

**Division of Behavioral and Social Sciences and Education
Board on Science Education**

**Roundtable on Systemic Change in Undergraduate STEM Education
May 23, 2022**

Panelist Biographies

() Denotes Panel Moderator*

10:15 am EDT

**What are the Future Needs for the Workforce and the
Implications for Educating Undergraduates?**

PATTY LOPEZ* is currently an Intel Encore Computer Science Fellow in Residence at New Mexico State University (NMSU), where she is working to broaden participation in computing and increase student engagement and graduation completion. Previously, she was a Senior Platform Applications Engineer in the Intel Optane Group within the Datacenter Platforms Group at Intel Corporation, working with customers to deliver data center server chip and persistent memory solutions. Prior to joining Intel in 2008, she spent 19 years as an Imaging Scientist for Hewlett Packard, creating and transferring technology in imaging into scanner, camera, and all-in-one products. She has released over fifty products across five business lines and holds seven imaging patents. Patty grew up in rural northern New Mexico, the sixth of seven children. She was exposed to a computer math course in high school, which provided a natural path to explore her interests in math and science. A first-generation college student, she earned her BS (with honors), MS, and Ph.D. in Computer Science from NMSU. She has spent the past two decades as a change agent, studying, understanding, and addressing the impact of organizational culture on the recruitment, retention, and progression of women and historically excluded groups in STEM careers.

MARICLA PIROZZI QUARTEY is the Director of Cooperative Education and an Adjunct Faculty Professor for the College of Engineering at Northeastern University in Boston, MA. She earned her Doctoral Degree in Higher Education with a specialization in International Students. Her research is focused on developing new instructional strategies and tools for teaching and empowering college students with ADHD. She is interested in how educational approaches, AI, machine learning, and autonomous mobility manipulations technologies can help improve the quality of life for people with ADHD. Her research challenges our understanding of ADHD, especially for students in college, and affirms the importance of creating an inclusive environment to enhance self-confidence and self-esteem in a college setting. Dr. Pirozzi has served on several expert panels related to STEM education research and innovative practice, most recently including, Children and Adults with Attention-Deficit/Hyperactivity Disorder

CHADD, The International Conference on Humanities, Social & Education Sciences (iHSES). Dr. Pirozzi spent the last ten years supporting students to find Co-op and internships, connecting students with employers, and helping them overcome challenges in the workforce.

JAYSHREE SETH is a Corporate Scientist at 3M and leads Applied Technology Development for Industrial Adhesives and Tapes Division. She joined 3M in 1993 after an MS and Ph.D. in Chemical Engineering from Clarkson University, New York, and she currently holds 75 patents for a variety of innovations. Jayshree is a Distinguished Alumni Award recipient from her *alma mater* NIIT Trichy, India, where she earned a B. Tech. in Chemical Engineering. Jayshree was appointed 3M's first-ever Chief Science Advocate in 2018 and is using her scientific knowledge, technical expertise, and professional experience to advance science, and communicate the benefits of science and the importance of diversity in STEM fields. In 2020, she was awarded the Society of Women Engineers (SWE) highest Achievement Award. She is the author of *The Heart of Science – Engineering Footprints, Fingerprints, & Imprints*, and *The Heart of Science – Engineering Fine Print* published by SWE, and all sales proceeds go to a scholarship for underrepresented minority women in STEM. Jayshree serves on the Board of the Science Museum of Minnesota, Engineering Advisory Council for Clarkson University, AAAS Committee on Science, Engineering and Public Policy (COSEPP), and the Advisory Group of Aspen Institute *Our Future is Science* program.

WILLIAM TYSON is an Associate Professor of Sociology at the University of South Florida in Tampa. He earned his Ph.D. in Sociology from Duke University in 2004. His research challenges our understanding of interpersonal and structural influences on STEM education and career pathways out of high schools, community colleges, and four-year universities. Dr. Tyson is the author of *Teaching and Learning Employability Skills in Career and Technical Education: Industry, Educator, and Student Perspectives* (Palgrave MacMillan 2020). This book examines how high school career and technical education (CTE) educators teach and students learn industry-desired personal and interpersonal employability skills (also called “soft skills”). Dr. Tyson has also served on several expert panels related to STEM education research and practice, most recently including the editorial board of *Sociology of Education* (2011-13, 2017-19) and the National Academy of Engineering (NAE) Committee on Engineering Technology Education (2014-16). Dr. Tyson has 18 years of experience as a National Science Foundation (NSF) grantee serving in leadership roles on ten different projects totaling over \$12.8 million, including \$3.2 million as Principal Investigator of three projects: PathTech Tampa Bay, PathTech LIFE, and PathTech LISTEN. For more information, please visit www.pathtechusf.com.

