NATIONAL ACADEMIES Sciences Engineering Medicine

ROUNDTABLE ON BLACK MEN & BLACK WOMEN IN SCIENCE, ENGINEERING & MEDICINE

Systems of Engagement for Black People in the Global Scientific Enterprise: A Workshop

October 3-4 Workshop Speaker Bios

Chair of Workshop Committee

Dr. Romain Murenzi, PhD joined Worcester Polytechnic Institute (WPI) as a full professor of Physics in January 2024. His research interests include Wavelets, Groups, Phase Space Representations, Coherent States: Links Between Quantum Physics; and Signal Processing in One and More Dimensions.

In addition to STEM, Murenzi is interested in expanding his research to social science and policy. This includes areas such as Science, Technology, and Innovation policy for sustainable development, science for society, science diplomacy, and providing scientific advice to governments.

Until November 2023, he served as the Executive Director of The World Academy of Sciences for the advancement of science in developing countries (TWAS), a UNESCO (United Nations Education and Science Organization) programme unit, overseeing also the administration of Organization for Women in Science for the Developing World (OWSD), and the InterAcademy Partnership (IAP). Murenzi initially joined TWAS in April 2011 for five years. He then spent 14 months at UNESCO, Paris, as the Director of the Division of Science Policy and Capacity Building, and Executive Secretary of International Basic Science Programme (IBSP). On 1 September 2017, he was transferred back to TWAS.

Previously (2001-2009) he served as Rwanda's Minister of Education, Science and Technology and Scientific Research and as Minister in the President's Office in Charge of Science and Technology, and Scientific Research, with responsibilities including Information and Communication Technologies. In 2009 he was a senior scholar at the American Association for the Advancement of Science (AAAS) Center for Science, Technology and Sustainable Development; he served as Director from 2010–2011. During this period (2009-2011), he was also visiting professor at the University of Maryland Institute of Advanced Computer Studies (UMIACS). He was also a visiting Professor within the Howard University Physics Department (2009-2010).

Murenzi worked at Clark Atlanta University as Principal Investigator at the NSF (National Science Foundation) Center for Theoretical Studies of Physical Systems (CTSPS) from 1992 to 2001, and as Chair of the Physics Department at Clark Atlanta University from 1999 to 2001. Murenzi holds a Bachelor of Science from the University of Burundi, a Master of Science and a PhD from the Catholic University of Louvain in Belgium, a Master of Law degree in Information Technology and Telecommunication from Strathclyde University in the United Kingdom, and an honorary doctoral degree conferred upon him by the University of Johannesburg.

The UN Secretary-General appointed him as Chair for the feasibility study of the UN Technology Bank for the Least Developed Countries in November 2014 and to serve on the 10-Member Group to support the Technology Facilitation Mechanism in January 2016 for sustainable development goals (SDGs). He also served at several advisory boards, including as a member of ITU (International Telecommunication Union) and UNESCO Broadband Commission for Sustainable Development, Carnegie Mellon University President's Global Advisory Council, Dian Fossey Gorilla Fund International (DFGFI), External Science Advisory of the International Monetary Fund (IMF), Steering Committee of EAIFR (East Africa Institute for Fundamental Research, a physics Category 2 UNESCO institute, and Governing Board of Alliance of National and International Organizations (ANSO) for the Belt Road Regions. He currently serves on the Joint Advisory Board of Carnegie Mellon University Africa (CMU-Africa).

At the WPI Physics Department, Murenzi is not just an educator but a bridge connecting students to expansive horizons where physics meets policy, innovation, diplomacy, shaping future leaders equipped both technically, socially, and globally aware.

Workshop Committee

Dr. Gillian Bowser, PhD is an associate professor in the Department of Ecosystem Science and Sustainability at Colorado State University. Her primary research areas are environmental governance and diplomacy; pollinators as ecological indicators of change, applications of participatory datasets on environmental decision making and protected area management; and engaging diverse voices in scientific inquiry. She also works on international environmental assessments such as the United Nation's Global Environmental Outlook Report (GEO6 and GEO7), The US National Climate Assessment (NCA5) and the first US National Nature Assessment. Dr Bowser is a senior fellow with the American Association of the Advancement of Science and serves on the editorial board of two major publications in environmental sciences. She also sits on the board for Earthwatch Organization and The Institute for Parks and Protected Areas. She serves on the Harriet Tubman Legacy Society with the National Museum of African American History and Culture.

Dr. Bowser grew up in Brooklyn New York, where she attended New York City's LaGuardia School of Music & the Arts, majoring in art. While attending Northwestern University in

Chicago she discovered her love for biology, from which she chartered a professional journey that merges her passions for the arts and sciences. She started her career with the National Park Service at Yellowstone National Park and served in 8 different national parks as a wildlife ecologist for over 20 plus years and completed her PhD work with Badlands National Park on genetics and population movement of prairie dogs. Dr. Bowser moved to Colorado State University as a research scientist, eventually transitioning to a tenured position in the department of Ecosystem Science and Sustainability while successfully launching several million dollars in projects funded by the National Science Foundation on diversifying the sciences. She was an AAAS Science, Technology and Diplomacy fellow with the US Department of State working on fishery treaties and has attended international environmental negotiations with the UN Framework Convention on Climate Change as a civil society observer with a focus on gender equity. Dr. Bowser continues to blend her background in both science and art and has conducted two solo art shows on ceramic arts and creates art to educate the public on the importance of pollinators and biodiversity.

Dr. Wayne A.I. Frederick, MD was the 17th president of Howard University and is currently the President Emeritus of Howard University and the distinguished Charles R. Drew Professor of Surgery at the Howard University College of Medicine. He is also a practicing cancer surgeon at Howard University Hospital, where he continues to consult patients and perform surgeries.

Dr. Frederick is a true son of Howard, matriculating to the University at age 16 as a B.S./M.D. dual degree student. He completed both degrees within six years, earning his Bachelor of Science and medical degrees by age 22. Following his post-doctoral research and surgical oncology fellowships at the University of Texas MD Anderson Cancer Center, Dr. Frederick began his academic career as associate director of the Cancer Center at the University of Connecticut. He would later earn a Master of Business Administration from the Howard University School of Business in 2011. Today, he continues to operate and lecture second-year medical students and surgical residents of Howard University School of Medicine. In June 2023, the University's Board of Trustees unanimously approved the naming of the Wayne A. I. Frederick Undergraduate Library in honor of his years of service. He retired as president on September 1, 2023.

As president, Dr. Frederick advanced Howard's commitment to student opportunity, academic innovation, public service, and financial stability. He has affected a series of reform efforts, including modernizing University facilities, streamlining and strengthening University operations, and expanding academic offerings and innovative programs to support student success. His presidency accompanied a period of considerable growth and transformation at Howard, including historic enrollment numbers and philanthropic donations. Prior to his presidency, he served in various capacities across the University, including provost and chief academic officer, director of the Cancer Center, and associate dean in the College of Medicine.

Dr. Frederick devotes his time to writing and speaking on salient topics in higher education including the impact of historically Black colleges and universities, campus intellectual diversity,

the underrepresentation of African American men in medical school, and gender equity on college campuses. He also serves on numerous boards and committees, including the U.S. Chamber of Commerce, the American Cancer Society, Humana Inc., and Insulet Corporation. In January 2017, the Federal Reserve System Board of Governors elected Dr. Frederick to the Federal Reserve Bank of Richmond.

An internationally recognized expert on disparities in health care and medical education, Dr. Frederick is the author of numerous peer-reviewed articles, book chapters, abstracts, and editorials. His research addresses narrowing racial, ethnic, and gender disparities in cancer care outcomes, particularly regarding gastrointestinal cancers. He is a member of numerous medical associations including the American Surgical Association, the American Cancer Society, the American College of Surgeons, and the National Academy of Medicine.

