NSF Directorate for Engineering
Advisory Committee Member Biographies
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GILDA A. BARABINO is the dean of The Grove School of Engineering at The City College of New York (CCNY) and Berg Professor of Biomedical Engineering, Professor of Chemical Engineering and Professor of Biomedical Education. Prior to joining CCNY, she served as associate chair for graduate studies and professor in the Wallace H. Coulter Department of Biomedical Engineering at Georgia Tech and Emory University. At Georgia Tech she also served as the inaugural Vice Provost for Academic Diversity. Prior to her appointments at Georgia Tech and Emory, she rose to the rank of full professor of chemical engineering and served as Vice Provost for Undergraduate Education at Northeastern University. She is a noted investigator in the areas of sickle cell disease, cellular and tissue engineering, and race/ethnicity and gender in science and engineering. She consults nationally and internationally on STEM education and research, diversity in higher education, policy, workforce development and faculty development.

Barabino received her B.S. degree in chemistry from Xavier University of Louisiana and her Ph.D. in chemical engineering from Rice University. She is a Fellow of the American Association for the Advancement of Science, the American Institute for Medical and Biological Engineering (AIMBE) and the Biomedical Engineering Society (BMES). She was the Sigma Xi Distinguished Lecturer for 2012–2014. She has an extensive record of leadership and service in the chemical and biomedical engineering communities. She is the immediate past-president of BMES and is the president-elect of AIMBE. Barabino has over a decade of experience in leading NSF initiatives for women and minority faculty and is the founder and executive director of the National Institute for Faculty Equity.

KAREN BUTLER-PURRY is the associate provost for graduate and professional studies and professor of electrical and computer engineering at Texas A&M University. During her years at Texas A&M University, Butler-Purry has served at all faculty levels, beginning with an initial appointment as visiting assistant professor of electrical engineering in 1994. In addition, she was assistant dean for graduate programs in the College of Engineering during 2001–2004 and associate department head in the electrical and computer engineering department during 2008–2010. Further she has served in many capacities on committees for the college, university, and professional societies.

Butler-Purry developed a successful research program with funding from federal agencies such as NSF and ONR, and industry funding from electric utility companies. She has supervised and funded over 40 graduate and 65 undergraduate research students. Also she has been involved in fellowship and education program projects with NSF and the Department of Education and directed several of these programs that target recruitment, retention and advancement of pre-college, college, and graduate students in STEM fields.

Lastly Butler-Purry has received numerous teaching and service awards including National Science Foundation Faculty Early Career Award (1995), Office of Naval Research Young Investigator Award (1999), and the 2005 American Association for the Advancement of Science (AAAS) Mentor Award for efforts to mentor students from underrepresented groups and for leadership in promoting Ph.D. careers for them in electrical engineering and computer sciences. She is a member of IEEE, IEEE PES, ASEE, NSBE and SWE. Also she is a registered professional engineer in the states of La., Tex., and Miss.

SUSAN BUTTS is an active member of the science and technology (S&T) policy community following her 31-year career in the chemical industry and related organizations. She currently works as an independent consultant in S&T policy and university-industry partnerships. Prior to this she worked for The Dow Chemical Company for three decades in various positions in the Research and Development organization. From 2001 through 2009 she served as Director of External Science & Technology Programs. In that capacity she was responsible for Dow's sponsored research programs at over 150 universities, institutes, and national laboratories worldwide and also for Dow's contract research activities with U.S. and European government agencies. In addition, she had responsibility for U.S. recruiting and hiring for R&D. She worked on issues related to science policy and government funding for research and development from Dow's office in Washington, D.C. She is past president of the University-Industry Demonstration Partnership, an organization in the National Academies that works to strengthen research collaborations between universities and industry, and past president of the Council for Chemical Research, a non-profit organization whose mission is to improve chemical innovation through collaboration and advocacy. She is also a member of the Council of the Government-University-Industry Research Roundtable in the National Academies and a member of the board of directors of the Alliance for Science and Technology Research in America. She is a Fellow of the American Association for the Advancement of Science (AAAS), and a member of the American Chemical Society (ACS) and Sigma Xi. She currently chairs the ACS Committee on Chemistry and Public Affairs and serves on the AAAS Committee on Science, Engineering & Public Policy.

Butts holds the degrees of B.S. in chemistry from the University of Michigan and Ph.D. in chemistry from Northwestern University. Before joining the External Technology group Butts held several other positions at Dow including Senior Resource Leader for Atomic Spectroscopy and Inorganic Analysis within the Global Analytical Sciences Laboratory, Manager of Ph.D. Hiring and Placement, Safety and Regulatory Affairs Manager for Central Research, and Principal Investigator on various catalysis research projects in Central Research.