11:05 am EDT

Workforce Policy

MARK MITSUI* is the current president of Portland Community College in Portland, Oregon. Before joining PCC, he served as president of North Seattle College in Washington State, Vice President of Student Services at South Seattle College, and Deputy Assistant Secretary for Community Colleges within the Office of Career, Technical, and Adult Education for the U.S. Department of Education. In Washington D.C., he worked to advance President Obama's

community college agenda through partnerships with numerous federal agencies and national stakeholders. Mitsui also served on the US Interagency Working Group on Undergraduate STEM, co-chaired by the NSF and DOE, participated in a 2016 NASEM Panel on Online Education, and engaged in undergraduate metabolic research in exercise physiology and cardiac rehabilitation. He holds a Bachelor's degree in Physical Education from Western Washington University and a Master's of Education in Educational Leadership and Policy Studies from the University of Washington.

KENNETH (KENNY) GIBBS, JR., is Chief of the Undergraduate and Predoctoral Cross-Disciplinary Training Branch within the Division of Training, Workforce Development and Diversity (TWD) at the National Institute of General Medical Sciences (NIGMS). In this role, he oversees the institute's long-standing programs to enhance diversity (MARC, U-RISE, G-RISE, IMSD, PREP, Bridges to the Baccalaureate, and Doctorate). At NIGMS, he also is a Program Director in the Division of Genetics & Molecular, Cellular, and Developmental Biology where leads and administers grants to promote basic research in the area of stem cell biology. Prior to joining NIGMS, Dr. Gibbs was a Cancer Prevention Fellow at the National Cancer Institute, and an AAAS Science & Technology Policy Fellow at the National Science Foundation (NSF) in the Directorate for Education and Human Resources (EHR). Dr. Gibbs completed his Ph.D. in the Immunology program at Stanford University and received his B.S. in biochemistry & molecular biology (summa cum laude) from the University of Maryland, Baltimore County where he was a Meyerhoff, MARC, and HHMI scholar. Dr. Gibbs has previously served on the committee for the National Academies of Sciences, Engineering and Medicine's consensus report "Graduate STEM Education for the 21st Century," on the Board of Directors for the National Postdoctoral Association and he has written about scientific training and diversity issues for Science Careers, and Scientific American.

PATRICIA "PATSY" RICHARDS is a native of St. Croix, U.S. Virgin Islands. Patsy has 20-plus years of workforce development experience. Before taking on the role of Director for Long-Term CareWorks at RISE Partnership, Patsy played an intricate role in developing and implementing the state of Alabama's apprenticeship program. Her multicultural background and love for a thriving community have led to numerous opportunities to successfully ready the workforce. Patsy has a Bachelor's in Marketing, Management, and Research and a Master's in Human Resource Management from Troy University.

DALE WINKLER joined SREB in 2015, where he brings more than 20 years of experience working on issues related to leadership and policy in college and career readiness. He leads a team of 60 instructional and leadership coaches that help teachers, counselors, and school leaders in almost 30 states empower youth to connect the classroom with the real world. His research interests include workforce development, work-based learning, and industry sector partnerships. Dale holds a Bachelor of Science in accounting and a Master of Education from Cumberland College. He received his doctorate in educational leadership from the University of Kentucky.

AMANDA WINTERS serves as Program Director for postsecondary education at the National Governors Association Center for Best Practices. In this role, she oversees a team that supports

governors' offices and state policymakers on issues that connect postsecondary pathways to economic mobility and workforce outcomes. Her current portfolio is focused on economic recovery for families and communities, serving adult students, work-based learning, postsecondary financing, and quality postsecondary credentials. She came to her position from roles at the Illinois Board of Higher Education and the University of Illinois. She centers her work on the importance of collaboration and partnerships to create impact and real outcomes.

