Speaker Bios, in order of Presentation

Session: The National Purpose of Research: Presentation and Discussion

Dr. David Goldston, Director, Massachusetts Institute of Technology (MIT) Washington Office

As the director of the MIT Washington Office since May 2017, David Goldston helps shape MIT's policy, positions and communications regarding federal matters.

Prior to coming to MIT, Goldston was director of government affairs at the Natural Resources Defense Council (NRDC), a leading environmental group, where he helped shape NRDC's federal political strategy, policies and communications. Before his time at the NRDC he spent more than 20 years on Capitol Hill, working primarily on science and environmental policy, including serving as chief of staff of the House Committee on Science from 2001 through 2006.

After retiring from government service, Goldston was a visiting lecturer at Princeton University's Woodrow Wilson School of Public and International Affairs, and at the Harvard University Center for the Environment. He is currently an adjunct professor at Georgetown University. From 2007 through November 2009, he wrote a monthly column for Nature on science policy titled "Party of One." Goldston also was the project director for the Bipartisan Policy Center report: "Improving the Use of Science in Regulatory Policy," which was released in August 2009. He authored a chapter in The Science of Science Policy: A Handbook (Stanford University Press, 2011). He is a member of the advisory committee for the National Academies' Climate Communications Initiative and of the Academies' Board on Science Education, and he has served on numerous panels of the Academy and other science policy organizations. He holds a B.A. from Cornell University and completed the course work for a Ph.D. in American history at the University of Pennsylvania.

Lisa Margonelli, Senior Editor, Issues in Science and Technology

Lisa Margonelli is Senior Editor at Issues in Science and Technology. She is the author of *Oil on the Brain: Petroleum's Long Strange Trip to Your Tank* (2007) and *Underbug: An Obsessive Tale of Termites and Technology* (2018). Her work has appeared in The Atlantic, Wired, Slate's Future Tense, Pacific Standard, New York Times, Washington Post, Los Angeles Times, and San Francisco Chronicle, among other publications. Formerly the Editor in Chief of Zócalo Public Square, she wrote about energy policy at the New America Foundation from 2006-2012. She lives in Maine.

Session: Emerging Research Models at Universities: Presentation and Discussion

Dr. Victor R. McCrary, Jr., Vice President for Research and Professor of Chemistry, University of the District of Columbia

McCrary currently serves as Vice President for Research and Professor of Chemistry at the University of the District of Columbia. Previously, he was Vice Chancellor for Research at the University of Tennessee, Knoxville and the first Vice President for Research and Economic Development and Professor of Chemistry at Morgan State University, Baltimore, MD. Prior to that, McCrary was the Business Area Executive for Science & Technology and principal professional staff at The Johns Hopkins University Applied Physics Laboratory where he directed internal research and development (IRAD) funding to develop new core competencies and innovations in the areas of national security and space technologies for civilian and military applications.

He started his career at AT&T Bell Laboratories-Murray Hill, as a post-doc and then Member of Technical Staff before being tapped to be a program manager with the Advanced Technology Program and becoming the first Chief of the Convergent Information Systems Division at the National Institute of Standards and Technology (NIST). At NIST, McCrary led the first efforts to develop industry standards for electronic books where he was a co-recipient of the US Department of Commerce's Gold Medal for his efforts. He is a former national president of the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) and a Fellow of the American Chemical Society.

McCrary was a member of the NSB class of 2016 – 2022 and was reappointed to the class of 2022 – 2028.

Dr. Karen Plaut, Executive Vice President for Research, Purdue University

Dr. Karen Plaut became Executive Vice President for Research at Purdue University in January 2023. Overseeing an expanding $600 million research enterprise, Dr. Plaut is responsible for university-wide strategic initiatives and bringing together researchers and resources across traditional academic boundaries to drive interdisciplinary discoveries with societal impact.

She joined Purdue in 2010 as associate dean for research for the College of Agriculture and later became dean.