Dr. Frederick has received various awards honoring his scholarship, service, and community impact. He was named one of EBONY magazine's "Power 100" and recognized as a "Super Doctor" in The Washington Post magazine. He is the first-ever recipient of the Educator Award by the Lowell F. Hawthorne Foundation, Inc. He was honored with the Distinguished Alumnus Award from the University of Texas MD Anderson Cancer Center for his contributions to the medical field and has been featured as one of "America's Best Physicians" by Black Enterprise magazine. He was presented with the Diaspora Public Diplomacy Leadership Award by the Embassy of the Republic of Trinidad and Tobago for his contributions to strengthening Trinidad and Tobago – United States bilateral relations through excellence in global educational leadership.

In 2015, Dr. Frederick was recognized by the then-president of the Republic of Trinidad and Tobago for his appointment as president of Howard University. In 2017, he was named "Washingtonian of the Year" by Washingtonian magazine and was inducted into the St. Mary's College, Port of Spain, Trinidad Hall of Fame. In 2020, he was named Nonprofit Leader of the Year by Washington Business Journal, and in 2021, he was honored as a "Great Immigrant, Great American" by the Carnegie Corporation of New York. In March 2022, Dr. Frederick received Trinidad and Tobago's highest honor, The Order of the Republic of Trinidad and Tobago (ORTT).

Dr. Shirley Malcom, PhD is Senior Advisor to the CEO and Director of the SEA Change initiative 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. Dr. 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.

Malcom serves on the boards of the Heinz Endowments, Public Agenda, the National Math-Science Initiative and Digital Promise. Internationally, she is a leader in efforts to improve access of girls and women to education and careers in science and engineering and to increase use of S&T to empower women and address problems they face in their daily lives, serving as co-chair of the Gender Advisory Board of the UN Commission on S&T for Development and Gender InSITE, a global campaign to deploy S&T to help improve the lives and status of girls and women. In 2003, Dr. Malcom received the Public Welfare Medal of the National Academy of Sciences, the highest award given by the Academy.

Workshop speakers (in order by workshop session)

Keynote Speaker

Dr. Christian T. Happi PhD is a Professor of Molecular Biology and Genomics and the Director of the World Bank-funded African Centre of Excellence for Genomics of Infectious Diseases (ACEGID), Redeemer's University, Ede, Nigeria.

Following his first degree from the University of Yaounde, Cameroon, he proceeded to the University of Ibadan, Nigeria, where he obtained Master of Science and Doctor of Philosophy in Molecular Parasitology. He completed his postdoctoral training at Harvard University.

He is passionate about building the capacity of young Africans, preparing them to use advanced genomics tools and techniques for high-impact research for Africans and for humanity. He leads the ACEGID team and partners in working with national health institutions in Nigeria and other West African countries on surveillance, diagnostics and management of infectious diseases. Christian diagnosed the first case of Ebola in Nigeria in 2014 within 48 hours, a feat that helped in the early containment of the disease in Nigeria. In 2020, his team sequenced the first genome of the SARS-Cov-2, causing Covid-19 in Africa, within 72 hours of receiving the sample.

His accolades include the Merle A. Sande Health Leadership Award; the Award of Excellence in Research from the Committee of Vice-Chancellors of Nigerian Universities; the 2019 Human Genome Organization (HUGO) Africa Prize, the 2020 Bailey K. Ashford Medal, among others.

Session I: Exploring the Intersectionality of Blackness Globally

Dr. Chika Ezeanya Esiobu, PhD is a multifaceted professional, encompassing roles as a researcher, non-fiction and fiction writer, college professor, and public intellectual. She earned her Ph.D. in African Studies from Howard University in Washington, D.C., where her academic journey began to focus on the underappreciated yet pivotal role of Indigenous knowledge in global discourse. This doctoral research has significantly influenced her career trajectory.

Dr. Esiobu authored the book "Indigenous Knowledge and Education in Africa" (Springer 2020) and has contributed prolifically to academic discourse through numerous journal articles, book chapters, and essays. Her intellectual reach has transcended borders, as she has been invited to share her ideas across various countries, institutions, and platforms, including TED Global, Yale University, Cambridge University, the London School of Economics, the Pan-African Parliament, the United Nations Development Program, the African Union, the Social Science Research Council, the United Nations Economic Commission for Africa, and Standard Bank South Africa, among others.

Dr. Esiobu has had the opportunity to lend her expertise as a consultant to the World Bank Africa Region, contributing her insights to projects centered on education, health, and agriculture. Among her notable research projects is a study conducted in collaboration with the International Development Research Center (IDRC) Canada, which explores the use of indigenous technology to create employment opportunities for women in rural areas of Rwanda. Her research affiliations extend to esteemed organizations such as the United Nations University World Institute for Development Economics Research (UNU-WIDER), the United Nations Research Institute for Social Development (UNRISD), the Swedish International Development Agency (Sida), and the African Economic Research Consortium (AERC).

Dr. Esiobu's initial venture into fiction writing yielded remarkable results, as her very first attempt earned her a coveted spot among the final six manuscripts shortlisted for the Penguin Publishers Award for African Writing, out of a pool of 250 submissions. Dr. Esiobu picks up a constant flow of stories that beckon to be penned; she eagerly anticipates the day when her schedule will grant her the freedom to indulge in this passion. She is presently a contributing columnist for the PanAfrican Review Magazine. Dr. Esiobu's international experiences have taken her to live and work in four countries across three continents. Through her extensive travels, she has cultivated values such as integrity, dignity, respect for both herself and others, a preference for cooperation over competition, and a relentless thirst for knowledge. In addition to her writings, Dr. Esiobu currently serves as a visiting assistant professor of African studies at Soka University of America in Aliso Viejo, California, where she continues to inspire and educate the next generation of scholars and thinkers.

Dr. Jessica Esquivel, PhD is an Associate Scientist at Fermilab where she works on the Muon g-2 Experiment which recently announced its exciting Run 1 results, increasing the experiment/theory tension from 3.7σ to 4.2σ. She is one of ~100 Black women with a Ph.D. in physics in the country, the 2nd black woman to graduate with a Ph.D. in physics from Syracuse University, and the 3rd Black woman to hold an Associate Scientist position at Fermilab. Her graduate research focused on studying ghostly particles called neutrinos interacting in the MicroBooNE Experiment using innovative machine learning techniques like those used in facial recognition software. She received her bachelor’s in electrical engineering and applied physics from St. Mary’s University in San Antonio, TX. She identifies as female, Black, afrolatinx, lesbian, neurodivergent, physicist, and Texan. Dr. Esquivel is a recognized advocate for creating just and equitable spaces in physics and focuses on the intersections of race, gender, and

sexuality in her community engagement efforts. She is an organizer of APS-IDEA and a co-founder of BlackInPhysics and the Change-Now collective. Dr. Esquivel's accomplishments include spearheading the sponsorship of Fermilab at Wakandacon, a 3-day afro-futuristic convention that strives to create a safe space for the black community to explore their interests from comic culture to STEM. Dr. Esquivel has also been selected as a AAAS IF/THEN Ambassador, appeared on CBS's Emmy nominated educational program Mission Unstoppable where she discusses the physics behind makeup, and appeared on the Science Channel's How the Universe Works discussing how neutrinos could be the key to the mysteries of our universe.

