NATIONAL ACADEMIES Sciences Engineering Medicine

Final Workshop--Building Defense Research Capacity at HBCUs, TCUs, HSIs and ANNHSIs: Wednesday-Thursday, June 28-29, 2023 (Chicago, IL)

Moderator and speaker bios

Wednesday, June 28, 2023

9:00 am – 9:05 am Opening Remarks

Moderator: Oscar Barton, PhD – Morgan State University

Oscar Barton, Jr., PhD, PE is a Professor and Dean of the Morgan State University Clarence M. Mitchell, Jr. School of Engineering. A native of Washington, D.C., he received his B.S. in Mechanical Engineering from Tuskegee (Institute) University, his M.S. in Mechanical Engineering and Ph.D. in Applied Mechanics from Howard University in 1993. Barton joined Morgan Fall 2020, after completing a 6 years at George Mason University and a 22-year career at the US Naval Academy. Dr. Barton's research focuses on the development of approximate closed form solutions for linear self-adjoint systems, those that govern the responses of composite structures, and the analysis of dynamic systems. More recently, he investigated the dynamic response of flexible composite structures subject to periodic and random excitation. He has mentored numerous midshipmen through independent research projects and has directed two Trident Scholars, the Naval Academy's flagship research program. He has published over 60 journal and conference articles on these topics. While at the US Naval Academy and in its 163-year history, Dr. Barton was one of only three African-Americans to obtain the rank of tenured full professor and the first to achieve this milestone in the Division of Engineering and Weapons, Division I. In 2010, he assumed the role of chairman of the mechanical engineering department, responsible for its strategic leadership and planning of its faculty, midshipmen-student body, curriculum and resources. During his time as chair, the department revived and accredited the General Engineering program and created the nuclear engineering program, the first ever offering at the academy. Dr. Barton chaired the largest department in the Division I consisting of 42 civilian and military faculty professionals, and promoted a vibrant research and academic environment in energy and propulsion, nuclear energy, structures and materials, and design. As the founding department chair at Mason, Dr. Barton ushered growth of the department from 3 faculty and 12 students to 17 faculty and 385 undergraduate students and 6 doctoral students as of spring 2020. Under his leadership the undergraduate program received initial EAC-ABET accreditation retroactive to fall of 2015, and was reaccredited to fall 2024, established state-of- the-art teaching and research labs on the Mason's Sci-Tech campus, and authored an interim Ph.D. program which is in its final stages of seeking approval from the State Council of

Higher Education for Virginia, SCHEV. A fellow of ASME, Barton is actively involved in academic innovations and program assessment. He chairs ASME's Committee on Engineering Education, is member of ASME Public Affairs and Outreach Council, and is a member-at-large on the Engineering Accreditation Commission's Executive Committee of ABET, after having served numerous years as a program evaluator and commissioner. He is a registered engineer licensed to practice engineering in the State of Maryland.

9:05 – 10:00 Transitioning from Low to High Research Activity

Moderator:

Tom Tubon, PhD – BioMADE

Thomas Tubon is the Chief Workforce Development Officer for BioMADE. Prior to his appointment with BioMADE, he served as a Professor in the Biotechnology Program at Madison Area Technical College for 13 years. During this time, he led several National Science Foundation Advanced Technological Education initiatives to establish and scale an emerging technology program in Stem Cells and Cell Manufacturing and directed a National Coordination Network in Advanced Manufacturing of Cell and Tissue Products. While at Madison College, Dr. Tubon was responsible for the development of bioscience workforce and strategic implementation of programs for local, regional, and national-level adoption and scale-up. In this role, he has facilitated the creation of a broad network of industry, community, and academic stakeholders designed to foster career pathways in Science, Technology, Engineering, and Mathematics (STEM). Tubon also serves as a mentor with the NSF ATE Mentor Connect and Project Vision Programs. Dr. Tubon held leadership roles with the NSF ATE InnovATEBIO Center for Biotechnology Education, and the NSF Advancing Research Impact in Society (ARIS) Center with a focus on education, workforce development, and strategic partnerships. Dr. Tubon holds a Ph.D. in Molecular Genetics from Stony Brook University and Cold Spring Harbor Laboratory and a BS in Molecular Biology from San Diego State University.