A researcher at heart, Dr. Plaut has approximately 100 publications focused on mammary gland biology and has received funding from USDA, NIH, NSF, and NASA.

Dr. Plaut earned her BS from the University of Vermont, MS from Pennsylvania State University and PhD in animal science from Cornell University. Following a postdoctoral

fellowship at the National Cancer Institute at NIH, she led mammary gland biology and breast cancer research at the University of Vermont, with dual appointments in the Department of Animal Science and the Department of Pathology in the College of Medicine.

Dr. Plaut then joined NASA and served as lead scientist for International Space Station Biological Research project working with engineers to build life science habitats for zero gravity. Space shuttle mission (STS-70) included her research investigating changes in mammary metabolism in rats.

Following her NASA appointment, she returned to the University of Vermont as Chair of the Animal Science department and then became Chair of Animal Science at Michigan State University before joining Purdue University.

Driving excellence in research and among researchers features strongly in Dr. Plaut's leadership to bring about breakthroughs that matter to society.

Dr. Arun Majumdar, Dean, Stanford Doerr School of Sustainability, Jay Precourt Professor, Professor of Mechanical Engineering, Energy Science & Engineering, and of Photon Science, Senior Fellow at Woods and Hoover by courtesy, Stanford University

Dr. Arun Majumdar is the inaugural Dean of the Stanford Doerr School of Sustainability. He is the Jay Precourt Provostial Chair Professor at Stanford University, a faculty member of the Departments of Mechanical Engineering and Energy Science and Engineering, a Senior Fellow and former Director of the Precourt Institute for Energy and Senior Fellow (courtesy) of the Hoover Institution. He is also a faculty in Department of Photon Science at SLAC.

In October 2009, Dr. Majumdar was nominated by President Obama and confirmed by the Senate to become the Founding Director of the Advanced Research Projects Agency - Energy (ARPA-E), where he served until June 2012 and helped ARPA-E become a model of excellence and innovation for the government with bipartisan support from Congress and other stakeholders. Between March 2011 and June 2012, he also served as the Acting Under Secretary of Energy, enabling the portfolio of Office of Energy Efficiency and Renewable Energy, Office of Electricity Delivery and Reliability, Office of Nuclear Energy and the Office of Fossil Energy, as well as multiple cross-cutting efforts such as Sunshot, Grid Modernization Team and others that he had initiated. Furthermore, he was a Senior Advisor to the Secretary of Energy, Dr. Steven Chu, on a variety of matters related to management, personnel, budget, and policy. In 2010, he served on Secretary Chu's Science Team to help stop the leak of the Deep Water Horizon (BP) oil spill.

Dr. Majumdar serves as the Chair of the Advisory Board of the U.S. Secretary of Energy, Jennifer Granholm. He led the Agency Review Team for the Department of Energy, Federal Energy Regulatory Commission and the Nuclear Regulatory Commission during the Biden-Harris Presidential transition. He served as the Vice Chairman of the Advisory Board of U.S. Secretary of Energy, Dr. Ernest Moniz, and was also a Science Envoy for the U.S. Department

of State with focus on energy and technology innovation in the Baltics and Poland. He also serves on numerous advisory boards and boards of businesses, investment groups and non-profit organizations.

After leaving Washington, DC and before joining Stanford, Dr. Majumdar was the Vice President for Energy at Google, where he assembled a team to create technologies and businesses at the intersection of data, computing and electricity grid.

Dr. Majumdar is a member of the U.S. National Academy of Sciences, U.S. National Academy of Engineering and the American Academy of Arts and Sciences. His research in the past has involved the science and engineering of nanoscale materials and devices, especially in the areas of energy conversion, transport and storage as well as biomolecular analysis. His current research focuses on redox reactions and systems that are fundamental to a sustainable energy future, multidimensional nanoscale imaging and microscopy, and an effort to leverage modern AI techniques to develop and deliver energy and climate solutions.

