

Defense Materials, Manufacturing and its Infrastructure (DMMI) Standing Committee

Committee

Thomas R. Kurfess

Chair

THOMAS R. KURFESS [NAE] is the HUSCO/Ramirez Distinguished Chair in Fluid Power and Motion Control and Regents' Professor of Mechanical Engineering at the Georgia Institute of Technology. During 2019–2021 he served as the chief manufacturing officer and the founding director for the Manufacturing Science Division at Oak Ridge National Laboratory. During 2012–2013 he served as the assistant director for advanced manufacturing at the Office of Science and Technology Policy, where he was responsible for coordinating federal advanced manufacturing research and development. He was the president of the American Society of Mechanical Engineers (ASME) in 2023–2024 and president of SME in 2018. His research focuses on the design and development of advanced manufacturing systems targeting secure digital manufacturing, additive and subtractive processes, and large-scale production enterprises. He is a member of the National Academy of Engineering and a fellow of ASME, American Association for the Advancement of Science, and SME. He received his SB, SM, and PhD in mechanical engineering from the Massachusetts Institute of Technology (MIT) in 1986, 1987, and 1989, respectively. He also received an SM from MIT in electrical engineering and computer science in 1988.

David E. Aspnes

Member

DAVID ASPNES [NAS] is a Distinguished University Professor and member of the Department of Physics at North Carolina State University. His formal education includes B.S. (1960) and M.S. (1961) degrees in electrical engineering from the University of Wisconsin–Madison and a Ph.D. (1965) in physics from the University of Illinois at Urbana-Champaign. He joined the North Carolina State University Physics Department in 1992 as a full professor and was made a Distinguished University Professor in 1999. He was elected as a member of the National Academy of Sciences in 1998. His principal research interests have focused on optical spectroscopy, semiconductor physics, and surface physics. His contributions include the discovery, elucidation, and development of low-field electroreflectance for high-resolution spectroscopy of semiconductors and the determination of their band structures; the development and application of spectroscopic ellipsometry to surfaces, interfaces, thin films, and bulk materials; and the development and application of reflectance-difference spectroscopy to real-time analysis of epitaxial growth. His current research activities are directed toward nondestructive analysis of surfaces and interfaces, and in particular the real-time diagnostics and control of semiconductor epitaxy by organometallic chemical vapor deposition. Dr. Aspnes has published over 400 papers and has been granted 23 patents.

Jian Cao

Member

Jian Cao [NAE] is the Cardiss Collins Professor and the founding director of the Northwestern Initiative for Manufacturing Science and Innovation, the research center on manufacturing science and innovation at Northwestern University. Cao considers manufacturing an integration platform and specializes in innovative manufacturing processes and systems, particularly dieless incremental forming processes and laser processes. Cao received her PhD in mechanical engineering from the Massachusetts Institute of Technology. Cao is a member of the National Academy of Engineering, a member of the American Academy of Arts and Sciences, and an elected fellow of the American Association for the Advancement of Science, the American Society of Mechanical Engineers (ASME), the International Academy for Production Engineering, and SME. Her major research awards include the ASME Milton C. Shaw Manufacturing Research Medal, SME Gold Medal, Department of Defense Vannevar Bush Faculty Fellowship, ASME and Pi Tau Sigma Charles Russ Richards Memorial Award, and SME Frederick W. Taylor Research Medal. Cao was the editor-in-chief of the Journal of Materials Processing Technology. She serves as associate vice president for research at Northwestern University, was a president of the SME North America Manufacturing Research Institute, and was a program director at the National Science Foundation. Cao is a board member of the SME Board of Directors and mHUB, Chicago's innovation center focused on physical product development and smart manufacturing.

