

Subcommittee on U.S.-China Scientific Engagement

Committee

Roger N. Beachy

Co-Chair

Roger Beachy (NAS) is Professor Emeritus of Biology at Washington University in St. Louis a member of the National Science Board (2014 – 2026). He previously served as director of the National Institute of Food and Agriculture (NIFA) at the U.S. Department of Agriculture (USDA). He is the founding President of the Donald Danforth Plant Science Center;) Dr. Beachy is an advocate for implementation of policies of technology management that encourages sharing of intellectual properties, and research for the public good. He is recognized for his work in molecular virology, gene expression, and biotechnology, in particular for development of transgenic plants that are resistant to virus infection. Dr. Beachy is a Member of the U.S. National Academy of Sciences, where he was elected in 1997. In 2003, he was elected Councilor for the National Academy of Sciences and served as a Member of the Editorial Board of the Proceedings of the National Academy of Sciences. Dr. Beachy is a fellow at the American Association for the Advancement of Science, the American Academy of Microbiology, and the Academy of Science of St. Louis, and is Foreign Associate in Academies of Science in India and in South Korea Beachy has served on numerous Boards and Committees, and presently Chairs the Council of Scientific Advisors of the International Center for Genetic Engineering and Biotechnology (ICGEB) in Trieste (Italy), Delhi (India), and Cape Town (So. Africa). He is on the Board of Directors of Kultevar, Inc., MicroGen Biotech LLC, and Performance Plants Inc. Dr. Beachy has edited or contributed to 50 book articles and his work has produced more than 250 journal publications. He has received a number of honors for his research. In 2001, Dr. Beachy received the Wolf Prize in Agriculture (2001). He was awarded the Dennis Robert Hoagland Award from the American Society of Plant Biologists and the William D. Phillips Technology Advancement Award from the St. Louis County Economic Council. Dr. Beachy was the 1991 recipient of the Bank of Delaware's Commonwealth Award for Science and Industry, the 1990 recipient of the American Phytopathological Society's Ruth Allen Award, and was named R&D Magazine's Scientist of the Year for 1999.

Karen C. Seto

Co-Chair

Karen C. Seto (NAS) is the Frederick C. Hixon Professor of Geography and Urbanization Science at Yale University. An urban and land change scientist, she is one of the world's leading experts on contemporary urbanization and global change. Her research focus is how urbanization will affect the planet. She has pioneered methods to reconstruct urban land use with satellite imagery and has developed novel methods to forecast urban expansion. She has conducted urbanization research in China for twenty years and in India for more than ten. Her research has generated insights on the links between urbanization and land use, food systems, biodiversity, and climate change. Dr. Seto has served on numerous national and international scientific bodies. She is co-leading the urban mitigation chapter for the IPCC 6th Assessment Report and co-lead the same chapter for the IPCC 5th Assessment Report. She is co-editor-in-chief of the journal, *Global Environmental Change*. From 2000 to 2008, she was faculty at Stanford, where she held joint appointments in the Woods Institute for the Environment and the School of Earth Sciences. She has received numerous awards for her scientific contributions, including the Outstanding Contributions to Remote Sensing Research Award from the American Association of Geographers. Dr. Seto is an elected member of the U.S. National Academy of Sciences, the Connecticut Academy of Science and Engineering, and the American Association for the Advancement of Science. She earned a Ph.D. in Geography from Boston University.

Chris Fall

Member

Chris Fall is Vice President for Applied Sciences. He leads core research and development in emerging technology domains, including quantum computing, material science, synthetic biology, and space. He oversees five MITRE Labs innovation centers spanning life, physical, and health sciences; transportation; economics; acquisition; and enterprise strategy. These groups include more than 900 engineers, scientists, analysts, clinicians, and strategists solving critical scientific challenges for our nation.

Previously, Fall was confirmed by the U.S. Senate as the Director of the U.S. Department of Energy Office of Science, the nation's largest supporter of basic research in the physical sciences. He was responsible for 10 of the department's 17 national laboratories and played a key part in the department's investments in quantum science, synthetic biology, and artificial intelligence. Fall also served as acting director of ARPA-E and led the department's response to the COVID-19 pandemic.