Tanya Katerí Hernández is the Archibald R. Murray Professor of Law at Fordham University School of Law, where she teaches Anti-Discrimination Law, Comparative Employment Discrimination, Critical Race Theory, The Science of Implicit Bias and the Law: New Pathways to Social Justice, and Trusts & Wills. She received her A.B. from Brown University, and her J.D. from Yale Law School, where she served as Note Topics Editor of the Yale Law Journal. Professor Hernández is an internationally recognized comparative race law expert and Fulbright Scholar who has visited at the Université Paris Ouest Nanterre La Défense, in Paris and the University of the West Indies Law School, in Trinidad. She has previously served as a Law and Public Policy Affairs Fellow at Princeton University, a Faculty Fellow at the Institute for Research on Women at Rutgers University; a Faculty Fellow at the Fred T. Korematsu Center for Law and Equality, and as a Scholar in Residence at the Schomburg Center for Research in Black Culture. Professor Hernández is a Fellow of the American Bar Foundation, the American Law Institute, and the Academia Puertorriqueña de Jurisprudencia y Legislación. Hispanic Business Magazine selected her as one of its annual 100 Most Influential Hispanics.

Professor Hernández serves on the editorial boards of the Revista Brasileira de Direito e Justiça/Brazilian Journal of Law and Justice, and the Latino Studies Journal published by Palgrave-Macmillian Press. Professor Hernández's scholarly interest is in the study of comparative race relations and anti-discrimination law, and her work in that area has been published in numerous university law reviews like Cornell, Harvard, N.Y.U., U.C. Berkeley, Yale and in news outlets like the New York Times, among other publications including her books *Racial Subordination in Latin America: The Role of the State, Customary Law and the New Civil Rights Response* (including Spanish and Portuguese translation editions), *Brill Research Perspectives in Comparative Law: Racial Discrimination,* and *Multiracials and Civil Rights: Mixed-Race Stories of Discrimination.* Her most recent book from Beacon Press is *Racial Innocence: Unmasking Latino Anti-Black Bias and The Struggle for Equality*.

Dr. Maurizio Porfiri, PhD is an Institute Professor at New York University Tandon School of Engineering, with tenured appointments in the Departments of Mechanical and Aerospace Engineering and Biomedical Engineering, and the Director of the Center for Urban Science and Progress of New York University. He received M.Sc. and Ph.D. degrees in Engineering Mechanics from Virginia Tech, in 2000 and 2006; a "Laurea" in Electrical Engineering (with honors) and a Ph.D. in Theoretical and Applied Mechanics from Sapienza University of Rome and the University of Toulon (dual degree program), in 2001 and 2005, respectively. He has been

on the faculty of the Mechanical and Aerospace Engineering Department since 2006, when he founded the Dynamical Systems Laboratory. Dr. Porfiri is a Fellow of the American Society of Mechanical Engineers (ASME) and the Institute of Electrical and Electronic Engineers (IEEE). He has served in the Editorial Board of ASME Journal of Dynamics systems, Measurements and Control, ASME Journal of Vibrations and Acoustics, Flow: Applications of Fluid Mechanics, IEEE Control Systems Letters, IEEE Transactions on Circuits and Systems I, IEEE Transactions on Network Science and Engineering, Mathematics in Engineering, and Mechatronics.

Dr. Porfiri is engaged in conducting and supervising research on complex systems, with applications from mechanics to behavior, public health, and robotics. He is the author of more than 400 journal publications, including papers in Nature, Nature Cities, Nature Human Behaviour, Proceedings of the National Academy of Sciences, Physical Review Letters, PNAS Nexus, and eLife. He was included in the "Brilliant 10" list of Popular Science in 2010 and his research featured in major media outlets such as CNN, NPR, Scientific American, and Discovery Channel. Significant recognitions include National Science Foundation CAREER award; invitations to the Frontiers of Engineering Symposium and the Japan-America Frontiers of Engineering Symposium organized by National Academy of Engineering; invitations to the third and fourth World Laureate Forums; the Outstanding Young Alumnus award by the college of Engineering of Virginia Tech; the ASME Gary Anderson Early Achievement Award; the ASME DSCD Young Investigator Award; the ASME C.D. Mote, Jr. Early Career Award; the Research Excellence Award from New York University Tandon School of Engineering; and the Aspen Italia Award for Scientific Research and Cooperation.

Dr. Norbert Tavares, PhD is a Program Manager at the Chan Zuckerberg Initiative. Previously, Dr. Tavares was a AAAS Science & Technology Policy Fellow and Program Manager at the National Cancer Institute, at the National Institutes of Health in the USA. In his former and current roles, he identifies and supports emerging and innovative solutions to biomedical research problems and develops and manages interdisciplinary grant programs. Specifically, he supports the development and dissemination of single-cell and synthetic biology methods, technologies, and resources and its application to clarify the underlying mechanisms of disease. He is particularly interested in increasing the participation of individuals from understudied ancestries in biomedical research thereby improving the racial, ethnic, ancestral, and geographic diversity of openly available omics data. Dr. Tavares is a microbiologist by training, and he completed his Ph.D. at the University of Georgia, investigating the bacterial biosynthesis of coenzyme B12 and his postdoctoral work on Sirtuin-dependent post-translational modification. Prior to his graduate work, he worked on large-scale protein drug production at a biotech startup and in procurement for ESPN.

Session II: Interrogating the Policy Environment for International Engagement

Dr. Salim S. Abdool Karim, FRS, is a clinical infectious diseases epidemiologist widely recognized for scientific contributions in HIV and Covid-19. He is the Director of the Centre for the AIDS Programme of Research in South Africa (CAPRISA), Durban, and CAPRISA

Professor of Global Health at Columbia University, New York. He serves as the Special Advisor on pandemics to the Director-General of the World Health Organisation.

He is an Adjunct Professor of Immunology and Infectious Diseases at Harvard University, Boston, Adjunct Professor of Medicine at Cornell University, New York, and Pro Vice-Chancellor (Research) at the University of KwaZulu-Natal, Durban. He previously served as President of the South African Medical Research Council and as the Chair of the South African Ministerial Advisory Committee on COVID-19. In addition to his >500 peer-reviewed journal publications, he co-editor of textbooks on epidemiology (Oxford University Press), HIV/AIDS (Cambridge University Press) and clinical trials (Springer). He is the author of "Standing up for Science: A Voice of Reason" (Pan MacMillan). He serves on the Boards of the *New England Journal of Medicine, Lancet* Global Health and *Lancet* HIV. He is a member of the WHO Science Council and the WHO TB-HIV Task Force. He is a Vice-President of the International Science Council. He is a member of the Association of American Physicians. As an anti-apartheid activist, he participated in the launch of the United Democratic Front in South Africa in 1983. In 1984, he played a key role in creating and building an anti-apartheid organization for doctors and dentists, known as NAMDA – National Medical and Dental Association. He currently serves as an Advisory Board member of Physicians for Human Rights.

He is the recipient of the 2020 John Maddox prize (jointly with Dr Anthony Fauci) for standing up for science in the Covid-19 pandemic. His awards for scientific contributions in HIV include the African Union's "Kwame Nkrumah Award" which is Africa's most prestigious scientific award, Lasker-Bloomberg Public Service Award, Canada's Gairdner Global Health Award, Japan's Hideyo Noguchi Prize, Vietnam's VinFuture Special Prize and Kuwait's Al-Sumait Prize. He is a Fellow of The World Academy of Science, African Academy of Sciences, Academy of Science in South Africa and the American Academy of Microbiology.

He is member of the US National Academy of Medicine. He is a Fellow of the Royal Society (FRS).

Dr. Tonija Hope, PhD is the Director of the Ralph J. Bunche International Affairs Center (RBC) at Howard University (HU). In this capacity, Dr. Hope oversees the Center's strategic vision, as well as its wide-ranging international engagements including study abroad, international partnership development, global programming, and the management of the Patricia Roberts Harris Fellowship for HU students. She also supports several flagship fellowship programs for the U.S. Department of State, the US Agency for International Development (USAID), and the US Department of Agriculture (USDA), which are aimed at cultivating pipelines for diverse talent in foreign affairs careers. After receiving her BA in Latin American Studies from Macalester College, she went on to earn her master's degree in Tourism Administration with a focus on International Education from George Washington University and her Ph.D. from Howard University in Higher Education Leadership and Policy Studies.

