her JD from Yale Law School and her master's degree from the University of Oxford, where she was a Marshall Scholar. She earned her BA in History from the University of Chicago.

Phillip Singerman | *National Institute of Standards and Technoloy*

Phillip Singerman, Ph.D., is Associate Director for Innovation and Industry Services at the National Institute of Standards and Technology (NIST). In this capacity he is responsible for the NIST suite of external partnership programs, including the Hollings Manufacturing Extension Partnership, the Baldrige Performance Excellence Program, the Office of Advanced Manufacturing, NIST technology transfer, economic analysis, and small business innovation research awards. Singerman has more than 35 years of experience in tech based economic development; he was the first chief executive of two of the best known and longest lasting private-public partnerships; the Ben Franklin Technology Center of Southeastern Pennsylvania and the Maryland Technology Development Corporation. During the Clinton Administration he served as U.S. Assistant Secretary of Commerce for Economic Development, a Presidential appointment requiring Senate confirmation.

James K. Woodell | *Association of Public and Land-grant Universities*

James K. Woodell, Ph.D. helps to realize the economic and societal impact of higher education. He provides professional services to institutions of higher education, and to their current and prospective partners in the private, civic, and government sectors. Spanning multiple areas of impact, his expertise includes: community development and improved quality of life in regions through higher education engagement, outreach, and public service; education, training, and workforce development, including strategies for design and delivery of programs; and R&D and innovation, including technological advancement, entrepreneurship, and regional technology-based economic development. Woodell recently served as Vice President for Economic Development and Community Engagement at the Association of Public and Land-grant Universities (APLU), where he worked closely with member institutions to develop tools and resources to enhance their regional engagement and economic development efforts. He served as the staff director for APLU's Commission on Innovation, Competitiveness and Economic Prosperity (CICEP), and also the organization's Council on Engagement and Outreach (CEO), advancing APLU's economic and community engagement agenda. Woodell maintains APLU's strong presence in national issues related to the economic and social impacts of public research universities.

COMPLETE LIST OF CURRENT NAI FELLOWS

Seth Y. Ablordeppey, Florida A&M University
Samuel I. Achilefu, Washington University in St. Louis
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Dereje Agonafer, The University of Texas at Arlington
C. Mauli Agrawal, University of Missouri-Kansas City
Dharma P. Agrawal, University of Cincinnati
Rakesh Agrawal, Purdue University
Rafi Ahmed, Emory University
Pulickel M. Ajayan, Rice University
David Akopian, The University of Texas at San Antonio
Ilhan A. Aksay, Princeton University
Dean P. Alderucci, The University of Chicago
Rodney C. Alferness, University of California, Santa Barbara
Kamal S. Ali, Jackson State University
A. Paul Alivisatos, University of California, Berkeley
Nancy L. Allbritton, The University of North Carolina at Chapel Hill
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Mark G. Allen, University of Pennsylvania
James P. Allison, The University of Texas MD Anderson Cancer Center
Emad S, Alnemri, Thomas Jefferson University
Hal S. Harper, The University of Texas at Austin
Carl R. Alving, Walter Reed Army Institute of Research
Hiroshi Amano, Nagoya University
Jayakrishna Ambati, University of Virginia
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Leif Andersson, Texas A&M University
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Craig C. Beeson, Medical University of South Carolina
Khosrow Behbehani, The University of Texas at Arlington
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COMMON ABBREVIATIONS

AAA&S	American Academy of Arts and Sciences
AAAS	American Association for the Advancement of Science
AACR	American Association for Cancer Research
AAM	American Academy of Microbiology
AAP	Association of American Physicians
AAPS	American Association of Pharmaceutical Sciences
ACerS	American Ceramic Society
ACM	Association for Computing Machinery
ACS	American Chemical Society
AHA	American Heart Association
AIC	American Institute of Chemists
AIChE	American Institute of Chemical Engineers
AIMBE	American Institute for Medical and Biological Engineering
APA	American Psychological Association
APLU	Association of Public and Land-grant Universities
APMI	American Powder Metallurgy Institute
APS	American Physical Society
APhilS	American Philosophical Society
ASABE	American Society of Agricultural and Biological Engineers
ASCE	American Society of Civil Engineers
ASCI	American Society for Clinical Investigation
ASEE	American Society for Engineering Education
ASM	American Society for Microbiology
ASM International	American Society for Metals International
ASME	American Society of Mechanical Engineers
AUTM	Association of University Technology Managers
BMES	Biomedical Engineering Society
DARPA	Defense Advanced Research Projects Agency
ECS	Electrochemical Society
FDA	U.S. Food and Drug Administration
HHMI	Howard Hughes Medical Institute
IAPR	International Association of Pattern Recognition
IEEE	Institute of Electrical and Electronics Engineers
IET	Institution of Engineering and Technology
ISD	International Society for Differentiation
MRS	Materials Research Society
NAE	National Academy of Engineering
NAEd	National Academy of Education
NAM	National Academy of Medicine
NAS	National Academy of Sciences
NCI	National Cancer Institute
NHLBI	National Heart, Lung, and Blood Institute
NIH	National Institutes of Health
NIST	National Institute of Standards and Technology
NIHF	National Inventors Hall of Fame
NSF	National Science Foundation
OSA	Optical Society of America
PAS	Pontifical Academy of Sciences
PECASE	Presidential Early Career Award for Scientist and Engineers
RSC	Royal Society of Chemistry
RSNA	Radiological Society North America
SBIR	Small Business Innovation Research
SDB	Society for Developmental Biology
SFB	Society for Biomaterials
SPIE	International Society for Optics and Photonics
TMS	The Minerals, Metals and Materials Society
USDA	Unitied States Department of Agriculture
USPTO	United States Patent and Trademark Office
U.S. DoD	United States Department of Defense
U.S. DOE	United States Department of Energy

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