Panelists:

Rosemarie Wesson, PhD
Associate Provost for Research
Grove School of Engineering
The City College of New York

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Dr. Rosemarie D. Wesson recently joined the Grove School of Engineering at The City College of New York as the Associated Dean for Research in August 2015 and brings a broad knowledge of diverse engineering fields to the School. Dr. Wesson has over thirteen years of experience at the National Science Foundation (NSF) in the Directorate for Engineering and excelled as both a Director and Program Director in the Foundation. As Acting Director of the Emerging Frontiers in Research and Innovation (EFRI) Office, Dr. Wesson was a member of the Engineering Leadership Team and led the EFRI office. As a Program Director at NSF she managed both small-business and academic research portfolios focused on energy, nanotechnology, emerging research opportunities and the field of chemical and biological separations. Dr. Wesson received the NSF Director's awards for Collaborative Integration and the Director's Award for Superior Accomplishment. Prior to NSF, Dr. Wesson was a faculty member in the Department of Chemical Engineering at Louisiana State University in Baton Rouge, LA. She has authored or co-authored numerous technical papers in the area of numerical analyses of polymer crystallization kinetics, structure property relationships of crystalline materials, and finite-element analyses of polymeric flows. Wesson was awarded both outstanding teaching and research awards at LSU. In industry Dr. Wesson worked as a Senior Research Leader in the Corporate Materials Science Research and Development Lab of Dow Chemical Company. Dr. Wesson's responsibilities included supervision and leadership in the polymer rheology research arena. She led multiple teams of researchers in bench level, mini-plant, pilot plant and the production facilities resulting in significant cost savings for the Company. Dr. Wesson has also led non-profit research. As a Principal Researcher at the Battelle Memorial Institute she led a team to research and manufacture the Odyssey Atlasphere®, which received an R&D 100 Award for one of the 100 most technologically significant new products of the year. Dr. Wesson is a Fellow in the American Institute of Chemical Engineers (AIChE). She has held numerous leadership positions within AIChE. She recently ended a three-year term on the AIChE Board of Directors and received the 2014 Minority Action Committee (MAC) Eminent Chemical Engineers Award for outstanding contributions to the minority chemical engineering community. She is a member of the American Chemical Society (ACS) and the American Society for Engineering Education (ASEE). Dr. Wesson is also an invited contributing author for the American Society of Engineering Education (ASEE) PRISM magazine. The quarterly Discovery articles highlight timely and relevant engineering discoveries for national and international audiences. Dr. Wesson received her B.S. in Chemical Engineering from The Massachusetts Institute of Technology, and her M.S. and Ph.D., both in Chemical Engineering, from The University of Michigan. Dr. Wesson is a registered Professional Engineer.

Gillian Wilson, PhD
Vice Chancellor for Research, Innovation, And Economic Development

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University of California, Merced

Dr. Wilson Is Vice Chancellor for Research, Innovation, And Economic Development at UC Merced. She previously Served as a Senior Associate Vice Chancellor for Research and Economic Development and as Professor of Physics and Astronomy at UC Riverside. During her tenure at UCR, Dr. Wilson's administrative experience included serving as Interim Deputy Director of the University of California Observatories, UCR Director of the California Institute for Telecommunications and Information Technology, Interim Divisional Dean for Physical Sciences and Mathematics, and Chair of the College of Natural and Agricultural Sciences Executive Committee. Dr. Wilson's research expertise is in Observational Cosmology and Galaxy Evolution. She leads several large international astronomy collaborations, and her work has resulted in more than 110 refereed publications and more than $10m in extramural funding and telescope time. She is committed to public outreach and, especially, to attracting women and minorities into the stem fields. Her outreach activities have touched more than 50,000 people. Dr. Wilson holds a Ph.D. in Physics from the University of Durham and a B.Sc. in Physics from the University of Glasgow. She is a fellow of both the American Physical Society and the American Astronomical Society.

10:00 – 11:00 Recruiting Research-Centered Faculty at non-R1 institutions

Moderator:

Chad Womack, PhD, Senior Director of National STEM Programs and Initiatives, UNCF

Dr. Chad Womack is the Senior Director of National STEM Programs and Initiatives at UNCF. Prior to joining UNCF, Dr. Womack co-founded The America21 Project and DC Innovates, both innovation-based community and economic development nonprofit organizations dedicated to empowering metro-centers and underserved communities through STEM education, tech-entrepreneurship and access to capital. In addition, Dr. Womack led the White House-based HBCU Startup and Innovation Initiative, which resulted in the launch of the HBCU Innovation, Commercialization and Entrepreneurship initiative at UNCF. At UNCF, Dr. Womack's work portfolio includes the Fund II Foundation STEM Scholars Program—a $50 million and 10-year commitment to support 500 academically talented African American high school students pursuing STEM as majors in college and careers in the technology industry; the EE Just Life Sciences Institute, which includes the Bristol-Myers Squibb-sponsored EE Just Life Sciences Postgraduate Fellowship Program; the UNCF HBCU Innovation, Commercialization and Entrepreneurship (ICE) Initiative; the UNCF HBCU Innovation Summit and the HBCU Center of Excellence in Computing and Computer Science,

which includes a partnership with Google. Dr. Womack was previously a member of the U.S. Department of Commerce, Economic Development Agency, National Advisory Council for Innovation and Entrepreneurship and the DC Mayor's Innovation and Technology Inclusion Council. Dr. Womack completed several postdoctoral research fellowships at the National Institutes of Health in the National Institutes for Allergy and Infectious Diseases Vaccine Research Center, and at the Harvard AIDS Institute and the Harvard School of Public Health in the Department of Immunology and Infectious Diseases. Dr. Womack earned his doctoral degree in biomedical sciences from the Morehouse School of Medicine and is a proud graduate of Morehouse College where he majored in biology with minors in chemistry and applied physics.