Dr. Hope worked for several NGOs including Phelps Stokes, where she oversaw a variety of projects focusing on youth leadership development in Afro-descendant communities in Latin America, and the Baoba Fund for Racial Equity, a Brazil-based non-profit, focused on supporting Afro-Brazilian civil society organizations, where she led North American engagement.

Dr. Hope is active in a variety of initiatives to promote racial equity throughout the African Diaspora. She is a member of the US Civil Society Committee for the Joint Action Plan to Eliminate Racial and Ethnic Discrimination (JAPER) and Chair of the US Civil Society Committee for the US-Colombia Action Plan to Promote Racial and Ethnic Equality (CAPREE). She has been active in promoting the UN Decade for People of African Descent through her work at the RBC. Dr. Hope is a native Washingtonian, and the proud daughter of a Liberian mother and an African American father and has two children. She is fluent in Spanish and Portuguese.

Dr. Robert Krueger, PhD is Professor and Department Head, Social Science and Policy Studies, at Worcester Polytechnic Institute. Dr. Krueger is a human geographer whose scholarship and teaching focus on creating sustainable, socially just, improvements to development projects in the global north and south. His work has taken him around the world. He has worked in countries in North America, Europe, Asia, and Africa, on issues of economic development and institutional change. His scholarship and teaching challenge conventional notions of economic development, economy-environment relationships, and social change. In his book, Adventures in Sustainable Urbanism (2019, SUNY Press, Krueger, Freytag and Mössner (eds)), Krueger challenges students of sustainable urbanism to visualize new sustainable futures, beyond green technology, energy efficiency, and smart growth. In doing so, his work provides a clear and powerful entry point for reimagining social change.

In addition, to his books, Krueger is the author of dozens of publications on issues of urban sustainability, cities, development, and economy-environment relations. Krueger was also a chapter co-author of the Cities chapter in the Second State of the Carbon Cycle Report (SOCCR). Krueger has guest edited several journal issues, including a recent one on diverse economies for the journal Local Environment. Krueger's research has been funded by the US Environmental Protection Agency, the Fonds National de la Researche, Luxembourg, the Regional Studies Association, and the Engineering Information Foundation.

Krueger has been at WPI for nearly 20 years. The first half of this career were spent working on community-based research projects in Worcester, Massachusetts and around the world. He was director of the Worcester Community Project Center and has advised award winning projects in Thailand and Namibia. Most recently, Krueger started the Development Design Lab (DDL) to support his work in Ghana and West Africa. The DDL has a wide-ranging remit that includes development, environmental, and education concerns in the Eastern Region of Ghana, in particular, and West Africa, in general. The goal of the Lab is to work with individuals and communities to overcome sustainable livelihood challenges.

NATIONAL ACADEMIES *Sciences Engineering Medicine*

Dr. Sekazi K. Mtingwa, PhD is an Administrative Judge with the U.S. Nuclear Regulatory Commission and Principal Partner of TriSEED Consultants, LLC, in North Carolina. He played an important role in the design and construction of accelerator systems at Fermilab used to discover the top quark. With James Bjorken, he developed the theory of intrabeam scattering, which has played a critical role in the development of intense particle accelerators, including synchrotron light sources, which are transforming many scientific and engineering disciplines. Mtingwa co-founded approximately 30 domestic and international organizations and programs, including the National Society of Black Physicists, African Physical Society, African Light Source Foundation, African Laser Centre, Mwalimu Julius K. Nyerere University of Agriculture and Technology in Tanzania, and *LAAAMP*, for which he is Chair of the Executive Committee and which promotes the utilization of synchrotron light sources and crystallography in developing countries. He recently served as Chair of the IUPAP C13 Commission on Physics for Development and is currently Chair of the Interdisciplinary Consortium for Research and Educational Access in Science and Engineering (InCREASE), which connects faculty and students from Minority-Serving Institutions to research and educational opportunities at the national laboratories.

Mtingwa is recipient of the American Association for the Advancement of Science's 2023 Philip Hauge Abelson Prize for his many contributions to scientific research and policy, the inaugural International Science Council's 2021Policy-for-Science Award, the American Physical Society's 2017 Robert R. Wilson Prize for Outstanding Achievement in the Physics of Particle Accelerators, the 2017 U.S. Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring, and the American Nuclear Society's 2015 Distinguished Service Award for his pivotal role in leading a study that rejuvenated U.S. university nuclear science and engineering programs and saving a number of them from closing. Most recently, Mtingwa has been promoting the establishment of synchrotron light sources and crystallography research and training hubs in Africa, the Greater Caribbean, and Central Asia. He received Bachelor's degrees in physics and mathematics from MIT, and Master's and Ph.D. degrees in theoretical high energy physics from Princeton University.

Dr. Mahamadou Lamine Sagna is an Associate Professor of Sociology at Worcester Polytechnic Institute (WPI), recognized for his extensive expertise in sociology, anthropology, and economics. His impressive academic credentials include a Ph.D. in sociology, a Master's degree in Anthropology with a specialization in Ethnic-psychiatry, and an MBA. Throughout his illustrious career, Dr. Sagna has shown a steadfast commitment to advancing knowledge and tackling critical social and economic issues. His diverse teaching portfolio includes courses such as Cultural Forms in Political Spheres, Money and Religion, African Political and Economic Culture, African Development and Globalization, Ethics and AI, and Social Justice and Engineering. Renowned for his ability to foster critical thinking among students, Dr. Sagna's teaching style combines deep subject matter expertise with clear communication.

In the realm of research, Dr. Sagna's interests are broad and impactful, focusing on the sociology of poverty, monetary practices, economic innovation, and social risks. His seminal work,

"Money and Society," provides invaluable insights into how individuals, particularly those from sub-Saharan and North Africa, navigate financial uncertainties using cultural and social capital. Additionally, his book "Cornel West Matters" examines the thoughts of American Philosopher Cornel West, connecting them with contemporary ideas, African and African American history, pragmatism, and Continental philosophy. Before joining WPI, he contributed significantly to academia at various esteemed institutions, including the American University of Nigeria, Schiller International University, and Princeton University. He also served as a Visiting Professor at the University of Maryland - College Park.

Beyond academia, Dr. Sagna actively participates in multidisciplinary seminars and collaborates with fellow scholars to address pressing societal challenges. He is the founder and executive director of "Re-Source/Sununet," a Senegalese Diaspora organization dedicated to fostering transnational networks and contributing to Senegal's political, social, and economic development. Through this platform, he leverages his expertise to catalyze collaboration and sustainable development efforts. Additionally, Dr. Sagna is a polyglot, fluent in French, English, Mandingo, and Wolof, and proficient in "Creole" Portuguese and Spanish. This linguistic versatility allows him to effectively engage with diverse communities and bridge cultural divides.

In summary, Dr. Sagna's interdisciplinary approach, intellectual rigor, and unwavering commitment to social justice position him as a formidable force for positive change. His transformative work exemplifies the profound potential of academia to address complex societal challenges and pave the way for a more equitable and just world for all.

Session III: Engagement Through HBCUs and Societies in the U.S.

Dr. Karena Gill, PhD is a Presidential Postdoctoral Scholar at Arizona State University and was a Visiting Assistant Professor of Earth and Environmental Geoscience at Washington & Lee University in Lexington, Virginia. Dr. Gill also serves with the National Association of Black Geoscientists (NABG). At ASU, she collaborates with interdisciplinary teams to integrate findings from Mars missions like Perseverance, combining planetary geology with astrobiology. Her expertise in fluid inclusions and sedimentology supports efforts to identify viable biosignatures within sulfate deposits, providing insights that could inform the future exploration of Mars and other extraterrestrial environments. At Washington & Lee, Dr. Gill was dedicated to shaping the next generation of geoscientists through engaging and impactful teaching.