Brent Carey

Member

BRENT CAREY is a Senior Program Leader at MACH-20, LLC, previously he was a senior materials scientist at Battelle. His efforts are focused on carbon-carbon composites and other ultra high-temperature materials for hypersonic applications including the setup of a high temperature materials R&D lab at Battelle, and leading the Manufacturing of Carbon-Carbon Composites for Hypersonic Applications (MOC3HA) program through AFRL in his previous role at Battelle. Prior to Battelle he worked at Owens Corning as a program leader for advanced manufacturing. At Corning the activities comprised of individual projects spanning investment in automation technologies, material sourcing initiatives, product form innovation, and production efficiency gains enabled by advanced manufacturing analytics. He was also a global portfolio leader for the composites business with accountability spanning new products, processes, and business development opportunities globally and regionally. He also coordinated, led, and served as gatekeeper in project gate reviews with senior leadership and participated in long range planning. He was also a fellow of the NASA graduate student researchers program and a recipient of the "Sallyport Award", the highest commencement award given by the Association of Rice Alumni as well as a NASEM Christine Mirzayan Fellow.

Julie A. Christodoulou

Member

Julie A. Christodoulou is currently a principal for Materials & Manufacturing Innovation, LLC, advising government, nonprofits, and small businesses on science and technology and program development and strategy. She previously served as the director of the Naval Materials & Manufacturing Division at the Office of Naval Research (ONR). At ONR she led a multifaceted science and technology program that included basic and applied research of materials systems, advanced development, manufacturing technology, and sea and air fleets deployment. A defining aspect of all efforts is an emphasis on the integration of experimental and computational activities to accelerate foundational understanding, development, and technology insertion. She has served critical roles in the formation and leadership of the Materials Genome Initiative and establishment of the Materials Manufacturing Institute, LIFT. She has held leadership positions within the Department of Defense's Reliance 21 Program and the Five-Eyes S&T Program, an international body that coordinates member nations' defense science and technology investments. She is a fellow of the Minerals, Metals & Materials Society (TMS) and ASM International. She has also been recognized with the Department of Navy Meritorious Civilian Service Award, Presidential Rank of Meritorious Senior Executive, Society of Manufacturing Engineering Donald C. Burnham Manufacturing Management Award, Acta Materialia Holloman Award and Distinguished Lecture, the 2016 ASM-TMS Joint Distinguished Lectureship on Materials and Society, and TMS Leadership Award. Christodoulou earned her PhD in materials science from Imperial College London.

Katherine T. Faber

Member

KATHERINE T. FABER is the Simon Ramo Professor of Materials Science at Caltech. She is interested in the fracture of brittle materials as well as the mechanisms by which such materials can be toughened and strengthened through composite strategies such as gradients and designed topology, often using synchrotron radiation for internal stress measurement. Her studies comprise materials for energy-related applications including thermal and environmental barrier coatings for power generation components and porous solids for filters and flow. Her team is also developing an understanding of the solidification and the chemistry of freeze-casting systems, creating versatile pore topologies thereby expanding the use of porous materials for environmental and energy needs. Dr. Faber has also worked with the Art Institute of Chicago to establish the Northwestern University/Art Institute of Chicago Center for Scientific Studies in the Arts where advanced materials characterization and analytical techniques are used in support of conservation science. She has served on the Scientific Advisory Committee of the Advanced Photon Source at Argonne National Lab from 2005 to 2007, is a fellow of ASM International, and received the YWCA Achievement Award for Education in 1997. Her Ph.D. is in materials science from University of California at Berkeley, and her M.S. in ceramic science is from Penn State.

David U. Furrer

Member

DAVID FURRER (NAE) is the Principal Fellow Discipline Lead for the Materials and Processes Discipline within Pratt & Whitney. He is responsible for guiding the development of technical strategies, and the development and evolution of engineering standard work within the discipline. David supports new material and manufacturing process design, development, and production transition programs, including efforts related to aftermarket, and service investigation initiatives. He is a champion for materials data management and analytics, and computational materials modeling. Additionally, he oversees overall discipline health, including critical skills identification.

He has over 30 years of experience in the areas of aerospace materials engineering, including forging manufacture, and materials and process modeling. He has been an adjunct professor at the Milwaukee School of Engineering, where he taught materials and manufacturing courses within the Mechanical Engineering Department.

