POLICY AND GLOBAL AFFAIRS | N A S E M

NATIONAL ACADEMIES Sciences Engineering Medicine

New Voices Impact Showcase Science and Engineering Capacity Theme, Policy and Global Affairs May 5, 2023



Dr. Dalal Najib is the Senior Director for the Science and Engineering Capacity Development Unit at the Policy and Global Affairs (PGA) Division of the U.S. National Academies of Sciences, Engineering and Medicine (NASEM). Dr. Najib manages the Arab-American and US-Africa Frontiers programs. She has worked for nearly 10 years on the USAID- funded Partnerships for Enhanced Engagement in Research (PEER) program where she managed the sub-Saharan Africa, Middle-East and the Central Asia regions. She is the principal investigator of multiple awards from various agencies, including NSF (6), USAID, NASA and DOD. Dr. Najib first joined the National Academies as a Mirzayan Science and Technology Policy Fellow at the Aeronautics and Space Engineering Board (ASEB). She holds a PhD in Climate and Space Sciences and Engineering and a master's degree in public policy

(MPP) from University of Michigan. Prior to that, she received her undergraduate degree in aerospace and aeronautical engineering from Supaero (Toulouse, France).



Alison Boland Reeves joined National Academies in January 2023 as the Senior Program Officer for Science and Engineering Capacity Development managing the New Voices and Christine Mirzayan Fellowship programs. Prior to National Academies, Alison was the Public Management Track Lead for the Mandela Washington Fellowship for Young African Leaders at IREX and also ran fellowship programs on the ground in the International Office of The University of Texas at Austin. Alison has over 10 years of program management experience working in the nonprofit sector, higher education, and international development to elevate young leaders around the world. Her previous experience includes three years of Peace Corps service in Mongolia (2009-2012), and she is passionate about mentoring program participants and creating engaging training experiences for learners at all levels. Alison grew

up in Little Rock, Arkansas and earned her BA from Hampshire College in Amherst, Massachusetts. She finished her MFA in documentary film production at The University of Texas at Austin in 2015 along with a graduate certificate in nonprofit management.

Speaker Biographies



Dr. Elena Krieger is the Director of Research at PSE Healthy Energy, an energy science and policy research institute based in Oakland, California. She joined PSE in 2013 to launch the organization's clean energy practice area, and now oversees its scientific research efforts. Her current work focuses on accelerating the transition to clean and renewable energy resources, and developing transition pathways that realize health, environment, equity, and resilience co-benefits. She serves as principal investigator on numerous scientific research projects, and simultaneously works closely with community organizations, non-profits, policymakers, regulators, and other stakeholders to use data and science to inform energy policy decisions. In turn, her

research is deeply informed by the questions posed and challenges faced by these stakeholders. Dr. Krieger



currently serves on the California Energy Commission's Disadvantaged Communities Advisory Group, the board of the CEE Partnership, on the NASEM Committee on Hazard Mitigation and Resilience Applied Research Topics, on the NASEM Committee on the Role of Net Metering the Evolving Electricity System, and—as a representative of the New Voices—as a member of the Letten Prize Committee. She received her PhD in Mechanical & Aerospace Engineering from Princeton, where her research focused on optimizing energy storage in renewable systems, and holds an AB in Physics and Astronomy & Astrophysics from Harvard.



Mahdieh Aghazadeh was born and raised in Qazvin, Iran and moved to the nation's capital to receive her first degree in chemical engineering from Sharif University of Technology. Multiple socio-economic issues encouraged Mahdieh to pursue graduate degrees (Chemical Engineering master's at University of Maine in 2011 and Biological Engineering PhD from Purdue University in 2016) in the USA; during which she has been involved in SWE, NASBE, and SHPE. Immediately after graduation she entered the private sector as a scientist at Johnson and Johnson's orthopaedic company R&D department. Since then, she has taken multiple roles within JnJ. She has worked with compliance and quality teams to enhance customers' experience with drug delivery

devices and most recently joined Janssen Supply Chain team as a principal process engineer. Working at a heavily regulated industry, in addition to her graduate school research in biofuel production, clarified the importance of global scale collaboration. Mahdieh has initiated many technical collaborations within different sectors of JnJ as well as external innovators and academia. Advocating for multi-functional collaborations and partnerships for sustainability in biopharmaceutical production, new technology development, data collection and analysis, customer experience improvements, community outreach and education, and eventually promoting workplace inclusion and equity have become the primary goals of her career.



Hussam Mahmoud is the George T. Abell Professor in Infrastructure at Colorado State University. He obtained his BSc and MSc in civil engineering from the University of Minnesota and his PhD from the University of Illinois at Urbana-Champaign. Dr. Mahmoud's research is focused on sustainable and resilient infrastructure and communities with emphasis on developing socio-physical to capture the recovery of systems as influenced by human behavior and socio-economic policies. He has been developing models for risk-informed recovery of infrastructure with focus on hospitals and schools using complex systems analysis. He has authored over 250 publications and has given more than 120 presentations including 100 invited talks at national and international conferences and workshops. He has chaired and served on numerous

technical committees, including the ASCE Committees on Fire Protection and on Multi-hazard Mitigation. Dr. Mahmoud is a Fellow of the Structural Engineering Institute and is the recipient of various awards, including the American Institute of Steel Construction early faculty career award, the American Iron and Steel Institute Robert J. Dexter Memorial Lecture award, and the Air Force summer faculty fellowship award. He has recently been selected by the NASEM among the 22 New Voices Cohort from across the U.S. He has been invited to various symposia by the U.S. National Academies, the Royal Academy of Engineering, and the Royal Institute of International Affairs. His research has received media coverage through citations and interviews in numerous venues, including Nature Climate Change, The U.S. National Academy of Engineering, Smithsonian Magazine, and CNN.