Dr. Gill began her association with the NABG in 2016 as a student member, and she was elected to the executive board in 2022 as assistant secretary. In her role as the 2022-23 conference chair, she works with the various committees that support the event and is involved in all aspects of the conference, including logistical planning, program development, speaker management and attendee engagement. The NABG was founded in 1981 with the purpose of building community – enabling black geoscientists to connect, communicate, and network with other minority professionals. Since then, the organization has evolved into a hub that attracts geoscientists from

diverse fields, offering them opportunities to partake in career and educational endeavors, present cutting-edge research, build connections, advance professionally, and provide mentorship to aspiring black geoscientists.

Dr. Gill arrived at W&L after serving as a postdoctoral research collaborator for Mars 2020 with NASA at West Virginia University. She earned a bachelor's degree from Colorado School of Mines, a master's degree from Auburn University and a doctorate from the University of Alabama.

Dr. Ariangela J. Kozik, PhD is an Assistant Professor in the Departments of Molecular, Cellular, and Developmental Biology, and Pulmonary and Critical Care Medicine at the University of Michigan. She leads a laboratory focused on the respiratory microbiome, utilizing multi-omic strategies to explore interactions between hosts and microbes, and microbe-microbe communication in the human airway to advance understanding of chronic respiratory diseases. Dr. Kozik is a strong proponent of advancing equity in STEMM (Science, Technology, Engineering, Mathematics, and Medicine) and has contributed both scholarship and spearheaded several initiatives aimed at transforming research systems for future generations. Her contributions have attracted both national and international recognition. She co-founded the Black Microbiologists Association (BMA, initially known as Black In Microbiology), where she currently serves as Vice President. The organization has been featured in prominent publications such as The New York Times, The Scientist, Science, and Nature, and works to promote the professional growth and career development of Black microbiologists across the United States and worldwide. She also serves on the Health Equity and Diversity Committee of the American Thoracic Society, and on the advisory board of 2030 STEM-a nonprofit dedicated to sustainable change to create a STEM ecosystem for all. Dr. Kozik believes that increasing public engagement with science and the scientific process is critical to a just society, and her science communication outreach efforts have included audiences ranging from elementary school students to adults. Dr. Kozik is committed to fostering a supportive environment for the next generation of research scientists and public awareness of the importance of science in the broader community.

Dr. Stephen Roberson, PhD has nearly two decades of experience using scientific principles and ingenuity to solve challenging problems for the United States. He graduated with his Ph.D. in physics from Florida A&M University in 2006. After graduation, he was awarded a National Research Council Postdoctoral Research Associateship at the Army Research Laboratory at Aberdeen Proving Grounds, MD. He worked for nine years as a contractor with the Army Research Laboratory where he did several experiments using femtosecond laser systems for molecular spectroscopy, laser-material interaction studies, etc. After leaving ARL, he went to work for five years as a contractor at the U.S. Army Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance and Reconnaissance (C5ISR) Center at Aberdeen Proving Grounds, MD where he constructed another ultrafast laser laboratory and performed laser-material interaction research on materials of interest as well as other projects. He's currently working as a contractor for the Peraton Corporation at the National Geospatial

Intelligence Agency in Springfield, Virginia as an image scientist working on developing software tools to analyze synthetic aperture radar images.

In addition to his professional achievements, Dr. Roberson has worked with a number of organizations devoted to increasing participation at all levels within science technology engineering and math (STEM) professions. Dr. Roberson is a life member and the current president of the National Society of Black Physicists. Before serving as president of the organization, he served on the executive board of the National Society of Black Physicists for eight years, first as the Administrative Executive Officer for seven years and the President-Elect for the past year. He also serves on the advisory council for the Math and Science for Minority Students (MS)2 summer program at Phillips Academy in Andover, Massachusetts. As a two-time graduate of an historically Black university, Dr. Roberson has dedicated many volunteer hours to HBCUs to advocate for their continued growth and success. He is a life member of the Florida A&M University National Alumni Association and served as the former chair of the Media and Technology Committee of that organization for eight years. He also served as the Florida A&M Representative to the Washington DC HBCU Alliance for four years.

Dr. Ethell Vereen, PhD is an Assistant Professor of Biology at Morehouse College with a STEM Education focus on diversity and inclusion in natural resources, Pan-African pedagogy, and Virtual Reality (VR) for teaching, learning and assessment; and a research focus on water quality, microbial ecology, environmental health and justice, and sustainability. Dr. Vereen earned a BS in Biology from SC State University before earning his MPH and PhD both from the University of Georgia focusing on Environmental Health and Ecology respectively. He completed postdoctoral training at Emory University as an IRACDA fellow in the Fellowship in Research and Science Teaching (FIRST) program. Dr. Vereen has been awarded over $1 million in research grants and awards from agencies including but not limited to the National Science Foundation, Department of Education, and the Environmental Protection Agency that has increased the research capacity at Morehouse College and provides additional training opportunities for the College's STEM students. He currently serves on several boards and foundations including the board for the Environmental Leadership Program, NSF NEON Technical Working Group, the Odum School of Ecology at UGA Alumni Board of Directors, and the SC State University Foundation. His exemplary contributions in the areas of undergraduate education, student learning and campus life have also been noted as he was awarded the 2019 Vulcan Teaching Excellence Award and recently recognized as one of 1000 Inspiring Black Scientists in America, and appointed as a member of the United States National Committee for the International Union of Biological Sciences.

Session IV: Mechanisms of Engagement in Science Diplomacy

Dr. Maria N. Miriti, PhD earned a BA in Ecology and Evolution from Northwestern University and a PhD in Biological Sciences from the University of Illinois at Chicago. After a 2.5-year postdoctoral position at Stony Brook University, she is currently a Professor of Evolution, Ecology and Organismal Biology at The Ohio State University (OSU). Her research program

has two threads: empirical and theoretical studies of plant populations, and study of (and advocacy for) efforts to increase diversity and equity in STEM. The latter is integrated in her research through recruiting, mentoring, and outreach, and in the work she leads to address chronic underrepresentation of Black, Indigenous, and People of Color (BIPOC) in STEM.

Dr. Miriti's plant research is centered in the observation that plant population growth and community dynamics are inherently linked via feedback among the spatial distribution of plants, the demographic behavior of plant populations, and local community structure. The outcome of these interactions determines WHAT plants respond to and contributes to resource heterogeneity via species-specific patterns of consumption and contributions to soil resources, and physical and physiological traits that modify the microclimate under individual plant canopies. These dynamics reveal important mechanisms of biodiversity maintenance and community stability. Building from this research foundation, Dr. Miriti examines, a) spatial structure and population dynamics, which in turn inform b) dispersal and population dynamics, and invasive species dynamics.

Within the academy, recruitment and retention of BIPOC in ecology is extremely low. Dr. Miriti's scholarship targets STEM peers and educators, emphasizing cultural biases, advocating intersectionality, and promoting institutional change. She also advocates for greater ecological engagement with environmental justice (EJ) research to improve environmental disparities and increase the visibility of ecology among nonpractitioners. Her research aims to develop inclusive, culturally sensitive curriculum to improve retention of BIPOC in ecology and environmental biology. Her commitment to diversity has been formally recognized with awards from OSU's College of Arts and Sciences and the Ecological Society of America.