He received his Bachelor's and Master's Degrees in Metallurgical Engineering from the University of Wisconsin-Madison, and a Doctorate of Engineering from the Universität Ulm, Ulm Germany. David is a Fellow and Past President of ASM-International, the Materials Information Society; a Fellow of TMS, the Minerals, Metals and Materials Society; and is also a member of the Connecticut Academy of Science and Engineering, and the National Academy of Engineering.

Jason R. Hattrick-Simpers

Member

Jason R. Hattrick-Simpers is a professor of Materials Science and Engineering at the University of Toronto and a research scientist at Natural Resources Canada CanmetMATERIALS. Prior to joining UofT he was a staff scientist at the National Institute for Standards and Technology in Gaithersburg MD. His expertise is in the development of novel methodologies that combine experimental/computational automation, data science, and artificial intelligence to create so-called self-driving labs. His current research interests are in the key challenges of trust, AI explainability, reproducibility, and the role of bias in informing experimental/computational campaigns. At the University of Toronto, he is co-director of the Inorganic Lab at the Acceleration Consortium, a faculty affiliate of the Vector Institute, and the co-lead of the Data Science Initiative – Reproducibility Thrust. He received his Ph.D. in Materials Science and Engineering in 2007 from the University of Maryland and a B.S. each in Mathematics and Physics from Rowan University in 2002.

Andrea M. Hodge

Member

ANDREA MARIA HODGE holds the Fluor Professorship of Chemical Engineering and Materials Science and of Aerospace and Mechanical Engineering at the University of Southern California (USC). She received her Ph.D. degree in Materials Science from Northwestern University. Prof. Hodge served as the Vice Provost for undergraduate programs at USC from July 2016 to June 2020. She is currently Co-Director for the USC Materials Consortium and Chair of the Chemical Engineering and Materials Science Department. Her research focus is the synthesis and microstructural design of nanoscale metals and ceramics for extreme environments. Dr. Hodge is the recipient of several prestigious research, mentoring, and teaching awards such as NSF CAREER Award, ONR Young Investigator Program (YIP) Award, and DARPA Young Faculty Award (YFA) as well as the Minerals Metals and Materials Society (TMS) Julia and Johannes Weertman Educator Award (2020). She is a Fellow of the Materials Research Society (MRS), ASM International and the American Association for the Advancement of Science (AAAS).

Jennie S. Hwang

Member

DR. JENNIE HWANG (NAE), is CEO of H-Technologies Group and Board Trustee and Invited Distinguished adj. professor at Case Western Reserve University. Her career encompasses corporate and entrepreneurial businesses, innovative research, advanced manufacturing, intellectual property management, technology transfer, and corporate and university governance (have served as board director for Fortune 500 NYSE-traded, private companies, university and civic boards). Author of seven (7) internationally-used technology books and 700+ publications/editorials. Among her many honors/awards are Congressional Certificates of Achievement; induction into International Hall of Fame - Women in Technology; R&D-Stars-to-Watch; Distinguished Alumni Awards; Honorary Doctoral degree; and YWCA Achievement Award. Served as CEO of International Electronic Materials Corp. and held senior executive positions with Lockheed Martin Corp., SCM Corp. and Sherwin-Williams Co. and co-founded entrepreneurial businesses. Internationally recognized as a pioneer and long-standing leader in the interconnecting microelectronic/electronic materials, semiconductor packaging, electronics miniaturization and advanced manufacturing, she has contributed to the reliability of F-22 program and DoD ManTech program, among others, and has served as Global President of Surface Mount Technology Association & other global leadership positions. She is also a prolific author and speaker on education, workforce, and business issues. Other services include International Advisory Board of Singapore Advanced Technology and Manufacturing Institute, Commerce Department's Export Council, a number of industry boards. Her formal education includes Harvard University Executive Program, Columbia University Business School Corporate Governance Program, and four academic degrees (Ph.D., M.A., M.S. and B.S.) in materials science & engineering, chemistry, and liquid crystal science.