Prior to joining the Department of Energy, Dr. Majumdar was the Almy & Agnes Maynard Chair Professor of Mechanical Engineering and Materials Science & Engineering at University of California–Berkeley and the Associate Laboratory Director for energy and environment at Lawrence Berkeley National Laboratory. He also spent the early part of his academic career at Arizona State University and University of California, Santa Barbara.

Dr. Majumdar received his bachelor's degree in Mechanical Engineering at the Indian Institute of Technology, Bombay in 1985 and his Ph.D. from the University of California, Berkeley in 1989.

Session: Recent Activities Relevant to PCAST Reports

Cyber-Physical Resilience:

Brandon Wales, Executive Director, Cybersecurity and Infrastructure Security Agency

Brandon Wales is the Cybersecurity and Infrastructure Security Agency's (CISA) first Executive Director, serving as the senior career executive helping oversee execution of CISA operations. He is responsible for leading long-term strategy development, managing CISA-wide policy initiatives and ensuring effective operational collaboration across the Agency.

In February 2022, Wales was appointed as the lead for the Federal Government's domestic preparedness and response related to the Russian-Ukraine crisis. In this capacity, Wales was responsible for establishing and leading an interagency Unified Coordination Group (UCG) to ensure unity of effort, building U.S. government-wide strategic objectives, identifying and resolving gaps in operations and interagency coordination, and coordinating with federal, state, local, tribal, and territorial officials, as well as representatives of private sector and non-governmental entities.

From November 2020 through July 2021, Wales was the Acting Director of CISA. In this capacity, he led CISA's efforts to defend civilian networks, manage systemic risk to national critical functions, and work across both the public and private sectors to raise the security baseline of the Nation's cyber and physical infrastructure. During his tenure as the acting Director, he led the agency's response to the SolarWinds Orion Supply Chain Attacks, Microsoft Exchange vulnerabilities, the Colonial Pipeline ransomware attack, Pulse Connect Secure vulnerabilities, and the Kaseya VSA supply chain ransomware attack, among many others, while completing the stand-up and reorganization of the Agency following the passage of the CISA Act of 2018, which established CISA as an independent agency.

From August 2017 to December 2019, Wales directly supported the Secretary of Homeland Security beginning as the Senior Counselor to the Secretary for Cyber and Resilience, Wales was responsible for advising on cybersecurity, emergency management, incident response and building a more resilient nation. Following that assignment, he served as the Deputy Chief of Staff (Acting), developing and advancing the Department's strategic priorities. In June 2019, Wales assumed the role of Chief of Staff (Acting), assisting the Secretary in overseeing the Department, ensuring close coordination across its operational components and managing interagency relationships.

Wales' experience within and understanding of the Department is both broad and deep. He served as the Director of the DHS Office of Cyber and Infrastructure Analysis (OCIA), which provided integrated analysis of cyber and physical risks to the Nation's critical infrastructure.

From 2009 to 2014, Wales was the Director of the Homeland Infrastructure Threat and Risk Analysis Center (HITRAC), an all-hazards analytic resource for public and private sector partners covering the full array of risks facing the infrastructure community. In this capacity,

he oversaw the Department's advanced modeling, simulation, and analysis program, leading a team of researchers conducting ground-breaking and forward-leaning analysis of some of the Nation's most complex infrastructure challenges.

Wales has been called upon to support a variety of Department-wide initiatives. When the Department began working on the first Quadrennial Homeland Security Review in 2009, Wales was asked to lead the review of the counterterrorism and cyber security mission areas. Following the 2013 release of Executive Order 13636, Improving Critical Infrastructure Cybersecurity, Wales led the effort to identify critical infrastructure at potential catastrophic risk from cybersecurity incidents.

Wales' contributions have been recognized with Presidential Rank Award and was a finalist for the Samuel J. Heyman Service to America Medal.