Dr. Nomakwezi Mzilikazi, PhD is Deputy Vice-Chancellor for Research, Innovation, and Strategic Partnerships at Rhodes University. Her position is a key role in the University and provides critical leadership to the institution and support to the Vice-Chancellor on academic research and innovation matters. She is responsible for providing strategic and intellectual leadership on all aspects of research and innovation, including overall responsibility for ensuring the effective, efficient and sustainable pursuit of the University's goals in the areas of research and innovation as a center of educational excellence. Central to the role is advancing and growing the institutional research, innovation, and creative knowledge portfolio in both scope and quality, and enhancing overall research and postgraduate performance. Dr. Mzilikazi is responsible for providing leadership in the development and nurturing of strategic research partnerships, collaboration and strong networks at national, continental and international levels to enhance the university's research and innovation endeavors.

Dr. Mzilikazi qualified with a PhD in Zoology 19 years ago, with a specialization in small mammal physiology. Her interests are the interface between animal form and function and how these enable or constrain animals in their ability to deal with environmental challenges, especially in the face of global climate change. She is also interested in understanding how physiologies allow animals to persist from one generation to the next, over millennial timescales.

Her other interest and passion is in Human capacity development, a necessary condition for responding to the expectations of the South African National Development Plan (Vision 2030) and her nation's ambition of being a knowledge driven economy. Her previous position as Director at the National Research Foundation required strategic and analytical thinking for purposes of facilitating and encouraging research participation across the National System of Innovation, analyzing research granting trends and execution of necessary interventions. Dr. Mzilikazi's most recent position as the Director of Research Support and Management at the Nelson Mandela University was aimed at supporting established researchers, and other strategic interventions to unlock the research potential in her institution, in service of society.

Dr. Tashiana Osborne, PhD works with teams in the United States, Sub-Saharan Africa, and elsewhere to incorporate actions that build resilience to climate change and its impacts, and reduce greenhouse gas emissions. She is a Climate Change Advisor with the U.S. Agency for International Development (USAID) Africa Bureau, via ZemiTek, LLC. Her efforts contribute to sustainable development within environment, health, education, agriculture, governance, and other key sectors.

Dr. Osborne completed her Bachelor of Science with a double major in meteorology and hydrology and a mass communications minor at Saint Cloud State University. She earned her Master of Science and Ph.D. at Scripps Institution of Oceanography at the University of California San Diego. For her doctoral work, she developed an algorithm to detect extreme variations in radar-derived rain-snow transition levels during atmospheric river storms. During her Johns Hopkins University postdoctoral fellowship, she contributed to a climate-informed early warning system for malaria in the Amazon. As a passion project, she served as co-lead for the Coastal Ocean Environment Summer School in Nigeria and Ghana, which achieved endorsement as part of the United Nations Decade of Ocean Science for Sustainable Development.

To continue in science-to-action and sustainable development, Dr. Osborne completed a Science and Technology Policy Fellowship with USAID through the American Association for the Advancement of Science. She has developed a specialty in global change and human health, involving impacts of variations or extremes in air temperature, precipitation, and water availability on climate-sensitive health threats, including malaria, heat related illnesses, and more.

As a Climate Advisor, she contributes her scientific background and experiences communicating science to strategic thinking and thought leadership towards a resilient, equitable, reduced emissions future we need and want.

Dr. Vaughan Turekian, PhD is the executive director of the National Academies' Policy and Global Affairs Division (PGA). Prior to joining the Academies, he served as the fifth science and technology adviser to the U.S. secretary of state. In this capacity, he advised the secretary of state and other senior State Department officials on emerging science, technology, and health

matters affecting the foreign policy of the United States. He is currently the co-chair of the 10 member group of advisers to the U.N. secretary general on the role of science, technology, and innovation to advance the achievement of the Sustainable Development Goals. He has affiliations with Georgetown University School of Foreign Service and the University College London.

Previously, Turekian was chief international officer for the American Association for the Advancement of Science and the founding director of its Center for Science Diplomacy. In this capacity, he worked to build bridges between nations based on shared scientific goals, placing special emphasis on regions where traditional political relationships are strained or do not exist. In addition, Turekian worked at the State Department as a special assistant and adviser to the undersecretary for global affairs (2002 - 2006).

Turekian holds a B.S. in geology and geophysics and international studies from Yale University and an M.S. and Ph.D. from the University of Virginia, where he focused on the transport and chemistry of atmospheric aerosols in marine environments.

Session V: Leveraging the Existing Infrastructure of Global Academies and Professional Societies

Dr. Kofi Akamani, PhD is a Professor of Forest Recreation and Conservation Social Science and Director of Graduate Study in the School of Forestry and Horticulture at Southern Illinois University Carbondale. His multidisciplinary academic training is in the fields of development planning and the human dimensions of natural resource management. Dr. Akamani received his Ph.D. in Natural Resource Sciences from the University of Idaho. Prior to that, he had obtained an MPhil in Culture, the Environment and Sustainability from the University of Oslo, as well as a BSc. degree in planning from the Kwame Nkrumah University of Science and Technology in Ghana. His teaching and research agenda are aimed at gaining a theoretical understanding of human-environment interactions across multiple scales and also informing policies that promote human well-being and ecosystem health across the rural-urban continuum. He has extensive research experience on transitions in the governance of forests, water resources and agricultural landscapes and their implications for the resilience of rural resource-dependent communities in Ghana, the US and elsewhere.

Dr. Akamani has had the opportunity of collaborating with leading scientists across the US and internationally on several high-profile scientific assessments. He is an author of the ecosystems chapter of the Fifth National Climate Assessment (NCA5), the US Government's premier report on climate change that was published in 2023. He also recently completed his role as lead author of the nexus assessment report of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES). Dr. Akamani is currently involved in three scientific assessments: the US Government's First National Nature Assessment (NNA1); the United Nations Environment Programme (UNEP) Global Environment Outlook 7 report; and the International Union of Forest Research Organizations (IUFRO) Forests for Social and Economic

Resilience assessment. Dr. Akamani is a member of several scientific organizations, including the American Association for the Advancement of Science. He was recently appointed by the National Academies of Sciences, Engineering, and Medicine as a member of the US National Committee for the International Union of Biological Sciences. Dr. Akamani is a recipient of the 2016 Early Career Faculty Excellence Award from the College of Agriculture at Southern Illinois University, as well as the 2023 International Alumni Achievement Award from the University of Idaho's College of Natural Resources.

Dr. John G. Hildebrand, PhD is the International Secretary of the NAS and Regents Professor Emeritus of Neuroscience at the University of Arizona in Tucson. His research fields are insect neurobiology and behavior, olfactory neuroscience, chemical ecology, and the biology of arthropod vectors of pathogens. He earned his B.A. (biology) at Harvard University and Ph.D. (biochemistry) at the Rockefeller University and after 16 years of faculty service at Harvard and Columbia Universities, moved to Arizona in 1985 as founding head (1985-2013) of the Division of Neurobiology, which became the Department of Neuroscience in 2009. Among his interests and areas of active engagement are science policy and diplomacy, K-16 education, and diversity, equity, access, and inclusion in STEMM. A past president of the Association for Chemoreception Sciences, International Society of Chemical Ecology, and International Society for Neuroethology, he is a member of the National Academy of Sciences, American Academy of Arts and Sciences, American Philosophical Society, Brazilian Academy of Sciences, German National Academy of Sciences 'Leopoldina', Norwegian Academy of Science and Letters, Royal Norwegian Society of Sciences and Letters, and The World Academy of Sciences; Honorary Fellow of the Royal Entomological Society (UK); and Fellow of the American Association for the Advancement of Science (AAAS), the Entomological Society of America, the International Society for Neuroethology, and the International Science Council.

Dr. Malik Maaza, PhD, a native of Algeria and a permanent resident of South Africa since 1996, is a joint staff member of iThemba LABS, a national facility of the National Research Foundation (NRF) of South Africa and the University of South Africa (UNISA).