William P. King

Member

WILLIAM P. KING is the Ralph A. Andersen Endowed Chair in the Department of Mechanical Science and Engineering at the University of Illinois Urbana-Champaign. He also holds appointments in the Departments of Materials Science and Engineering and Electrical and Computer Engineering. His research focuses on advanced manufacturing, microsystems and nanotechnology, and heat transfer. Manufacturing and measurement technologies developed in his laboratory have been adopted for applications in the automotive, semiconductor, aerospace, and pharmaceutical industries. He was co-founder at Fast Radius Inc., which was designated one of the world's most advanced factories by the World Economic Forum. He was founder and Chief Technology Officer at one of the nation's first Manufacturing Innovation Institutes, MxD, where he developed and led a \$100M portfolio of technology projects. He was a member of DARPA's Defense Sciences Research Council and served as Associate Chair. He currently serves on the Board of Governors at ASME. Dr. King's awards include the PECASE award from the White House, the ASME Gustus-Larson Award for accomplishment in mechanical engineering, and the ASME Ennor Award for accomplishment in manufacturing. He is a Fellow of ASME, SME, APS, IEEE, AAAS, and the National Academy of Inventors.

John J. Koszewnik

Member

JOHN JOSEPH KOSZEWNIAK [NAE] is the retired chief technical officer for the company Achates Power where his team has been responsible for the design and development of advanced diesel and gasoline opposed piston internal combustion engines. Among these is the Advanced Combat Engine (ACE) that is being jointly developed with Cummins, providing a leap-ahead capability in power density, fuel efficiency, and low heat rejection for the U.S. Army Ground Combat Fleet. Initial tests in the Bradley fighting vehicle are planned as pathways to the Next Generation Combat Vehicle. Prior to joining Achates Power in 2011, Koszewnik worked at Ford Motor Co., for 30 years, most recently as director of North American Diesel where he led engineering and business responsibilities for Ford diesel offerings within North America. Prior to that assignment Koszewnik was responsible for forward model engine engineering of all Ford's gasoline V6, V8, and V10 engines leading an organization of approximately 1200 employees. Koszewnik held a variety of other assignments while at Ford, including Manager of Worldwide Product Strategy and Manager of North American Marketing Product Plans. Following his distinguished career at Ford, Koszewnik was senior vice president of construction equipment product development at Case New Holland, where he managed 10 engineering centers worldwide and 650 employees. Additionally, he was director of production development at FEV Inc., an engineering services and consulting company, responsible for ensuring achievement of all functional requirements, quality, cost, and timing of production programs. He also supported product development and strategic study projects for the automotive, heavy truck, locomotive, and powertrain component supply industries. Koszewnik earned a bachelor's degree in engineering from Stevens Institute of Technology and a MBA from Harvard University. He is a member of the National Academy of Engineering, elected in 2016 based on his past and present work in engine design.

Leila J. Ladani

Member

LEILA LADANI is a Professor at the School for Engineering of Matter, Transport and Energy at Arizona State University. Dr. Ladani received her doctorate in mechanical engineering from University of Maryland at College Park, in 2007. Prior to that she received her master's degree in mechanical engineering in heat and fluid (with honor) and another master's degree in solid mechanics and her bachelor's degree in mechanical engineering. She is internationally recognized for her research on advanced and multi-scale manufacturing and mechanics of materials. Ladani's research, academic involvement and outreach has been supported and recognized by NSF, NAE, NASA, US Department of State and many others. She has been invited speaker for more than 35 talks. She was invited attendee of National Academy of Engineering Frontier of engineering conference and has been selected as ASME EPPD Women Engineer. She was selected as Connecticut Women of Innovation Finalist in the category of Academic Innovation and Leadership. She is the editor of Journal of Materials Science and Engineering A and has published more than 150 refereed manuscripts and patents. She is an ASME Fellow.