Prior to his tenure at the Department of Energy, Fall spent seven years at the Office of Naval Research (ONR) in several senior management roles, including acting chief scientist. While on detail from ONR, Fall served for three years across two administrations in the White House Office of Science and Technology Policy, as Assistant Director for defense programs and then as acting lead for the National Security and International Affairs Division.

In addition to his government service, Fall spent more than two decades in academia, where his research focused on neuroscience, systems biology, and bioengineering. He has been a faculty member or postdoctoral scholar at the University of Illinois at Chicago, Georgetown University, New York University, the University of California at Davis, and the University of Virginia.

He also serves in advisory or board roles with the Sanford Underground Research Facility Foundation and the South Dakota Science and Technology Authority, Oak Ridge Associated Universities, the Japan Society, the Center for Strategic and International Studies, the Council on Strategic Risks, and CRDF Global.

Fall earned a Ph.D. in neuroscience and a bachelor's degree in mechanical engineering from the University of Virginia, as well as an MBA from Northwestern University's Kellogg School of Management.

Valerie Jean Karplus

Member

Valerie J. Karplus is a Professor in the Department of Engineering and Public Policy and Associate Director of the Wilton E. Scott Institute for Energy Innovation at Carnegie Mellon University. She also has a courtesy appointment in the CMU Heinz College for Public Policy and Management. Karplus studies resource and environmental management in organizations operating in diverse national and industry contexts, with a focus on the role of institutions and management practices in explaining performance. Her areas of expertise include decarbonization of global corporate and industrial supply chains, regional approaches to low carbon transition, and the integrated design and evaluation of energy, air quality, and climate policies. Karplus has taught courses on public policy analysis, global business strategy and organization, entrepreneurship, and the political economy of energy transitions. At CMU, she runs the Laboratory for Energy and Organizations at the Wilton E. Scott Institute for Energy Innovation, where she is a faculty affiliate. Karplus is also a faculty affiliate of the MIT Energy Initiative, the MIT Center for Energy and Environmental Policy Research, and the MIT Joint Program on the Science and Policy of Global Change. She has previously worked in the development policy section of the German Federal Foreign Office in Berlin, Germany, as a Robert Bosch Foundation Fellow, and in the biotechnology industry in Beijing, China, as a Luce Scholar. From 2011 to 2015, she directed the MIT-Tsinghua China Energy and Climate Project, a five-year research effort focused on analyzing the design of energy and climate change policy in China, and its domestic and global impacts. She is a faculty affiliate of the MIT Center for Energy and Environmental Policy Research, the MIT Energy Initiative, and the MIT Joint Program on the Science and Policy of Global Change. Karplus previously served on the faculty at the MIT Sloan School of Management. Karplus holds a BS in biochemistry and political science from Yale University and a PhD in engineering systems from MIT.

Catherine A. Novelli

Member

Catherine A. Novelli is the President of Listening for America, a non-partisan, non-profit organization dedicated to forging a new vision of U.S. international trade engagement. She previously served as Under Secretary of State for Economic Growth, Energy, and the Environment (2014-2017) where she promoted economic reform and open markets for U.S. products and services. Secretary Novelli spent seven years as Vice President, Worldwide Government Affairs at Apple Inc, and, previously, was a partner in the law firm of Mayer Brown International. She had a long career at the Office of the U.S. Trade Representative, rising to Assistant U.S. Trade Representative for Europe & the Mediterranean, where she coordinated U.S. trade and investment policy for Europe, Russia, Central Asia, the Middle East and Northern Africa. She took a leading role in many of the most important U.S. trade negotiations in those regions, including free trade agreements with Jordan, Morocco and Bahrain, and Oman. Secretary Novelli has received the State Department Distinguished Service Award and the International Trade Woman of the Year Award.