He holds the prestigious United Nations Educational, Scientific and Cultural Organisation-UNISA Africa Chair in Nanoscience and Nanotechnology. He is a pioneer in South Africa of the field of Nanoscience and Nanotechnology. His research work has been cited more than 12000 with a Hindex of 65 & i-10 of 265.

Maaza is not only a well-accomplished and globally acknowledged authority in his field, but he is also a passionate educator who has graduated no less than 80 Master of Science and Doctor of Philosophy students under his direct supervision.

His work has been recognized worldwide through several awards, including the African Union Kwame Nkrumah Award in Scientific Excellence, which he received on 28 January 2018 in recognition of his efforts as the pioneer and architect of Nanotechnology on the African

continent. Likewise, he received the Galileo Galilei award from the International Commission of Optics.

In November 2018, he received the coveted Jose Vasconcelos World Award of Education in Hong Kong, which is granted by the World Cultural Council in recognition of deserving individuals who are renowned educators and experts in the field of education and research, and to legislators of education policies who have brought about significant influence in enriching the culture of mankind.

Since his return to the African continent, where he has chosen South Africa as his adoptive home, Maaza has contributed in various ways to strengthening the scientific landscapes both at the African and South African levels as well as their global visibility.

Additionally, Prof. M. Maaza is a fellow of several academies, including the Royal Society of Chemistry-London, the National Academy of Sciences of India, the New York Academy of Sciences, the Islamic Academy of Sciences, the European Academy of Sciences and the American Association for Advancement of Science.

Prof. Ratemo Michieka is a renowned scholar and recipient of many awards both locally and internationally for his archetypal services. He is the current chair of Africa Union's African Scientific, Research and Innovation Council (ASRIC). He is also staff member at the University of Nairobi and has specialized in Agriculture (Weed Science) and Environmental Sciences. He has done extensive research in Weed Science, with special emphasis on appropriate management systems, water conservation and food security. His previous studies in testing of herbicides assisted in the recommendations of various weed control methods to farmers in East Africa and beyond. Similarly, he is a strong proponent of using safe pest control management systems to avoid environmental pollution.

Michieka, who is a member of several national and international organizations, holds vast knowledge of African countries and was involved in the renaissance of the Inter University Council of East Africa, the establishment of the African Institute for Capacity Development (AICAD) and has worked as an external examiner in the region. He was the Founding Vice Chancellor of Jomo Kenyatta University of Agriculture and Technology (JKUAT) where he served for 13 years. He was thereafter appointed the Director General of the National Environment Management Authority (NEMA), where he articulated the dangers of environmental pollution and natural resources degradation. He was responsible for the production of Kenya's first report on the State of the Environment. A strong advocate of Kenya's environmental conservation and food security ideals, Michieka has, as a scholar, made considerable impression to young scientists in the promotion of science and technology in East Africa. He has published extensively in local and international journals, written books; one touching on the taxonomy of East African Weeds which is translated in Swahili, his autobiography, a monograph and edited the annual proceedings of the East African Weed Society in the 80's and the 90's.

Prof Ratemo Michieka holds a PhD in Weed Science and Environment from Rutgers University, USA, where he also obtained his MA and BSc.

Dr. Dorothy Ngila, PhD is a science partnerships, research and programme management leader, with a global footprint. She advances her career at South Africa's National Research Foundation (NRF) as a Director, Knowledge and Institutional Networks in the Business Advancement division of the NRF in the Business Advancement division. In this role, she coordinates the NRF's contribution to the Science Granting Councils Initiative (SGCI) in sub-Saharan Africa and advances the NRF's engagement in knowledge and institutional networks. She is interested in institutional capacity strengthening in Africa (with a focus on scientific institutions), how scientific boundary organisations interface science and policy (with a focus on academies of science and public funding agencies) and integrating gender and intersectionality in science (with a focus on women). Dr Ngila has extensive experience providing strategic advice, secretariat support, fund-raising and managing the implementation of the mandates of academies of science and research councils, as well as positioning, building and managing strategic bilateral and multilateral relationships. Dr Ngila is also a seasoned programme and research management leader. Examples of large and complex research programmes she has co-led are the Covid-19 Africa Rapid Grant Fund (CARGF), the O.R. Tambo Africa Research Chairs Initiative (ORTARChI), and the u'GOOD research programme on young people and relational wellbeing in the Global South. Dr Ngila serves as a Vice-Chair of the Advisory Board of the Alliance for African Partnership, member of the Board of Chemichemi Foundation, and on the GRC's Executive Support Group. She has previously served as both a co-chair and member of the GRC Equality, Diversity, and Inclusion (EDI) Working Group, and is a past chair of the Organization for Women in Science for the Developing World (OWSD) South African National Chapter. Dr Ngila holds a PhD (Science and Technology Studies) from Stellenbosch University in South Africa. She also holds several executive training certificates with reputable institutions locally and abroad. Her career and life motto is as follows: "I will not go where the path may lead, I will go instead where there is no path and I will leave a trail." (paraphrased quote, Ralph Waldo Emerson).

Dr. Mark Richards, PhD is currently a Senior Lecturer and Head of Outreach within the Physics department at Imperial College London. He is a member of Imperial's Equality Diversity & Inclusion Forum and also sits on the Board of Trustees for the British Foundation for University of the West Indies (BFUWI). Through outreach, Richards has fostered strong links with external organisations such as NASA/JPL, the US Embassy, and community-based charities such as Generating Genius, CADSTI, Afro-Caribbean Diversity, and the Amos Bursary to name a few. Mark has also contributed to several media related projects through organisations such as the Institute of Physics, BBC, British Council, British Library, plus other groups across London and the UK.

Mark holds a BSc in Chemistry (Manchester), and a PhD in Atmospheric Physics (Imperial). He has a track record of cutting across traditional academic boundaries to explore multidisciplinary

research, STEM education and outreach. Richards has also spent several years in industry across different sectors, including instrumentation, environmental science, ITC, and Finance. As a Post-Doctoral Researcher, he managed a Technology Transfer programme within the High Energy Physics Group and co-founded Duvas Technologies Ltd - an Imperial College spin-out company that specializes in wireless environmental monitoring networks, where he served as Business Development Director. Dr. Richards actively works to encourage students from underrepresented groups to consider further study and eventual careers in STEM (science, technology, engineering, and maths), often through highlighting achievements of other role-models in these fields.

Session VI: Scoping a Framework for the Sustained Inclusion of Black Researchers in the Global Scientific Enterprise

Dr. Gillian Bowser, PhD is an associate professor in the Department of Ecosystem Science and Sustainability at Colorado State University. Her primary research areas are environmental governance and diplomacy; pollinators as ecological indicators of change, applications of participatory datasets on environmental decision making and protected area management; and engaging diverse voices in scientific inquiry. She also works on international environmental assessments such as the United Nation's Global Environmental Outlook Report (GEO6 and GEO7), The US National Climate Assessment (NCA5) and the first US National Nature Assessment. Dr Bowser is a senior fellow with the American Association of the Advancement of Science and serves on the editorial board of two major publications in environmental sciences. She also sits on the board for Earthwatch Organization and The Institute for Parks and Protected Areas. She serves on the Harriet Tubman Legacy Society with the National Museum of African American History and Culture.