1:00 pm EDT

Partnerships Between Higher Education, Industry, Government, and Communities

SUSAN RUNDELL SINGER* is Vice President for Academic Affairs and Provost at Rollins College. Previously, she was Division Director for Undergraduate Education at NSF and Laurence McKinley Gould Professor, in the Biology and Cognitive Science programs at Carleton College. She pursues a career that integrates science and education and focused on improving undergraduate education at scale. Her current, NSF-funded research is investigating networks of organizations working to advance undergraduate STEM education. In addition to a Ph.D. in biology from Rensselaer, she completed a teacher certification program in New York State. Susan is an AAAS fellow and received both the American Society of Plant Biology teaching award and the Botanical Society of America Charles Bessey award. She directed Carleton's Perlman Center for Learning and Teaching, was an NSF program officer in Biology, and is a co-author of the Vision and Change in Undergraduate Biology report and two introductory biology texts. Susan has served on numerous boards, including the NSF Education and Human Resources Advisory Committee, Biological Sciences Curriculum Study Board, the American Society of Plant Biologists Education Foundation Board, the Botanical Society Board of Directors, and was a member of the National Academies of Science, Engineering, and Medicine's (NASEM) Board on Science Education. She is past chair of the AAAS Education Section.

V. CELESTE CARTER received her Ph.D. in Microbiology from the Pennsylvania State University School of Medicine. She completed postdoctoral studies at the University of California at Berkeley. She joined the Division of Biological and Health Sciences at Foothill College to develop and head both Biotechnology and Bioinformatics Programs. She served as a Program Director twice in the Division of Undergraduate Education (DUE) at the National Science Foundation (NSF). Dr. Carter accepted a permanent program director position in DUE in 2009; she is the Lead Program Director for the Advanced Technological Education (ATE) Program in DUE. Dr. Carter also works on other programs in DUE and serves on federal interagency working groups.

KATHLEEN PLINSKE serves as president of Valencia College, a community college located in Orlando, Florida. As a first-generation college graduate, Plinske is passionate about the role education can play in transforming the lives of students and their families, and in turn, our communities. Prior to being selected as Valencia's president, Plinske had served at Valencia as a Campus President and as Executive Vice President and Provost. In these roles, she spearheaded efforts to significantly increase access to higher education in traditionally underserved communities, led the planning of new buildings and a new campus, organized efforts to design

successful transfer and career pathways, and led the collaborative development of a collegewide strategic impact plan with an explicit focus on advancing racial equity in student outcomes. Plinske attended Indiana University Bloomington as a Herman B Wells Scholar, earning a bachelor's degree in Spanish and physics. A member of Phi Beta Kappa, she completed a master's degree in Spanish from Roosevelt University, and a doctorate in educational technology from Pepperdine University. An avid lifelong learner, she has continued her education by subsequently earning a Master's degree in business administration and a Master's degree in industrial and systems engineering from the University of Florida.

CLAYTON YATES is a recognized expert in prostate cancer research. Dr. Yates earned his Ph.D. from the University of Pittsburgh School of Medicine in 2005 as well as a certificate of training in Tissue Engineering and Regenerative medicine from the McGowan Institute of Regenerative Medicine. He then went on to complete a postdoctoral fellowship at Emory University School of Medicine Department of Urology. HCell-MENTOR has recognized Dr. Yates (an online resource from Cell Press and Cell Signaling Technology) as 100 most inspiring Black Scientists in America. Dr. Yates's lab focuses on prostate and breast cancer, particularly in African Americans. His lab has established several cell lines based models derived from African American patients used by many labs today to study molecular events that lead to prostate cancer development and metastasis. Additionally, Dr. Yates has identified multiple biomarkers for predicting aggressive cancers in African Americans with prostate or breast cancer, which has led to the development of a novel tumor-associated macrophage inhibitor that was licensed and is poised to enter clinical trials in 2023. Dr. Yates's lab has been continuously funded by NIH and DoD CMDRP/PCRP for over the last 14 years.