Before joining the Department in 2005, Wales was the national security aide to United States Senator Jon Kyl and a Senior Associate at a Washington-based foreign policy and national security think-tank.

Wales received his Bachelor's degree from George Washington University and his Master's degree from The Johns Hopkins School of Advanced International Studies.

Caitlin Clarke, Special Assistant to the President and Senior Director for Cyber and Emerging Technology, National Security Council

Caitlin McCarthy Clarke serves as the Special Assistant to the President and Senior Director for Cyber and Emerging Technology on the National Security Council. In that role, Caitlin leads the development of defensive-related cyber policy. Previously, Caitlin served as the Assistant National Cyber Director for Planning and Operations within the Office of National Cyber Director focused on federal coherence in response to significant cyber incidents or campaigns

of significance. Prior to returning to government service in 2022, Caitlin was both the Director of Cyber Industry Partnerships and Regulatory Engagement and Director of Cyber Threat Intelligence at American Express. She has also served in various positions at the Federal Emergency Management Agency leading national preparedness policy and doctrine as well as operational planning efforts. Caitlin holds a B.A. in Political Science from Providence College and a Master's in Public Policy, concentration in National Security, from George Mason University.

Phil Venables, MSc, Chief Information Security Officer at Google Cloud

Phil Venables, MSc, is a computer scientist, software engineer, and expert in technology, security, and enterprise risk who has co-founded and led multiple corporate and industry-

wide cybersecurity initiatives focused on safeguarding critical infrastructure in the financial sector. Additional experience includes:

— Serves on several non-profit boards, including as Distinguished Expert for the NSA Science of Security Program, member of the Information Security and Privacy Advisory Board of NIST, board member of the New York University Tandon School of Engineering, and board member of the Volatility and Risk Institute of the New York University Stern School of Business.
— Served as Chief Information Security Officer and Chief Operational Risk Officer at Goldman Sachs for 20 years and was a Board Director at Goldman Sachs Bank.
— Co-founded and directed many of the U.S. Financial Services Sector critical infrastructure protection initiatives such as the FS-ISAC, FS-ARC and Sheltered Harbor.
— Managed security at several major global banks, including Deutsche Bank, Barclays, and Standard Chartered.
— Co-founded the non-profit Center for Internet Security and served on its Board from 2014-2020.
— Winner of multiple awards from the RSA Conference in 2008, FS-ISAC Critical Infrastructure Award in 2017, ISACA Wasserman Award, and the SINET Innovation Award in 2019.
— Served on multiple National Academies committees and workshops including Foundational Cybersecurity Research and Implications of Artificial Intelligence for Cybersecurity.

Dr. Eric Horvitz, Chief Scientific Officer at Microsoft

Eric Horvitz, PhD, MD, is a computer scientist and a leading researcher in artificial intelligence (AI) and issues at the intersection of technology, people, and society – including the technical and societal challenges and opportunities presented by AI's uses. Additional experience includes:

— Served as President of the American Association for the Advancement of Intelligence (AAAI) and on advisory committees for the National Science Foundation, National Institutes of Health, DARPA, Office of Naval Research, and Allen Institute for AI.
— Awarded the Feigenbaum Prize and the Allen Newell Award for advances in AI.
— Influential contributions and leadership with fielding frontier technologies in biomedicine, transportation, aerospace, and computing systems and services.
— Member of U.S. National Academy Engineering, American Academy of Arts and Sciences, American College of Medical Informatics, and American Philosophical Society.