Anne C. Petersen

Member

Anne C. Petersen (Chair) is Founder and President of Global Philanthropy Alliance, a foundation making grants in Africa. She also is Research Professor, Center for Human Growth and Development and Faculty Associate, Center for Global Health, University of Michigan, among other affiliations there. She serves on several voluntary boards or committees for government, foundations, and scientific or community-based organizations. She is co-chair of the Advisory Board for CALIT2, an organization created a decade ago to move IT advances from the UC university system to industry in California. Petersen previously held positions as Professor of Psychology at Stanford University, and Deputy Director, Center for Advanced Study in the Behavioral Sciences, Senior Vice President for Programs and Corporate Officer at the WK Kellogg Foundation and Department Head, and founding Dean of the College of Health and Human Development at Penn State University. Petersen was the first Vice President for Research at the University of Minnesota, as well as Graduate Dean, and Professor (Institute for Child Development and Department of Pediatrics.) Prior, Petersen was University of Chicago faculty and Associate Director of the MacArthur Foundation Health Program. She has authored numerous articles and books. Her honors include election to the Institute of Medicine (National Academies) and Fellow in several scientific societies including AAAS, APA (three divisions), and founding Fellow of APS. She co-founded the Society of Research on Adolescence, was President of several scientific societies, and is Past-President of the International Society for the Study of Behavioral Development. Dr. Petersen received her PhD in measurement, evaluation and statistical analysis from the University of Chicago.

Caroline Wagner

Member

Caroline S. Wagner is a Professor at the John Glenn College of Public Affairs, The Ohio State University, where she is an affiliate of Battelle Center for Science in the Public Interest, and the East Asian Studies Center. From 2011 until 2021, she held the Ohio State University's Milton & Roslyn Wolf Chair in International Affairs. From 2011 until 2016, she served as the director of the Battelle Center for Science & Technology Policy at Ohio State.

Dr. Wagner earned a doctorate from the University of Amsterdam School of Communications Studies (ASCoR) in Science and Technology Dynamics, Netherlands; a Master of Arts degree in Science, Technology and Public Policy from George Washington University Elliott School of International Affairs, Washington DC; and a Bachelor of Arts degree from Trinity College.

Dr. Wagner's career in science, technology, and innovation policy analysis has spanned more than forty years. Her career included serving as Second Secretary in U.S. Embassy in Seoul Korea. She was a staff member for the United States Congress for five years. At The RAND Corporation for 14 years, Dr. Wagner served as deputy to the director of the Science & Technology Policy Institute, a research center serving the White House Office of Science and Technology Policy, where she focused her analysis on international cooperation in science and technology, and in studies of critical technologies within the United States. Her career at RAND included working three years at RAND Europe (Netherlands) where her client was the European Commission.

Dr. Wagner is the author of two books on governance of science and technology, an author or coauthor of more than 60 academic articles and book chapters, and more than 25 monographs. She delivered more than 10 conference keynotes, including one for the United Nations; she served on the UN Millennium Development Goals task force on Science and Technology Policy; and she served on the Canadian Task Force on international cooperation in science and technology.

Dr. Wagner is an elected Distinguished Fellow of the American Association for the Advancement of Science (AAAS), an elected member of the Council on Foreign Relations, the founding editor of Research Policy and Strategic Management (Frontiers), and past editor of the journal Science and Public Policy. She recently chaired the Advisory Committee to the Office of International Science & Engineering at the National Science Foundation. Her work has been featured in The Economist, Nature Magazine, Times Higher Education, South China Morning Post, Chronicle of Higher Education and other media outlets.

Nadine N. Aubry

Ex Officio Member

Nadine Aubry is a professor of the School of Engineering and the past Provost at Tufts University, and the George and Virginia Bugliarello International Secretary of the National Academy of Engineering (NAE). She has made numerous contributions to the field of fluid dynamics, particularly the reduced modeling of turbulence and other flows and novel solutions to microfluidics. Dr. Aubry was elected as a member of the National Academy of Engineering (NAE), the American Academy of Arts and Sciences (AAA&S), the American Academy of Mechanics (AAM) and the National Academy of Inventors (NAI) and as an international member of the UK Royal Academy of Engineering (RAEng), and as a Fellow of the American Association for the Advancement of Science (AAAS), the American Institute of Aeronautics and Astronautics (AIAA), the American Physical Society (APS) and the American Society of Mechanical Engineers (ASME). She was awarded the AIAA Fluid Dynamics Award, the ASME Fluids Engineering Award and the G.I. Taylor Medal of the Society of Engineering Science (SES), and served as Chair of the Division of Fluid Dynamics (DFD) of APS, President of the International Union of Theoretical and Applied Mechanics (IUTAM) and Chair of the National Academies' U.S. National Committee for Theoretical and Applied Mechanics (USNC/TAM). Prior to joining Tufts, she held various academic positions including as University Distinguished Professor and Dean of the College of Engineering at Northeastern University and as the Raymond J. Lane Distinguished Professor, University Professor and Head of the Department of Mechanical Engineering at Carnegie Mellon University.