CURTIS CARLSON, SRI President and CEO since 1998, is a world authority on creating value for customers through innovation. In 1973, he joined RCA Laboratories, which became part of SRI in 1987 as Sarnoff Corp. There, Carlson started and helped lead development of HDTV technology that became the U.S. standard.

His book with William Wilmot, “Innovation: The Five Disciplines for Creating What Customers Want,” describes how SRI’s unique process for innovation can be applied to all types of government and commercial enterprises.

Carlson received his B.S. in physics from Worcester Polytechnic Institute and M.S. and Ph.D. degrees in atmospheric physics from Rutgers University. His honors include a lifetime achievement award from Rutgers University's School of Engineering and the Otto Schade Prize from the Society for Information Display.

ROBERT CHAU is an Intel Senior Fellow and director of Transistor Research and Nanotechnology in the Technology and Manufacturing Group at Intel Corp. Chau is responsible for directing research and development in advanced transistors and gate dielectrics, novel electronic materials, process modules and technologies, and silicon integrated processes for microprocessor and System-on-Chip (SoC) applications. He is also responsible for leading research efforts in emerging nanotechnology for future nanoelectronics applications.

Chau joined Intel in 1989, became an Intel Fellow in 2000 and an Intel Senior Fellow in 2005. During his career at Intel he developed nine generations of Intel gate dielectrics, including the high-K/metal-gate technology, along with many transistor innovations and process technologies used in various Intel manufacturing processes and microprocessor products. He also introduced many new process modules and novel device nanotechnologies for Intel's future logic and SoC processes.

Chau has earned seven Intel Achievement Awards, including one for the research and development of the Tri-gate transistor technology. He was the co-recipient of the 2008 SEMI Award for North America for the development of Intel's 90nm strained silicon technology, and the 2008 EDN (Electronics Design, Strategy, News) "Innovator of the Year" award for the development of Intel's 45nm high-K metal gate transistor technology. Chau received the 2012 IEEE Jun-ichi Nishizawa Medal for "sustained leadership in developing innovative transistor technologies for advanced logic products."

Chau received his bachelor's and master's degrees and Ph.D. in electrical engineering from The Ohio State University. He holds more than 270 issued U.S. patents and has been elected an IEEE Fellow. In April 2010 he was recognized by the newspaper The Oregonian as the most prolific inventor in the State of Oregon. In 2013 Chau was elected a member of the U.S. National Academy of Engineering.

ANDRES F. CLARENS is an assistant professor of civil and environmental engineering at the University of Virginia and the director of the Virginia Environmentally Sustainable Technologies Laboratory. He is an author or coauthor on over 30 archival papers focused broadly on anthropogenic carbon flows and the ways that CO2 is manipulated, reused, and sequestered in engineered systems. The results of his work are important for developing efficient strategies for mitigating the emissions that are driving climate change and for understanding how infrastructure systems must be adapted to meet these changes.

For his work, Clarens has received a variety of awards including the National Science Foundation CAREER award and the American Chemical Society Petroleum Research Fund Young Investigator Award. He received a B.S. in chemical engineering from the University of Virginia and an M.S.E. and Ph.D. in environmental engineering from the University of Michigan.

PETER T. CUMMINGS is the John R. Hall professor of chemical engineering at Vanderbilt University. He also holds the position of Principal Scientist in the Center for Nanophase Materials Sciences (CNMS) at Oak Ridge National Laboratory, as well as founding director of the Nanomaterials Theory Institute, the theory program within the CNMS. His research interests include statistical mechanics, molecular simulation, computational materials science, computational and theoretical nanoscience, and computational biology. He is the author of over 330 refereed journal publications and the recipient of many awards, including the 1998 Alpha Chi Sigma award given annually to the member of the American Institute of Chemical Engineers (AIChE) with the most outstanding research contributions over the previous decade, the 2007 AIChE Nanoscale Science and Engineering Forum Award, the 2010 AIChE Founders Award for Outstanding Contributions to the Field of Chemical Engineering in recognition of his "outstanding contributions through research, service to the Institute, and national leadership on behalf of the profession," and the 2012 Yeram S. Touloukian Award from the American Society of Mechanical Engineers. He has been elected fellow of the American Physical Society, of the American Association for the Advancement of Science (AAAS), and of the American Institute of Chemical Engineers.