Panelists:

Joanna Brooks, PhD
Associate Vice President for Faculty Advancement and Student Success
San Diego State University

Joanna Brooks is an award-winning author or editor of ten books on race, religion, gender, social movements, and American culture. She has appeared in global media outlets including the BBC, NPR, the Daily Show, CNN, MSNBC, and the Washington Post. In her role as Associate Vice President for Faculty Advancement and Student Success at San Diego State University, she leads faculty development and student academic support efforts. She is a graduate of the CSU Executive Leadership program and a founder of SDSU's Digital Humanities Center and Shared Governance Leadership Institute. She joined the SDSU faculty in 2006 as an Associate Professor of English and Comparative Literature and has served as department chair and Associate Dean of Graduate and Research Affairs. She holds a Ph.D. in English from the University of California, Los Angeles.

Lin Li, PhD
Professor and Interim Dean of College of Engineering
Tennessee State University

Dr. Lin Li is Professor and Interim Dean of College of Engineering at Tennessee State University. He got his PhD from University of Wisconsin-Madison in 2004. He has been assistant, associate, and full professor of civil engineering in Jackson State University from 2005 to 2018. He teaches geotechnical engineering courses, including foundation engineering, unsaturated soil mechanics, geoenvironmental engineering, advanced soil mechanics, and soil dynamics. His expertise is in innovative levee testing and protection, bio-mediated ground improvement, sustainable infrastructure and geo-

environmental area. He has been principal investigator or co-principal investigator of more than 26 major research grants from federal and state agencies with total funding amounts of $7 Million, including National Science Foundation, Department of Homeland Security, US Army Corps of Engineer, US Department of Transportation, Tennessee Board of Regents, Recycled Materials Resource Center under Federal Highway Administration, Institute for Multimodal Transportation under Federal Transit Administration, mostly in the area of geotechnical engineering. Dr. Li is the author or co-author of 2 books, 4 book chapters and 134 peer-reviewed published articles with an h-index of 20 and i10-index of 33 . With funding support from DHS, Dr. Li's research focuses on levee protection during the Hurricane overtopping. He has published one book and 30 scientific papers about innovative levee strengthening and testing under full scale overtopping conditions. With funding support from NSF, Dr. Li's research on bio-mediated ground improvement leads to more than 39 SCI-index journal articles. He got HEADWAE Award in 2017, Faculty Excellence Award Richard from JSU in 2014 and 2015, High Grant Award Winner Award in 2017, Richard S. Ladd D18 Standards Development Award from ASTM for his effort in ASTM D7762 development. He is vice chair of TRB AKG30 committee, chair of ASTM D18.14 committee, and member of ASCE geoenvironmental and erosion technical committees. He is editorial board member of Journal of Geotechnical and Geological Engineering, and Journal of ASTM International.

Ivan Mosley, PhD
Chair, Department of Applied & Industrial Technologies
Tennessee State University

Ivan Mosley was born in Winston-Salem, North Carolina and attended the public schools of the city. In high school, he received vocational training along with completing a general education core curriculum. After high school, he attended North Carolina Agricultural & Technical State University (NCA&TSU) and participated on the University's cross-country and track team. At NCA&TSU, a few dedicated professors, staff and family members embraced him to graduate with a degree in Manufacturing Systems. Upon graduating from NCA&TSU, his first professional employment was with the North Carolina Army National Guard as a Platoon Leader, 731st Maintenance Company in Reidsville, NC. While on Active duty, he completed the requirements for a Master's degree in Information Science at North Carolina Central University as well as a second Master's from the University of Central Missouri in Warrensburg, MO and was once again embraced by caring faculty, staff and family members who influenced the pursue of a Ph.D. at The Ohio State University. At The Ohio State University, dedicated faculty, staff, family and mentors enabled Ivan Mosley to become a strong professional in higher education. Over the past twenty years, Dr. Mosley has been afforded

opportunities to work with governmental agencies, higher education institutions, industry and the military with online curriculum development, manufacturing strategic planning, accreditation and technology integration through STEM initiatives.

11:10 – 12:10 Adapting Administrative Bandwidth for Increased Research Activity

Moderator:

Abraham Wolcott, PhD – San José State University

Prof. Abraham Wolcott is a physical chemist who focuses on the surface chemistry of nanoscale and bulk materials for biological labeling and alternative energy production (solar cell research). He received a B.S. and PhD with Prof. Jin Z. Zhang at UC Santa Cruz (Jin Zhang group). He received an NSF postdoctoral fellowship and worked with Prof. Xiao Yang Zhu (XYZ Group at Columbia). at UT Austin, who then moved to Columbia University. Wolcott also worked with Profs. Jon Owen (Jon Owen lab Columbia) and Dirk Englund (Dirk Englund at MIT) as a joint postdoctoral scientist at Columbia and MIT before coming to San Jose State University. Prof Wolcott has taught physical chemistry lecturers (Chem 160) and laboratory (Chem 162L) and has received several grants to incorporate technology into the physical chemistry course curriculum. One pedagogical tool that is being incorporated is the use of virtual reality (VR) into the classroom. Thermodynamics (Thermodynamics), kinetics (Chemical kinetics), quantum mechanics (Quantum mechanics) and spectroscopy (Spectroscopy) are topics in which VR-based lesson plans can be developed.