Sciences Engineering Medicine



Dr. Stephanie Diem is an Assistant Professor in the Nuclear Engineering and Engineering Physics at the University of Wisconsin-Madison, where her experimental plasma physics research focuses on using microwaves to heat and drive current in magnetically confined, high-temperature plasmas for fusion energy development. Dr. Diem is the Primary Investigator of the Pegasus-III Experiment, a new fusion experiment funded by the US Department of Energy studying innovative plasma startup techniques in an effort to reduce the cost and complexity of future fusion power plants. She was an invited speaker at the 2022 White House Summit: Developing a Bold Deadal Vision for Commercial Fusion Energy. Prior to joining the faculty at UW-Madison, she was a Staff Scientist at Oak Ridge National Laboratory on long-term assignment at the DIII-D

National Fusion Facility in San Diego, CA.

Dr. Diem was selected as a member of the 2021 New Voices in Science, Engineering, and Medicine cohort and currently serves as Co-Chair. New Voices activities have included: co-author JEE article engineering education, New Voices One Health Webinar Series and she has worked on several projects through the NAS Science & Entertainment Exchange. Prior to New Voices, she was one of the organizers of the Early Career Fusion Scientists (ECFS) forum, a grassroots organization which initiated discussions and polling among the early career community to provide input to the NASEM Committee on a Strategic Plan for U.S. Burning Plasma Research. Diem received her B.S. in Nuclear Engineering at UW-Madison and her Ph.D. in Astrophysical Sciences from Princeton University.



Michael James Martin's participation in New Voices includes projects in the climate group, where he led an assessment of challenges in engineering education linked to climate change, and work in science and human rights with NASEM's Human Rights Committee. He is a scientist at the National Renewable Energy Laboratory (NREL), where his research includes simulation of new energy technologies operating at extreme temperatures and the sustainability of new technologies. Dr. Martin leads NREL activities in applying high-performance computing to advanced manufacturing, and coleads initiatives in atmospheric sciences at NREL's Joint Institute for Strategic Energy Analysis. Prior to joining NREL, Dr. Martin held scientific positions at the Naval

Research Laboratory, Louisiana State University, and NASA's Jet Propulsion Laboratory; as well as science policy fellowships at the Department of Energy, the United States Senate, and the National Academies. Dr. Martin previously served as a volunteer advisor at the Institute for International Education's Scholar Rescue Fund (SRF), where he wrote the first journal paper on the challenges facing displaced scientists. He is also a member of the American Society of Mechanical Engineers (ASME) Energy Policy Committee. Dr. Martin is a Fellow of the ASME and an Associate Fellow of the AIAA. Dr. Martin received a PhD in Aerospace Engineering, an MA in Asian Studies, and an MS in Mechanical Engineering from the University of Michigan. Dr. Martin also holds an MS in Science and Technology Studies from Virginia Tech and a BS in Mechanical Engineering from the University of Florida.



Dr. Brandy Huderson is a STEM educator with extensive experience in higher education instruction, scientific research, informal STEM education programming, project management, qualitative and quantitative portfolio analysis, program evaluation, and federal grant management. Dr. Huderson is an Assistant Professor at the University of the District of Columbia where her research focuses on steroid receptor biology, in normal and abhorrent systems, as well as STEM Education. Dr. Huderson works in project management, managing federal scholarship programs working increase diversity in STEM. She is also a DEI Consultant with Avent Diversity Consulting, and STEM

Innovations, specializing in institutional and organizational change, strategic planning, and program evaluation.



Dr. Huderson is a former American Association for the Advancement of Science (AAAS) Science and Technology Policy Fellow (STPF) and was placed at the National Science Foundation (NSF) in the Directorate for Education and Human Resources (EHR).

Dr. B. Huderson has a B.S. in Biology from Xavier University of Louisiana (New Orleans, LA), Masters of Biological Sciences degree with concentrations in Molecular Genetics from the University of New Orleans (LA), and a PhD in Animal Science with a concentration in Dairy Science from Virginia Tech (Blacksburg, VA).



Umut A. Gurkan, Ph.D., is the Wilbert J. Austin Professor of Engineering at Case Western Reserve University. Dr. Gurkan holds BS degrees in Chemical Engineering and Mechanical Engineering from the Middle East Technical University in Turkey and a Ph.D. in Biomedical Engineering from Purdue University. He completed his postdoctoral training at Harvard Medical School and Harvard-MIT Health Sciences and Technology. Dr. Gurkan's research is on global equitable access to diagnostics and personalized health. Dr. Gurkan has authored over 100 peer-reviewed journal articles. Dr. Gurkan's inventions have led to 13+ issued US patents and four successful biotechnology

companies to date with products in global markets. Dr. Gurkan's innovations won numerous awards, including USPTO Patents for Humanity recognition and USFDA Breakthrough Device Designation. His honors include National Science Foundation CAREER Award, Translational Research Featured New Investigator Award, MIT Technology Review Innovator under 35 Award, the Doris Duke Innovations in Clinical Research Award. Dr. Gurkan is a member of the Global Gene Therapy Initiative, American Society of Mechanical Engineers, Biomedical Engineering Society, and American Society of Hematology. Dr. Gurkan is a Senior Member of the National Academy of Inventors (NAI), a member of the New Voices in Science, Engineering and Medicine Program by the National Academies of Sciences, Engineering, and Medicine (NASEM), and a fellow of the American Institute for Medical and Biological Engineering (AIMBE). Dr. Gurkan has attended the First US Africa Frontiers in Science Engineering and Medicine Symposium, and he is co-chairing the 9th Arab American Frontiers Symposium.