REGINALD DESROCHES is the Karen and John Huff School Chair, and Professor of Civil and Environmental Engineering at the Georgia Institute of Technology. His primary research interests are in resilient systems and design of critical infrastructure under extreme loads. He has published over 250 articles in the general area of resilience and seismic risk assessment. DesRoches has served as chair of the ASCE Seismic Effects Committee (2006-2010), Chair of the executive committee of the Technical Council on Lifeline Earthquake Engineering (2010), and member of the Board of the Earthquake Engineering Research Institute (EERI). He is currently a member of the executive committee of the National Academy of Sciences Roundtable on Risk, Resilience, and Extreme Events, and is a member of the National Academies Board on Army Science and Technology (BAST).

DesRoches has received numerous awards, including the Presidential Early Career Award for Scientists and Engineers (PECASE) in 2002, the 2007 ASCE Walter L. Huber Civil Engineering Research Prize, the Georgia Tech Outstanding Doctoral Thesis Advisor Award (2010), and the Georgia Tech ANAK Award (2008). Most recently, he is a recipient of the 2015 ASCE Charles Martin Duke Lifeline Earthquake Engineering Award. He was inducted into the Academy of Distinguished Alumni from Civil & Environmental Engineering at UC Berkeley in 2015.

DEBASISH (DEBA) DUTTA joined Purdue University in 2014 as executive vice president for academic affairs and provost, with a faculty appointment as a professor of mechanical engineering. He received his PhD from Purdue in 1989 and is a fellow of the American Association for the Advancement of Science, a fellow of the American Society of Mechanical Engineers and a scholar in residence at the National Academy of Engineering, where he leads studies on educating for innovation and on lifelong learning for engineering professionals.

From 2009 to 2014, Dutta was associate provost and dean of the Graduate College at the University of Illinois at Urbana-Champaign, and Edward and Jane Marr Gutgsell Professor of Mechanical Science and Engineering. He also served as interim vice chancellor for research, chaired the Board of Directors of Illinois at Singapore PTE, a multimillion-dollar research enterprise in Singapore, and in 2010 chaired the steering committee for a university-wide reorganization process.

During 2004-2007, he served at NSF as acting director of the Division of Graduate Education, as IGERT program director and as advisor in the Office of Assistant Director, Education and Human Resources. He chaired the Learning and Workforce Development subcommittee during the development of NSF's Cyberinfrastructure Strategy (Vision for 21st Century Discovery).

During 1989-2009, Dutta was a professor of mechanical engineering at the University of Michigan where he was the founding director of InterPro, an innovative interdisciplinary academic unit in the College of Engineering that catalyzed new interdisciplinary graduate programs.

PATRICK FARRELL earned a BSME degree at the University of Michigan, MSME at the University of California at Berkeley, and his Ph. D. at the University of Michigan. Farrell has been at UW-Madison since 1982 as a member of the Department of Mechanical Engineering. He served as Director of the Engine Research Center from 1999-2001, and beginning in 2001, became the College of Engineering Associate Dean for Academic Affairs and was named Executive Associate Dean in 2005. He was Provost and Vice Chancellor for Academic Affairs at the University of Wisconsin-Madison from April 2006 to January 2009. Farrell's research focuses on fluid mechanics, combustion and optical methods as they relate to engine design and function. He has authored or co-authored over 100 publications in this and related fields.

HENRY C. FOLEY is senior vice chancellor for research and graduate studies at the University of Missouri and executive vice president for academic affairs, research and economic development for the University of Missouri System. He is a tenured professor of chemistry at the University of Missouri Columbia, and an adjunct professor of chemical and biochemical engineering at the Missouri University of Science and Technology.

Previously, Foley served on the University of Delaware chemical engineering faculty for 14 years and went on to serve as vice president for research at The Pennsylvania State University. While at Penn State, Foley was named chair, department head, associate vice president for research and director of

strategic initiatives, and dean of the College of Information Sciences and Technology. He has significant industry experience, having worked at American Cyanamid and consulted with companies such as Monsanto, DuPont and Engelhard Corp.

Foley is a Fellow of the American Association for the Advancement of Science, a Fellow of the industrial and engineering division of the American Chemical Society and a Fellow of the National Academy of Inventors. He is a member of several honorary societies and has been recognized with a variety of awards, including the Leo C. Friend Award from the American Chemical Society, the Research Innovation Recognition Award from Union Carbide Corp., the Presidential Young Investigator Award from NSF and the Thiele Lecture in Chemical Engineering at the University of Notre Dame.

Foley earned a master's degree in chemistry at Purdue University and a doctorate in physical and inorganic chemistry at Penn State. He has authored more than 120 refereed journal articles and the textbook, Introduction to Chemical Engineering Analysis Using Mathematica (2003), and he is an inventor on 16 patents.