Panelists:

Almesha L. Campbell, PhD
Assistant Vice President for Research and Economic Development
Director of Transfer, Commercialization and Research Communication
Jackson State University

Dr. Almesha L. Campbell currently serves as the Assistant Vice President for Research and Economic Development/Director for Technology Transfer and Commercialization at Jackson State University (JSU). She provides support for the overall direction of the Division of Research and Economic Development and manages the intellectual property process from triage of invention disclosures to commercialization. She provides strategic direction and vision for defining partnerships in research, commercialization, entrepreneurship, and innovation initiatives between JSU and other institutions, funding agencies, and industry stakeholders. Dr. Campbell is the Principal Investigator for the

National Science Foundation funded JSU Innovation Corps (I-Corps) Site designed to train teams of faculty and students how to commercialize their ideas using the Lean Startup Methodology. She also leads a number of initiatives geared towards increasing the innovation, Technology Transfer, invention, and entrepreneurial activities at JSU, such as the JSU Center for Innovation and Entrepreneurship which houses the XR Academy, Makerspace, and Learning Collaboratory. Dr. Campbell received her bachelor's degree from the University of Central Florida, the master's degree in Mass Communications, and the doctor of philosophy degree in Public Policy and Administration from Jackson State University. She holds membership in professional organizations such as the Licensing Executives Society (LES), the Association of University Technology Managers (AUTM), and the American Society of Public Administration (ASPA).

Laura Collins, PhD
Director of Intellectual Property Development and Commercialization
North Carolina A&T University

Dr. Laura Collins is Director of Intellectual Property Development and Commercialization at North Carolina A&T University. Dr. Collins also served as the licensed patent agent for N.C. A&T and as the intellectual property liaison between the Vice Chancellor for DORED and agencies, businesses and law firms hired for patent prosecution and licensing. She is responsible for reviewing all requests for patent licensing with regard to protection of the university's intellectual property. She evaluates submissions of preliminary ideas and invention disclosures to determine the feasibility of filing for patents on behalf of principal investigators and the university. She also works with faculty to evaluate the innovative merit of proposed research programs. Before joining the Office of Outreach and Economic Development in 2010, Laura spent 10 years with intellectual property law firms. As a patent agent and scientific advisor, she prosecuted foreign and domestic patent applications on topics, including radiolabeled antibodies, small molecule and biotech therapeutics, microfluidic devices, activated carbons used in electric double layer capacitors, and silicon inks used in printed electronics. She also conducted inventorship investigations, as well as freedom to operate and prior art landscape analyses. She is registered to practice before the U.S. Patent and Trademark Office and is a member of the American Chemical Society. She has undergraduate degrees in chemistry, with honors, and history from Bryn Mawr College, and a Ph.D. in Chemistry from UNC Chapel Hill.

Elmer Guy, PhD
President
Navajo Technical University

Since 2006, Dr. Elmer Guy has served as the president of Navajo Technical University (NTU), which is a member of the American Indian Higher Education Consortium (AIHEC), a community of 37 tribally and federally chartered institutions of higher education. Navajo Technical University offers certificates to master's degree programs. Prior to becoming president, Dr. Guy also served NTU as its vice president of academics and student services and its dean of instruction. In 2011 and 2012, under Dr. Guy's leadership, NTU was named one of the top 120 community colleges in the United States by the Aspen Institute's College Excellence Program. Before joining NTU, Dr. Guy was appointed by the Navajo Nation president to serve as both the executive director and deputy director of the Navajo Nation Department of Education. During his tenure with the Navajo Nation Department of Education, several needed programs were successfully developed and implemented, including two trusts for the handicapped ($7 million) and for vocational education programs ($6 million); the Navajo Medicine Man Apprentice School; and a comprehensive teacher education program, all of which have been institutionalized and remain in full operation. Dr. Guy earned his undergraduate and doctorate degrees from the University of Arizona, and in between, a graduate degree from the University of San Francisco. Dr. Guy serves on the board of the American Indian High Education Consortium, the American Indian College Fund board, the College Board's Community Colleges Advisory Panel, as well as other regional and national associations.