Michele V. Manuel

Member

MICHELE V. MANUEL (NAE) is the Rolf E. Hummel Professor of Electronic Materials and chair of the Department of Materials Science and Engineering at the University of Florida. Manuel's research lies in the basic understanding of the relationship between processing, structure, properties, and performance. Manuel uses a systems-based materials design approach that couples experimental research with theory and mechanistic modeling for the accelerated development of materials. Manuel's current research is focused on using systems-level design methods to advance the development of new materials through microstructure optimization. Specific interests include lightweight and functional materials, advanced manufacturing, and materials and systems under extreme environments – specifically at high magnetic fields or under irradiation. Manuel is the recipient of Presidential Early Career Award for Scientists and Engineers, a National Science Foundation CAREER Award, a NASA Early Career Faculty Award, an ASM Bradley Stoughton Award for Young Teachers, an American Vacuum Society Recognition for Excellence in Leadership, an Early Career Faculty Fellow Award from The Minerals, Metals and Materials Society (TMS), a TMS Brimacombe Medalist, a TMS/Japan Institute of Metals International Scholar Awards, and an ASM Fellow. Manuel received a Ph.D. in materials science and engineering at Northwestern University.

Hugh Richard Medal

Member

Hugh Medal is an Assistant Professor at the University of Tennessee, Knoxville, in the Department of Industrial and Systems Engineering. Dr. Medal's expertise lies in supply chain risk assessment and mitigation. Dr. Medal has published several articles on supply chain risk, examining topics such as risk assessment and mitigation. Related to supply chain risk mitigation, he has also studied the problem of strategically locating and protecting facilities to mitigate disruption risks. He has also published articles on measuring the vulnerability of systems such as rail networks.

C. Kumar N. Patel

Member

C. KUMAR N. PATEL (NAS/NAE) is the founder, CEO, and president of the board of Pranalytica, Inc., a Santa Monica-based company that is commercializing high-power quantum cascade lasers and highly sensitive and selective trace gas sensors for commercial, homeland security, and defense markets. He is also a distinguished professor at the University of Central Florida, as well as emeritus professor of physics, chemistry, and electrical engineering at University of California, Los Angeles (UCLA). From March 1993 to December 1999, he was the vice chancellor of research at UCLA. Until joining UCLA in March 1993, he was Executive Director, Research, Materials Science, Engineering, and Academic Affairs Division at AT&T Bell Laboratories, Murray Hill, New Jersey. Under his leadership, Bell Labs produced some of the most critical technologies for optical communications. He is the inventor of the carbon dioxide laser and other high power gas lasers. His work at AT&T Bell Laboratories led to the creation of the field of high-power molecular lasers, infrared nonlinear optics, ultra-small absorption measurement techniques for gases, solids, and liquids, and laser surgery. He has authored/co-authored over 270 publications and has been awarded 55 U.S. patents. He received the National Medal of Science given by the President of the United States in 1996. In 2012, he was inducted into the National Inventors' Hall of Fame. In recognition of the CO₂ laser's importance to the medical field, he was elected as an honorary member of the Gynecologic Laser Surgery Society in 1980, and in 1985 he was elected an honorary member of the American Society for Laser Medicine and Surgery. In 2018, the American Laser Study Club established the Kumar Patel Prize for Laser Surgery in honor of his invention of the carbon dioxide laser and its critical importance in laser surgery. He was named the first recipient of the Prize. He is the past president of the American Physical Society (1995) and Sigma Xi, The Scientific Research Society (1993-1995). He co-chaired (with N. Bloembergen) the American Physical Society Study of the Science and Technology of Directed Energy Weapons. Dr. Patel received his B.E. in telecommunications from the College of Engineering in Poona, India (1958) and his M.S. and Ph.D. degrees in electrical engineering from Stanford University (1959 and 1961, respectively).