MARY JANE HAGENSON served as Vice President of Research and Technology for Chevron Phillips Chemical Company from the company's formation in 2000 until her retirement in 2012. In that capacity she had responsibility for R&D in support of all business lines, process development and engineering, and licensing functions for the company. She previously served as Vice President of Specialty Chemicals and Plastics for Phillips Petroleum Company (now Conoco Phillips). She joined Phillips Petroleum Company as a Senior Research Scientist in the Biotechnology Division and held a number of technical and business management positions over her 27-year career with Phillips and subsequently Chevron Phillips.

Hagenson received a B.S. Degree in Physics and Mathematics and M.S. and Ph.D. Degrees in Biomedical Engineering from Iowa State University, with graduate research performed at Los Alamos National Laboratory. She holds seven U.S. patents and has authored more than 20 technical papers. In 2006 she was the recipient of the College of Engineering Professional Achievement Citation in Engineering (PACE) Award from Iowa State University.

Hagenson is a member of the National Academies Board on Chemical Sciences & Technology and serves as Chair of the Iowa State University Chemical & Biological Engineering Department Industrial Advisory Council. She has served as a member and Chair of the College of Engineering Industrial Advisory Council at Iowa State University, a member of the Board of Directors of the Industrial Research Institute, and the Oklahoma State University Master of Engineering & Technology Management Advisory Committee.

LOUIS A. MARTIN-VEGA joined North Carolina State University as Dean of the College of Engineering in 2006. Prior to joining NC State, he spent nearly five years as professor and dean of engineering at the University of South Florida. He has also held several prestigious positions at the National Science

Foundation, including acting head of its Engineering Directorate and director of its Division of Design, Manufacture and Industrial Innovation. His research and teaching interests are in the areas of industrial engineering, manufacturing, logistics and distribution, operations management and production and service systems.

Martin-Vega is a Fellow of the Institute of Industrial Engineers (IIE) and the Society of Manufacturing Engineers and a member of INFORMS, ASEE, Tau Beta Phi, Alpha Pi Mu and Sigma Xi. His numerous awards include the 2000 HENACC-Hispanic Engineering National Education Achievement Award, the 2007 National Hispanic Scientist of the Year Award from the Museum of Science and Industry, the 2009 Industrial and Systems Engineering Alumni Leadership Award from the University of Florida, and the 2010 Institute of Industrial Engineers' UPS Award for Minority Advancement in Industrial Engineering. He is a past president of IIE, a member of the Pan American Academy of Engineering and the HENACC Hall of Fame.

Martin-Vega serves as the 2013-15 chair of the American Society for Engineering Education (ASEE) Engineering Deans Council Executive Board. In 2014 he joined the NSF Committee on Equal Opportunities in Science and Engineering. He has also served as vice chair of the ASEE Engineering Deans Council Executive Board and as chair of the Public Policy Colloquium for 2011-2013. He currently serves on the executive board of the National GEM Consortium.

Martin-Vega holds a B.S. in industrial engineering from the University of Puerto Rico at Mayaguez, an M.S. in operations research from New York University, and M.E. and Ph.D. degrees in industrial and systems engineering from the University of Florida. He is a registered professional engineer in Florida and Puerto Rico.

S. SHANKAR SASTRY is dean and Roy W. Carlson Professor of Engineering in the University of California – Berkeley College of Engineering. He is also faculty director of the Blum Center for Developing Economies. He has invested decades in technology research, spearheading projects to improve the nation's cybersecurity and network infrastructure. His other research initiatives include robotics and hybrid and embedded systems.

In 1981, Sastry earned his Ph.D. in electrical engineering and computer sciences from Berkeley. Since joining the faculty in 1983, he has become known as one of Berkeley's most distinguished professors, and for his energy, determination and commitment in both the classroom and the lab. He has held directorships of the Information Technology Office at DARPA and the Electronics Research Laboratory at Berkeley. He served as chair of the Electrical Engineering & Computer Sciences department at Berkeley from 2001 to 2004 and as director of the Center for Information Technology Research in the Interest of Society (CITRIS) from 2006 to 2008.

Sastry's many honors include membership in the National Academy of Engineering, Fellow of the IEEE, the NSF Presidential Young Investigator Award and the Eckman Award of the American Automatic Control Council. He has also received the President of India Gold Medal, the IBM Faculty Development

Award, an honorary degree from Harvard and a distinguished alumnus award from the Indian Institute of Technology. In 2010, he received the Asian Pacific Fund's Chang-Lin Tien Education Leadership Award. He began his tenure as dean on July 1, 2007.