2:00 pm EDT

Efforts by Disciplinary Societies to Support a Diverse Workforce

NORMAN L. FORTENBERRY* is the executive director of the American Society for Engineering Education (ASEE), a global society of individual, institutional, and corporate members founded in 1893. ASEE advances innovation, excellence, and access at all levels of education for the engineering profession. ASEE is broadly concerned with instruction, research, public service, professional practice, and societal awareness. Previously, Fortenberry served as the founding Director of the Center for the Advancement of Scholarship on Engineering Education (CASEE) at the National Academy of Engineering (NAE). He served in various executive roles at the National Science Foundation (NSF) including as senior advisor to the NSF Assistant Director for Education and Human Resources and as director of the divisions of undergraduate education and human resource development. Fortenberry has also served as executive director of the National Consortium for Graduate Degrees for Minorities in Engineering and Science, Inc. (The GEM Consortium) and as a faculty member in the department of mechanical engineering at the Florida A&M University – Florida State University College of Engineering. Fortenberry is a fellow of ASEE and the American Association for the Advancement of Science. Dr. Fortenberry was awarded the S.B., S.M., and Sc.D. degrees (all in mechanical engineering) by the Massachusetts Institute of Technology.

TERRI M. CHAMBERS is the Senior Director of the Education Division at the American Chemical Society (ACS). In this role, Dr. Chambers provides leadership for the Education Division's activities which include programs, products, and services that build communities and support innovative, relevant, and effective chemistry education and professional development. Dr. Chambers is co-PI on the NSF-funded ACS Bridge Project which endeavors to strengthen chemistry in the United States by increasing the number of students from underrepresented groups who receive doctoral degrees in chemical sciences. She is also co-PI on the NSF-funded Get the Facts Out Project which ensures that students have access to accurate information about the secondary teaching profession. Dr. Chambers is committed to building and sustaining collaborations that foster diversity, equity, inclusion, and access. Prior to joining ACS, Dr. Chambers served as a chemistry instructor at the high school and two-year college levels in Maryland. She holds a Bachelor of Science degree in Chemistry from Florida A&M University in Tallahassee, FL, a Master of Arts degree in Cellular and Molecular Medicine from the Johns Hopkins University School of Medicine in Baltimore, MD, and a Doctorate in Educational Leadership and Management from Drexel University in Philadelphia, PA.

IRENE HULEDE is currently the Education Director at ASM and the project director and co-principal investigator for the Annual Biomedical Research Conference for Minoritized Scientists (ABRCMS); a project that supports individuals who are underrepresented nationally in STEM disciplines to succeed in bioscience education, research, and careers. In her current role, she is responsible for developing strategic goals to advance education, and professional and career development in the microbial sciences, and executing policies and practices to achieve its goals. Hulede oversees the development and implementation of ASM education initiatives and helps lead ASM efforts that promote a culture of inclusion to achieve diversity in science. Specifically, she is instrumental in forming and sustaining partnerships and collaborations with various disciplinary societies, organizations, and educational institutions to enhance programs for students and early-career scientists. Her responsibilities include managing ASM education meetings and publications, fellowships, professional development, and outreach. Under her leadership, the ASM education program has been recognized with several honors, including the Presidential Award for Mentoring Underrepresented Minorities in Science, Math, Engineering, and Technology and the 2019 AIMBE Excellence in STEM Education Award for contributing to the advancement of underrepresented minorities in science, technology, engineering and mathematics, diversifying the biomedical sciences and biomedical engineering workforce, and providing URM students with early exposure to the profession.

PAMELA PADILLA is dean of the College of Science at the University of North Texas. Her research has been recognized by the community as seen by invitations to present at prestigious institutes and the awarding of various honors. She has published in high profile scientific journals has mentored many graduates, undergraduate, and TAMS/high school students, and has demonstrated dedication to the scientific community by serving as an editor, organizing committee member for conferences, grant panelist for both National Institutes of Health and National Science Foundation and reviewer of numerous manuscripts. She is a lifetime member of the SACNAS organization, which is a society of scientists dedicated to fostering the success of Hispanic/Chicano and Native American scientists--from college students to professionals--to attain advanced degrees, careers, and positions of leadership in science. Dr. Padilla earned her

Ph.D. from the University of New Mexico and conducted her post-doctoral research at the Fred Hutchinson Cancer Research Center in Seattle WA.