Thursday, June 29, 2023 (all times Central)

10:00 am – 11:00 am Barriers to Expanding the Defense Research Workforce Pipeline

Moderator:

Bryn Adams, PhD, Branch Chief, U.S. Army DEVCOM Army Research Laboratory

Dr. Bryn L. Adams received a BS in Biology in 2001 and a PhD in Interdisciplinary Biology in 2009 from the University of North Carolina at Charlotte. Her doctoral studies included a variety of research projects in the field of applied and environmental microbiology. Dr. Adams completed two postdoctoral fellowships; the first was a collaborative project, as a National Academy of Sciences postdoctoral fellow, between DEVCOM Chemical Biological Center and the Institute of Bioscience and Biotechnology Research at the University of Maryland at College Park focused on the development of non-specific threat agent detection using simple biological sensing and signal transduction pathways. The second fellowship was with DEVCOM Army Research

Laboratory as an Oak Ridge Associated Universities postdoctoral fellow where she conducted research into the development of synthetic molecular recognition agents for biosensing and biomaterials. In 2014, Dr. Adams converted to a federal civilian research scientist at the Army Research Lab. She has led the Synbio Tools and Chassis Team in the Biotechnology Branch since 2018. Her research efforts currently focus on developing synthetic biology tools for non-model host bacteria and establishing the capability of synthetic biology from the lab and into the hands of the Warfighter. She has published over 20 peer-reviewed manuscripts on a wide range of bacterial biotechnology topics across several disciplines and was awarded DoD Scientist of the Quarter in 2019 for her contributions to the field of biotechnology for the DoD. Dr. Adams is currently on a one-year detail assignment to the Office of the Undersecretary of Defense for Research and Engineering, where she leads the Education and Workforce Development component of the Biotechnology Modernization Priority.

Panelists:

Shannon Arnold, MEng, MS
Subject Matter Expert to the Principal Director for Trusted AI and Autonomy
Undersecretary of Defense for Research and Engineering (USD(R&E))

Mr. Shannon Arnold serves as a Subject Matter Expert to the Principal Director for Trusted AI and Autonomy at the Undersecretary of Defense for Research and Engineering (USD(R&E)). He advises on AI/ML and Autonomy research activities across the DOD enterprise. He also served as lead for the Autonomy and Artificial Intelligence Test Technology Area in the office DoD Test Resource Management Center. Previously, he served as a Senior Research engineer at NASA Langley Research Center. Mr. Arnold holds a Bachelor of Science from Morehouse College, Master of Science from Clark Atlanta University, Master of Engineering and Science from Virginia Tech and completed PhD studies at College of William and Mary in 2002. He has published multiple peer-reviewed papers and contributed to 2 scientific and technical books.

Kerin Hilker-Balkissoon, PhD
Director of Educational and Career Pathways
George Mason University

Kerin Hilker-Balkissoon brings over twenty years of experience engaging PK-12, community college, university, non-profit, and workforce sectors to address systemic inequities and barriers to college access, success and career attainment. Kerin’s innovative efforts are grounded in Justice, Equity, Diversity and Inclusion (JEDI),

integrating career pathways, high impact educational practices, asset-based approaches and developmental, holistic student supports. A NISTS Transfer Champion-Catalyst award winner, Kerin has a proven track record in designing data-driven interventions that enhance post-secondary inclusive excellence for underserved and minoritized groups. She specializes in supporting community college and transfer students, student-parents, first generation students, immigrant and international students, and post-traditional (adult) populations. At George Mason University, Kerin designs and implements College of Science pathways that enhance STEM access and success, and teaches in the Scientific Leadership and Practice program. She actively engages in university-wide efforts to enhance inclusive excellence, including service as co-chair of the Student-Parent Task Force, tri-chair to Mason's First Generation Task Force, the Undocumented Student Task Force, and the Transfer Advisory Council. Herself a first-generation Latina college graduate, Kerin actively gives her time to advocacy and support of the Hispanic and Autistic communities, including a leadership role with non-profit Friends in Need Virginia, and as a Board Member for the Virginia Latino Higher Education Network (VALHEN).

Charlene Mello, PhD
Adjunct Faculty, Chemistry & Biochemistry
University of Massachusetts, Dartmouth

Dr. Charlene Mello has 33 years of experience in research, development and engineering in both government and academia. She obtained her Ph.D. from the University of Massachusetts Lowell in Chemistry under the supervision of Professor Kenneth Marx. She has co-authored more than 100 peer-reviewed publications and 14 patents. Her technical experience encompasses technical areas such as protein self-assembly, biomaterials, biosensing and the bio/abio interface. She has participated in numerous organizing committees for national and international scientific meetings, the Biotechnology Team of Experts for NATO Land Group 7, Scientific Advisor for the National Research Council Postdoctoral Fellow Program, and academic appointments at MIT and the University of Massachusetts. Prior to departing from government service, she served as the Army DEVCOM Soldier Center Chief Scientist where her responsibilities were to oversee the execution of S&T programs and execution of the Soldier Center Basic Research program. Together with other technical leaders in the Army, she co-authored the Army Futures Command, Synthetic Biology Strategy. Her collaborations and outreach with academia facilitated the development of partnerships to provide impactful scientific and technical solutions for Soldier Protection and Performance. Currently, Dr. Mello serves as a STEM mentor and scientific advisor for a Soldier Center National Defense Education Program focused on Workforce Development in Synthetic Biology.