Carlos del Rio

Ex Officio Member

Carlos del Rio, M.D., is Distinguished Professor of Medicine at Emory University School of Medicine, and he currently serves as Foreign Secretary for the National Academy of Medicine. He is also a professor of global health and epidemiology at the Rollins School of Emory University, Executive Associate Dean of Emory University School of Medicine at Grady Health System, and co-director of the Emory Center for AIDS Research. His research interests include the early diagnosis of HIV, linkage to and retention in HIV care, and prevention of HIV infection. He has long worked in hospitals and clinics with hard-to-reach populations including substance abuse users to improve outcomes of those infected with HIV and to prevent infection among those at risk. In addition, Dr. del Rio's interests include the optimization of HIV management in resource-constrained countries and the translation of research findings into practice and policy. Dr. del Rio is a native of Mexico, where he attended medical school at Universidad La Salle, graduating in 1983.

John G. Hildebrand

Ex Officio Member

John G. Hildebrand (NAS), originally trained in chemistry and biology, is a neurobiologist whose research focuses on the neural mechanisms and behavioral roles of olfaction in insects including agricultural pests and disease vectors. Dr. Hildebrand has received many honors and awards, including election to the German National Academy of Sciences 'Leopoldina' (1998), the Norwegian Academy of Science and Letters (1999), the American Academy of Arts and Sciences (2001), the U.S. National Academy of Sciences (2007), the Royal Norwegian Society of Sciences and Letters Academy (2011), and the American Philosophical Society (2014). Following earlier faculty appointments at Harvard and Columbia Universities, he joined the University of Arizona in Tucson in 1985 as the founding head of its Department of Neuroscience. He is Regents Professor of Neuroscience and Professor of Chemistry and Biochemistry, Ecology and Evolutionary Biology, Entomology, and Molecular and Cellular Biology. Colleagues cite Dr. Hildebrand for his passionate advocacy for general education in STEM and for access to and success in scientific careers for women and minorities. He has been Foreign Secretary of the NAS since 2014.

Cherry A. Murray

Ex Officio Member

Cherry A. Murray (NAS, NAE) is the Benjamin Peirce Professor of Technology and Public Policy, emerita, at Harvard University, and Professor of Physics and Deputy Director for Research of Biosphere 2 at the University of Arizona. She obtained both a B.S. and a Ph.D., in physics from the Massachusetts Institute of Technology. Her research interests have varied from experimental condensed matter and surface physics to nanotechnology, innovation, research and development of telecommunications networks, national security, and science and technology policy. Her current interests include policy, research, development, education, and innovation to sustain human civilization on future Earth. From 1978 to 2004, Dr. Murray held a number of research positions, which culminated in the Senior Vice Presidency of Physical and Wireless Research, at Bell Laboratories, Lucent Technologies, formerly AT&T Bell Laboratories and previously Bell Telephone Laboratories, Inc. She then served at Lawrence Livermore National Laboratory as Deputy Director for Science and Technology and as Principal Associate Director for Science and Technology from 2004 to 2009. She was dean of Harvard University's School of Engineering and Applied Sciences from 2009 until 2014. Dr. Murray served as the Director of the United States Department of Energy's Office of Science, from 2015 until 2017. She served as president of the American Physical Society in 2009, on the National Commission on BP Deepwater Horizon Oil Spill and Offshore Drilling in 2010, has served on numerous National and American Academy, American Association for the Advancement of Science, American Physical Society, Department of Energy and Department of Commerce committees, and currently serves as a Chair of the Board of the Okinawa Institute of Science and Technology Graduate University and on the Board of the American Academy of Arts and Sciences. In 2019, she was elected, representing the US National Academy of Sciences, as co-chair for science of the Inter Academy Partnership, a partnership of over 140 national and regional science, engineering and medical academies dedicated to providing independent and credible advice to policy makers and to strengthening the role of academies nationally, regionally and globally. She was also selected in 2021 to be co-chair of the UN 10-Member Group for the Technology Facilitation Mechanism for the Sustainable Development Goals.

Shilpa Constantinides

Staff Officer