Public Engagement with Science

Dr. Erica Kimmerling, Assistant Director for Community Driven Health, The White House Office of Science and Technology Policy

Dr. Kimmerling is the Assistant Director for Community Driven Health at the White House Office of Science and Technology Policy (OSTP). Her work focuses on increasing patient and caregiver voice in decision-making and planning, community participation in biomedical research, and community-led science. She works across the OSTP health outcomes team on topics including Cancer Moonshot, rare diseases, environmental justice and environmental public health, social drivers of health, and the built environment. She previously served as OSTP's Senior Policy Advisor for Public Engagement in Science and continues to advise on issues related to science communication and engagement, the societal and ethical implications of science, public perception of science, misinformation/disinformation, and building community/civic capacity in science. Prior to OSTP she most recently served as the Senior Advisor for Science Engagement Policy and Partnerships and Civic Science Fellow at the Association of Science and Technology Centers (ASTC). In her role, she managed the development and activities of a network for Leaders in Science and Technology Engagement Networks (LISTEN) committed to nurturing relationships between all people and science. At the American Academy of Arts and Sciences she advanced their Public Face of Science Initiative as a Hellman Fellowship in Science and Technology Policy. Erica was the lead drafter of the project reports *Perceptions of Science in America*, *Encountering Science in America*, and *The Public Face of Science in America: Priorities for the Future.* Prior to her work on science engagement policy she received her PhD in Biomedical Engineering from Tufts University.

Dr. Jarah Meador, Director of Open Innovation, Technology Transformation Services, GSA

Jarah leads the crowdsourcing, citizen science and prize competition open innovation portfolio at GSA that includes the Challenge.Gov and CitizenScience.gov. Previously, she led the innovation sourcing program at the Department of Veterans Affairs Center for Innovation and this portfolio included prize competitions, broad agency announcements, and pay for success/social impact financing. The AAAS Science and Policy Technology Fellowship brought her to the federal government at the US Agency for International Development 10 years ago where she led a large-scale desalination technology development prize competition. Jarah earned her PhD in Cancer Biology at the University of Texas Graduate School of Biomedical Sciences and is an Air Force Veteran.

Saul Perlmutter, Franklin W. and Karen Weber Dabby Professor of Physics and Director of the Berkeley Institute for Data Science at University of California, Berkeley and Senior Scientist at Lawrence Berkeley National Laboratory

Saul Perlmutter, PhD, is an astrophysicist and cosmologist who received the Nobel Prize in Physics for discovering that the expansion of our universe is accelerating. Additional experience includes:

— Awarded the Shaw Prize in Astronomy, the Breakthrough Prize in Fundamental Physics, and the Albert Einstein Medal.
— Leader of the International Supernova Cosmology Project and Executive Director of the Berkeley Center for Cosmological Physics.
— Leads one of NASA's science teams for the Nancy Grace Roman Space Telescope.
— An advocate for the teaching of scientific critical thinking to scientists and non-scientists alike, he has developed new courses at Berkeley aimed at college, high school, professional school, and on-line learning.
— Featured in PBS, Discovery Channel, and BBC documentaries, among others.
— Member of U.S. National Academy of Sciences, American Philosophical Society, and American Academy of Arts and Sciences.
— Fellow of American Physical Society and American Association for the Advancement of Science.

Vicki Sato, Professor of Management Practice at Harvard Business School (Retired)

Vicki Sato, PhD, is a biologist, immunologist, and biotechnology executive with decades of experience leading teams in drug research and development. Molecules and therapeutics developed under her leadership have become critical treatments for HIV, cystic fibrosis, inflammation, multiple sclerosis, and Hepatitis C. Additional experience includes:

— Former President and former Chief Science Officer of Vertex Pharmaceuticals, one of the first biotechnology companies to exploit structure-based and computational chemistries in the design of new drugs.
— Former Vice President of Research at Biogen, leading research programs in the areas of inflammation, thrombosis, and HIV.
— Former Professor of the Practice at Harvard University in Molecular and Cell Biology, teaching the science of making medicines.
— Former Professor at Harvard Business School where her work focused on productivity and innovation in biotechnology and pharmaceutical R&D.
— Inaugural Co-Chair of the Advisory Council for the NYC LifeScience initiative for the Economic Development Corporation of the city of New York, which is focused on driving economic growth and jobs by expanding the life science sector in the city.