D. Tim Williams
DAF UARC Manager and Staff Operations Analyst
Air Force Concepts, Development, and Management

Tim Williams is a Program Manager at Department of Defense's first HBCU University Affiliated Research Center, at Howard University. In June 2022, the U.S. Air Force and Defense Department announced its plan for a 15th UARC to focus on tactical autonomy. By September 2022, the Broad Agency Announcement, or BAA, went out, and the Air Force Research Laboratory, or AFRL, in coordination with the Department of the Air Force, began seeking proposals. The Air Force Research Laboratory, or AFRL, is the primary scientific research and development center for the Department of the Air Force. AFRL plays an integral role in leading the discovery, development and integration of affordable warfighting technologies for our air, space and cyberspace force. He is an experienced intelligence and operations officer with a demonstrated history of working in the military industry. Williams is skilled in Intelligence Analysis, Government, Operational Planning, and Command. He is a U.S. Army veteran.

11:00–12:30 Challenges and Opportunities for Researchers and Personnel Engaging in Federally Funded Research

Moderator:

Oscar Barton, PhD – Morgan State University

Panelists:

Abraham Wolcott, PhD
Associate Professor, Physical Chemistry
San José State University

Prof. Abraham Wolcott is a physical chemist who focuses on the surface chemistry of nanoscale and bulk materials for biological labeling and alternative energy production (solar cell research). He received a B.S. and PhD with Prof. Jin Z. Zhang at UC Santa Cruz (Jin Zhang group). He received an NSF postdoctoral fellowship and worked with Prof. Xiao Yang Zhu (XYZ Group at Columbia). at UT Austin, who then moved to Columbia University. Wolcott also worked with Profs. Jon Owen (Jon Owen lab Columbia) and Dirk Englund (Dirk Englund at MIT) as a joint postdoctoral scientist at Columbia and MIT before coming to San Jose State University. Prof Wolcott has taught

physical chemistry lecturers (Chem 160) and laboratory (Chem 162L) and has received several grants to incorporate technology into the physical chemistry course curriculum. One pedagogical tool that is being incorporated is the use of virtual reality (VR) into the classroom. Thermodynamics (Thermodynamics), kinetics (Chemical kinetics), quantum mechanics (Quantum mechanics) and spectroscopy (Spectroscopy) are topics in which VR-based lesson plans can be developed.

Saleh Zein-Sabbato, PhD
Interim Department Chair and Professor, Department of Electrical and Computer Engineering
Tennessee State University

Dr. Zein-Sabatto has been a Professor in the Department of Electrical and Computer Engineering since 1991. He received his B.S. degree in Electric Power Systems from the University of Aleppo, Syria in 1979, and the M.S. and Ph.D. degrees in Electrical Engineering from Vanderbilt University, Nashville, Tennessee in 1986 and 1990, respectively. He worked for industry for four years in the area of electric power systems and communication.

Jill Keith, PhD
Professor of Biochemistry and Manager, Biomedical Research Infrastructure Center
Winston-Salem State University (WSSU)
Adjunct Professor at Wake Forest University Health Sciences (WFUHS) in Physiology and Pharmacology.

Dr. Keith received a BS degree from York College-CUNY and a Ph.D. from the University of Maryland-College Park. As a bioorganic chemist with training in pharmacology, she conducts research related to central nervous system diseases and disorders. She served as Chair of the department of Biological Sciences at WSSU and currently teaches in the department of Chemistry. As such, she uses diverse teaching methods and encourages students to use metacognitive strategies and Bloom's Taxonomy to become self-regulated and life-long learners. In addition, she instructs faculty, staff, and students using the National Science Foundation's iCorps model and has helped teams develop prototypes that have commercialization potential. Importantly, Dr. Keith received the Board of Governors Award for Excellence in Teaching for using active learning strategies. Dr. Keith is currently funded to develop molecular probes to study the brain; she also performs research to uncover therapeutics to treat neuronal disorders/diseases. She is the site PI for faculty and student development training grants and has a state contract to help those impacted by COVID. She is also funded to instruct faculty on how to teach entrepreneurship to freshmen. Dr.

Keith has a history of assisting faculty through her service on WSSU assessment, accreditation, research-related committees, the Internal Review Board, and in facilitating faculty workshops. These collaborative activities have led to faculty promotions, faculty receiving external funding, publications, and several conference presentations. Lastly, to assist with diversity efforts connected to training the next generation of scientists and healthcare professionals, Dr. Keith is involved with K12 outreach activities. As such, she is one of the founders of SciTech which engages K12 students in hands-on experiments, especially those from historically excluded groups.