KATHRYNE SPARKS WOODLE is the Education Programs Lead at the American Physical Society (APS). She currently serves on the leadership team of the Effective Practices for Physics Programs (EP3) Initiative (ep3guide.org), which has created a set of resources covering every aspect of operating a thriving undergraduate physics program. These resources are shaped by evidence-based research and community practice. Dr. Woodle is also PI on a project that builds off the American Association of Physics Teachers, American Astronomical Society, and APS Physics and Astronomy New Faculty Workshops, to support changing physics and astronomy education culture by designing a reflective practice model for faculty development to support diversity, equity, inclusion, and excellence. Additional APS projects with which she has been involved include: the APS National Mentoring Community, STEP UP, NSF INCLUDES: Inclusive Graduate Education Network, the APS Bridge Program, and PhysTEC. Through these initiatives, Dr. Woodle works to promote an inclusive professional community that supports marginalized groups. She received her BA in physics from Grinnell College and her PhD in particle astrophysics as well as her Master's in Education from the physics department at the Pennsylvania State University.

3:00 pm EDT

Commentary and Wrap Up

ANN E. AUSTIN* is the interim dean of the College of Education at Michigan State University, where she has been on the faculty since 1991. Dr. Austin previously served as associate dean for research and as a professor of higher, adult, and lifelong education at Michigan State, and served as a program director for the National Science Foundation. Her research concerns the organizational change in higher education, faculty careers and professional development, teaching and learning in higher education, the academic workplace, doctoral education, and reform in science, engineering, and mathematics (STEM) education. She is a fellow of the American Educational Research Association (AERA), and she has been a council member for AERA. She is a past president of the Association for the Study of Higher Education (ASHE), and she was a Fulbright Fellow in South Africa (1998). Dr. Austin currently serves as co-chair of the National Academies of Sciences, Engineering, and Medicine's Roundtable on Systemic Change in Undergraduate STEM Education. She earned a B.A. in history from Bates College, an M.S. in higher/post-secondary education from Syracuse University, an M.A. in American culture from the University of Michigan, and a Ph.D. in higher education from the University of Michigan.

HOWARD GOBSTEIN is the Sr. VP for STEM Education and Research Policy with the Association of Public and Land-grant Universities (APLU). He has spent his entire career engaged in university/government issues while serving at Michigan State University, the University of Michigan, AAU, White House Office of Science and Technology Policy and the U.S. Government Accountability Office (GAO). Over his 16 years at APLU he has led many STEM education projects supported by NSF and other foundations. He presently directs the NSF INCLUDES Aspire Alliance, a major national effort to enhance the diversity and inclusion of STEM faculty. Gobstein is a fellow of AAAS and a distinguished alum of the School of

Interdisciplinary Engineering of Purdue University. He earned an MA in Science, Technology, and Public Policy from George Washington University and a BS in Interdisciplinary Engineering from Purdue. Gobstein has served on the Roundtable for Systemic Change in Undergraduate STEM Education and chaired a NASEM workshop on Increasing Student Success in Developmental Mathematics.

MARK LEE is an associate professor of biology at Spelman College. He is committed to STEM education for underrepresented groups, especially women scientists. In the science education community at large, Dr. Lee is a PULSE Fellow and member of the National Academies Roundtable for Systemic Change in Undergraduate STEM Education. He has also worked on science education reform through his work with the Emory Fellowships in Research and Science Teaching (FIRST) Program, the American Association of Colleges and Universities (AAC&U), Project Kaleidoscope (PKAL), Stanford Asilomar Conference for Online Education, and the National Academies Summer Institutes for Science Education. His science education research is most recently funded by the National Science Foundation, and he is a member of the American Society for Biochemistry and Molecular Biology. Dr. Lee has a B.S. in chemistry from Morris Brown College and a Ph.D. in biochemistry from Clark Atlanta University.

HARRIET B. NEMBARD is dean of the College of Engineering at the University of Iowa and holds the Roy J. Carver Professorship in Engineering. As dean, Nembhard is the college's chief academic officer, providing strategic vision and oversight for undergraduate programs, research initiatives, staff support, and the college's six research centers. Prior to this appointment, she held academic leadership positions at Oregon State University and Penn State University. Her scholarship in healthcare systems engineering has led to several advances including a patent for manufacturing compliant medical devices and a sensor-based system to conduct early screening for Parkinson's disease. Throughout her career, she has advanced a community of inclusive excellence where diversity, equity, and equal opportunity create a welcoming environment that enables success for everyone. She is a Fellow of the American Society for Quality, a Fellow of the Institute of Industrial and Systems Engineers, and a Fellow of the American Institute for Medical and Biological Engineering. She received her BA in management from Claremont McKenna College, BS in industrial engineering from Arizona State University, and MS and Ph.D. in industrial and operations engineering from the University of Michigan.