Dr. Bowser grew up in Brooklyn New York, where she attended New York City's LaGuardia School of Music & the Arts, majoring in art. While attending Northwestern University in Chicago she discovered her love for biology, from which she chartered a professional journey that merges her passions for the arts and sciences. She started her career with the National Park Service at Yellowstone National Park and served in 8 different national parks as a wildlife ecologist for over 20 plus years and completed her PhD work with Badlands National Park on genetics and population movement of prairie dogs. Dr. Bowser moved to Colorado State University as a research scientist, eventually transitioning to a tenured position in the department of Ecosystem Science and Sustainability while successfully launching several million dollars in projects funded by the National Science Foundation on diversifying the sciences. She was an AAAS Science, Technology and Diplomacy fellow with the US Department of State working on fishery treaties and has attended international environmental negotiations with the UN Framework Convention on Climate Change as a civil society observer with a focus on gender equity. Dr. Bowser continues to blend her background in both science and art and has conducted two solo art shows on ceramic arts and creates art to educate the public on the importance of pollinators and biodiversity.

NATIONAL ACADEMIES *Sciences Engineering Medicine*

Dr. Sekazi K. Mtingwa, PhD is an Administrative Judge with the U.S. Nuclear Regulatory Commission and Principal Partner of TriSEED Consultants, LLC, in North Carolina. He played an important role in the design and construction of accelerator systems at Fermilab used to discover the top quark. With James Bjorken, he developed the theory of intrabeam scattering, which has played a critical role in the development of intense particle accelerators, including synchrotron light sources, which are transforming many scientific and engineering disciplines. Mtingwa co-founded approximately 30 domestic and international organizations and programs, including the National Society of Black Physicists, African Physical Society, African Light Source Foundation, African Laser Centre, Mwalimu Julius K. Nyerere University of Agriculture and Technology in Tanzania, and *LAAAMP*, for which he is Chair of the Executive Committee and which promotes the utilization of synchrotron light sources and crystallography in developing countries. He recently served as Chair of the IUPAP C13 Commission on Physics for Development and is currently Chair of the Interdisciplinary Consortium for Research and Educational Access in Science and Engineering (InCREASE), which connects faculty and students from Minority-Serving Institutions to research and educational opportunities at the national laboratories.

Mtingwa is recipient of the American Association for the Advancement of Science's 2023 Philip Hauge Abelson Prize for his many contributions to scientific research and policy, the inaugural International Science Council's 2021Policy-for-Science Award, the American Physical Society's 2017 Robert R. Wilson Prize for Outstanding Achievement in the Physics of Particle Accelerators, the 2017 U.S. Presidential Award for Excellence in Science, Mathematics, and Engineering Mentoring, and the American Nuclear Society's 2015 Distinguished Service Award for his pivotal role in leading a study that rejuvenated U.S. university nuclear science and engineering programs and saving a number of them from closing. Most recently, Mtingwa has been promoting the establishment of synchrotron light sources and crystallography research and training hubs in Africa, the Greater Caribbean, and Central Asia. He received Bachelor's degrees in physics and mathematics from MIT, and Master's and Ph.D. degrees in theoretical high energy physics from Princeton University.

Dr. Mark Richards, PhD is currently a Senior Lecturer and Head of Outreach within the Physics department at Imperial College London. He is a member of Imperial's Equality Diversity & Inclusion Forum and also sits on the Board of Trustees for the British Foundation for University of the West Indies (BFUWI). Through outreach, Richards has fostered strong links with external organisations such as NASA/JPL, the US Embassy, and community-based charities such as Generating Genius, CADSTI, Afro-Caribbean Diversity, and the Amos Bursary to name a few. Mark has also contributed to several media related projects through organisations such as the Institute of Physics, BBC, British Council, British Library, plus other groups across London and the UK.

Mark holds a BSc in Chemistry (Manchester), and a PhD in Atmospheric Physics (Imperial). He has a track record of cutting across traditional academic boundaries to explore multidisciplinary research, STEM education and outreach. Richards has also spent several years in industry across

different sectors, including instrumentation, environmental science, ITC, and Finance. As a Post-Doctoral Researcher, he managed a Technology Transfer programme within the High Energy Physics Group and co-founded Duvas Technologies Ltd - an Imperial College spin-out company that specializes in wireless environmental monitoring networks, where he served as Business Development Director. Dr. Richards actively works to encourage students from underrepresented groups to consider further study and eventual careers in STEM (science, technology, engineering, and maths), often through highlighting achievements of other role-models in these fields.

Dr. Kishana Taylor, PhD is a virologist and new assistant professor at Towson University whose current research focuses on the pandemic potential of arthropod-borne viruses via experimental evolution, disease ecology and molecular epidemiology. She has researched a number of zoonotic pathogens including Jamestown Canyon virus, avian influenza viruses and SARS-CoV-2. Dr. Taylor earned her B.S. in Animal Science from the University of Delaware and, M.S. in Public Health Microbiology and Emerging Infectious Diseases from The George Washington University prior to earning her Ph.D. in Interdisciplinary Biomedical Sciences from The University of Georgia.

In addition to her research interests in emerging zoonotic viruses and how, and to whom, they spread post emergence, Dr. Taylor is interested in effective ways to improve science literacy in and communicate science to the general public. She has communicated the importance of virology, vaccination and broader science literacy to many different audiences ranging from high school and college students to fiction writers and everyday citizens concerned about COVID-19 vaccinations.

Dr. Taylor is a co-founder and president of the Black Microbiologists Association (And Black in Microbiology Week) and is passionate about improving the outlook for scientists from historically excluded groups through tangible solutions to removing systemic barriers in all but, especially academic spaces. A co-recipient of the American Society for Microbiology's William H. Hinton award, which recognizes outstanding contributions and service toward fostering the research training of minorities and increasing diversity in microbiology, her work to promote equity in STEM centers both racial justice and inclusion, as well created spaces where Black scientists and their allies can be in community with and celebrate one another.

Dr. Reynold Verret PhD is the sixth president and second lay leader of Xavier University of Louisiana. Of the 107 historically black colleges and universities (HBCUs) and 262 Catholic colleges and universities in the United States, Xavier is the only Catholic HBCU in the nation.

Prior to acceding to the presidency of Xavier, Dr. Verret has served as provost at Savannah State University and at Wilkes University. As chief academic officer at Savannah, he led the university initiatives to build enrollment, enhance the quality and diversity of academic programs, develop the faculty, promote interdisciplinary efforts especially between the humanities and sciences, and to create cooperative relationships with neighboring institutions and with other partners at the K-

12 and higher education levels.

He has also served as the Dean of Arts and Sciences at University of the Sciences in Philadelphia. As faculty in Chemistry at Tulane University and also at Clark Atlanta University, Dr. Verret took great pleasure and satisfaction in the education of students at the undergraduate and graduate level. For many years, he led the Department of Chemistry as its chair at Clark Atlanta University. During his tenure at Clark, he also joined Morehouse School of Medicine as an adjunct professor of immunology while taking part in a research collaboration with the School of Medicine Immunology and Microbiology faculty.

As a biochemist and immunologist, Dr. Verret studied the functions of immune cells, especially the mechanisms of resistance to the lytic properties of cytotoxic T-lymphocytes. Other areas of interest included fundamental properties of biological membranes and development and identifications of biosensors and biomarkers. He has published over two dozen scientific articles on various biochemical research. Throughout his career, he has dedicated effort to increase the number of students, especially those from underrepresented groups, pursuing degrees in STEM disciplines, encouragement in continuing to advanced study, and mitigating the shortage of qualified STEM teachers.

He has served on many professional organizations and advisory bodies, including those of the National Institutes of Health, the Board of the Pennsylvania Humanities Council, and the Georgia Coastal Indicators Coalition. He has received awards and fellowships for teaching and scholarship.

A Haitian native, Dr. Verret received his undergraduate degree cum laude in biochemistry from Columbia University and a Ph.D. in biochemistry from the Massachusetts Institute of Technology in the laboratory of the late Har Gobind Khorana. Beyond his degrees, he has postdoctoral experiences as a fellow at the Howard Hughes Institute for Immunology at Yale and the Center for Cancer Research at MIT where he completed research regarding immunology.