Michael Groves, PhD
Associate Professor, Physical and Theoretical Chemistry
California State University, Fullerton

Michael Groves is Associate Professor, Physical and Theoretical Chemistry, at California State University, Fullerton. Groves has authored 20 peer-reviewed publications, contributed to the development of an online education portal and holds a patent related to the environmentally-friendly fabrication of very small chemical reactors. His research program has focused on computationally simulating chemical reactions on surfaces as well as developing the tools necessary to model these surfaces. Some of his other projects include quantifying the role of chirality in hydrogen carrying fuels for fuel cell applications and the role of physical hole defects in functionalized 2D carbon and boron materials to catalyze electrochemical reactions such as hydrogen peroxide synthesis. Groves received the prestigious Governor General of Canada's Academic Gold Medal for his doctoral studies and earned his Ph.D. in chemical and material engineering from the Royal Military College of Canada. He holds a master's degree in physics from Queen's University and a bachelor's degree in physics from the University of British Columbia. He is a member of the American Chemical Society.

12:40–1:30 Federal Capacity Programs for Faculty and Trainee Support

Moderator:

Keith McGee, PhD, Associate Provost for Research, Innovation, and Graduate Education, Alcorn State University

Dr. Keith A. McGee, a native of Quitman located in Clarke County MS, began his post-secondary education at Mississippi Valley State University, majoring in Biology culminating with a Doctor of Philosophy (Ph.D.) degree from the University of Southern Mississippi in Molecular Biology. Dr. McGee's research area, and his research focused on a family of ATP Transport Proteins, specifically those involved in phenotypic Multi-

Drug resistance. As a faculty member, he sustained a productive graduate student training program, advising many Masters Degree seeking students, along with many undergraduates, and summer research students. Dr. McGee has served in multiple administrative capacities at Alcorn State University, most recently he was appointed to serve as the inaugural Associate Provost for Research, Innovation, and Graduate Education (AVP, IGE). In this role, Dr. McGee is responsible for providing leadership in developing a clear research vision and growing the University's research footprint while leading and elevating the university's interdisciplinary research activities. Dr. McGee is charged with promoting an understanding and drive for new research opportunities, working with the university deans on all aspects of research and graduate education to ensure alignment with their specific disciplines, while supporting and expanding innovative graduate programs and scholarly activity.

Panelists:

Narcrisha S. Norman, PhD
Program Director, NSF
Program Officer, GRFP

Dr. Narcrisha Norman is a Program Director (PD) at the National Science Foundation (NSF) in the Division of Graduate Education (DGE) within the Directorate for STEM Education (EDU). She contributes to policy within NSF and throughout the federal government with a portfolio of NSF programs that are agency, Directorate and Division wide. Her primary focus is the Graduate Research Fellowship Program (GRFP), the Racial Equity in STEM Education Program (Racial Equity), and the Space-Related Preparation and Awareness for Career Equity (SPACE) Dear Colleague Letter. Dr. Norman has a PhD in Aerospace Engineering and both MS and BS degrees in Mechanical Engineering. Prior to NSF she was an Associate Professor in engineering. Her research areas include theoretical space physics, general aerodynamics, and postgraduate education. She is committed to supporting continued growth of Diversity, Equity, Inclusion, and Accessibility (DEIA) in STEM leadership, research, and education. Dr. Norman encourages participation from the STEM community to serve as NSF reviewers, apply for funding including undergraduate funding, and to request NSF speakers via the NSF Speakers Bureau.

Sailaja Koduri, PhD
Program Director
NIH MIRA

Sailaja Koduri, Ph.D., is a program director in the Division of Pharmacology, Physiology, and Biological Chemistry, where she administers a portfolio of research grants in the areas of receptors, drug targets, and signal transduction; adaptive immunity; and small business (SBIR) and tech transfer (STTR). She also manages predoctoral training grants in Pharmacological Sciences and serves as a program contact for the Maximizing Investigators' Research Award (MIRA) for early stage investigators. Koduri was formerly a scientific review officer at National Center for Advancing Translational Sciences and prior to that she worked as a senior scientist at BioReliance. She earned a B.S. in chemistry from Nagarjuna University and a Ph.D. in biochemistry from the Central Food Technological Research Institute, both in India. Koduri conducted postdoctoral research at the Howard University College of Medicine and National Cancer Institute.

LaRico Treadwell, PhD
Research & Development Chemist and Material Scientist
S.T.A.R.T. HBCU Program
Sandia National Laboratories

Dr. Larico Treadwell was awarded a 2021 Black Engineer of the Year Award in the category of Most Promising Scientist. BEYA is a program of the national Career Communications Group, an advocate for corporate diversity, and is part of its STEM achievement program. The award recognizes the nation’s best and brightest engineers, scientists and technology experts. Early on in Dr. Treadwell’s life, he exhibited a keen intellect with a particular aptitude for science and engineering. He enjoyed taking things apart to see how they worked and experimenting with various foods and household chemicals to see what color/concoction resulted. Everyone, including the immediate family, recognized LaRico’s inquisitive nature and destined him to be a leader and innovator. He graduated from South Panola High School with honors in 2006 and decided to attend UM as an Ole Miss First Scholar recipient. Dr. Treadwell was initially interested in pursuing medicine. However, he became a Louis Stokes Mississippi Alliance for Minority (LSMAP-IMAGE), Ronald E. McNair, and Alliance for Graduate Education in Mississippi (AGEM) scholar, which introduced him to laboratory research. He worked in the laboratory of Jason Ritchie, Associate Professor of Chemistry, with a focus on hydrogen powered fuel cells. This experience solidified Dr. Treadwell’s commitment to pursuing a BS in Chemistry degree and going on to graduate school. He became one of the first African Americans to receive a BS in Chemistry at UM in 2010, as well as the first STEM bachelor’s degree of his family. After graduation, Dr. Treadwell enrolled in Louisiana State University in the PhD Chemistry program as a Board of Regents Fellow. He was mentored by Prof. Julia Chan in Solid State Chemistry. Under Dr. Chan’s tutelage, he published multiple peer reviewed articles by developing

impressive skills in solid state chemistry synthesis and with a focus on understanding the physical and chemical behavior of chemical moieties. While attending LSU, Dr. Treadwell was President of the local National Organization of Black Chemist and Chemical Engineer (NOBCChE) Chapter and Chemistry Graduate School Council, amongst his numerous contributions and participation in local communities through outreach events. In 2015, Dr. Treadwell received his PhD and subsequently accepted a Postdoctoral Fellow position at Sandia National Laboratories. As a Postdoctoral Fellow, Dr. Treadwell studied under Dr. Timothy J. Boyle to master inorganic synthesis of small molecules, fabrication of nanomaterials, and other material processing techniques for a variety of application including thermoelectric, circuitry, capacitors, and flywheels. During his tenure as a postdoc, Dr. Treadwell published numerous peer-reviewed journals and filed several patents. In 2017, Dr. Treadwell accepted a position as a R&D Chemist at Sandia National Laboratories. He was awarded an Early Career Laboratory Directed Research and Development (LDRD) award to investigate magneto-inks with an emphasis on increasing materials reliability in engineered devices. His work covers the spectrum from basic materials discovery and characterization through applied materials reliability and device fabrication for a wide range of applications such as radiation, ultra-high temperature systems, nonlinear optics, and thermoelectrics. Dr. Treadwell's research advances science frontiers in chemistry, engineering, materials and component reliability. Additionally, he serves in multiple programmatic roles contributing across the spectrum of Nuclear Deterrence Programs. He serves in leadership roles for materials analysis and compatibility for a wide spectrum of these critical national security programs. Along with his excellent technical work, Dr. Treadwell gives back to the community. He worked with a number of companies through the New Mexico Small Business Assistance Program. He leads CSI Dognapping, a highly recognized community outreach program that provides science enrichment for nearly 500 fourth graders every year. Dr. Treadwell was awarded a Sandia Employee Recognition Award for Diversity for championing diversity programs across Sandia, including programs students from Historically Black Colleges and Universities (HBCU) into STEM. Overall, Dr. Treadwell's technical success has offered him an opportunity to reach beyond research to impact the development of the next generation of scientists and engineers with a focus on maximizing minority representation in STEM careers.

Helen Turner, Ph.D.
Research Director, CIFAL Honolulu
Professor, Biology, School of Natural Sciences and Mathematics
Chaminade University of Honolulu

Dr. Turner is an internationally-regarded researcher in molecular immunology. As well as her position at Chaminade, she holds academic affiliations with the John A. Burns

School of Medicine and Department of Microbiology at the University of Hawaii and serves on numerous scientific advisory boards. She collaborates with an extensive network of scientists nation-wide and has trained numerous graduate students for careers as biomedical investigators, science administrators and academics. Previous to her Chaminade appointment, she was an Associate Director of Research at The Queen's Center for Biomedical Research in Honolulu. Current projects in the Turner laboratory focus on mast cell ion channels as novel targets for therapeutic intervention in inflammatory pathologies, and on the molecular mechanisms by which cannabinoid compounds act as modulators of the immune system. Dr Turner's relatively young laboratory has been strikingly successful at winning grants from private foundations (The Leahi Fund for Pulmonary Research, The Victoria and Bradley Geist Foundation, The Culpeper Biomedical Pilot Initiative, and the Queen Emma Research Foundation), and from Federal sources (National Institute of General Medical Sciences, National Institute of Allergic and Inflammatory Disease, and the Idea Network for Biomedical Research Excellence). In addition to her efforts in seeking funding for her own program, Dr. Turner acts as an invited grant reviewer for the NIH, the British Welcome Trust, and several other funding bodies. Dr. Turner trained at the Imperial Cancer Research Fund Laboratories and received her Ph.D. from the University of London in 1998. Following a post-doctoral period at the Beth Israel Medical Center and Harvard Medical School, she assumed her position at Queens in 2000.