Gamal Refai-Ahmed

Member

GAMAL REFAI-AHMED (NAE) currently serves as an AMD Senior Fellow, highlighting a prestigious career with significant contributions to the fields of high-performance computing (HPC), artificial intelligence (AI), and electronic packaging. Holding a PhD from the University of Waterloo, Refai-Ahmed has over 120 publications and more than 110 patents, marking him as a global technical leader. As a Senior Fellow Engineer at AMD, he leads innovations in thermos-mechanical system-level integration and technology strategies, significantly impacting GPU, CPU, and FPGA technologies across various sectors. His work has earned him numerous honors, including the IEEE Canada R.H. Tanner Industry Leadership Award and The American Society of Mechanical Engineers (ASME) Service Award, recognizing his leadership and innovation. Notably, Refai-Ahmed is a Life Fellow of ASME, a Fellow of IEEE, the Canadian Academy of Engineering, and the Engineering Institute of Canada, and was recently inducted into the National Academy of Engineering in 2024, in recognition of his outstanding contributions to engineering practice and education.

Lourdes Salamanca-Riba

Member

LOURDES SALAMANCA-RIBA is a professor of materials science and engineering at the University of Maryland's Energy Innovation Institute. She received her B.S. in physics from the Universidad Nacional Autonoma de Mexico and her Ph.D. in physics from Massachusetts Institute of Technology. Dr. Salamanca-Riba's research is in the areas of: advanced manufacturing of 3D microstructures and their characterization using computational methods and data analysis; self-assembly of semiconductor nanowires and liquid crystal nanocomposites for hybrid photovoltaic applications; DNA-based biosensors and radiation sensors on GaAs; high carbon content nanocarbon materials called "covetics;" and wide band gap semiconductors for high power, high temperature electronics. Dr. Salamanca-Riba's research involves the use of the transmission electron microscopes and the atomic force microscope at the Advanced Imaging and Microscopy (AIM) Laboratory. She is a member of the American Physical Society (APS), the Electron Microscopy Society of America, and the Materials Research Society (MRS).

Karen A. Thole

Member

KAREN A. THOLE is the Robert J. Vlasic Dean of Engineering at the University of Michigan. Previously, she served as a distinguished professor and head in the Department of Mechanical Engineering at The Pennsylvania State University. Thole's expertise is in gas turbine heat transfer, additive manufacturing, and instrumentation development. At Penn State, Thole founded the Steady Thermal Aero Research Lab, which focuses on detailed experimental and computational studies to advance aviation sustainability and power generation through highly efficient turbines. Thole currently serves as a member of the U.S. Air Force Scientific Advisory Board. She is a Fellow of the American Society of Mechanical Engineers (ASME), the American Institute of Aeronautics and Astronautics (AIAA), and the Royal Aeronautical Society. For her contributions, she has been awarded the ASME George Westinghouse Gold Medal, the ASME Edwin F. Church Medal in Engineering Education, the ASME R. Tom Sawyer Award, the ASME Heat Transfer Memorial Award, the AIAA Air Breathing Propulsion Award, and the AIAA Thermophysics Award. Thole earned a Ph.D. in mechanical engineering from the University of Texas at Austin. Thole has served on two National Academies study committees, one related to low carbon aviation and the other on advancing gas turbines.

Morgana Trexler

Member

Dr. Morgan Trexler joined APL in 2008, and is currently a Program Manager in APL's Research and Exploratory Development Department (REDD). She leads a diverse and expanding portfolio of research projects in the Science of Extreme & Multifunctional Materials Program, and previously served as the Supervisor of REDD's Multifunctional Materials & Nanostructures Group. Dr. Trexler serves on the Executive Council of the Hopkins Extreme Materials Institute (HEMI), the Advisory Boards for the Johns Hopkins University Mechanical Engineering Department and Carnegie Mellon University Materials Science & Engineering Department, and serves on the Maryland Science Center's Science Council. She was a recipient of APL's Outstanding Research Paper Award in 2022, Society of Women Engineers' 2021 Patent Recognition Award, Georgia Tech's 2015 Council of Outstanding Young Engineering Alumni Award, Maryland Science Center's 2014 Young Engineer Award, JHU/APL's 2010 Invention of the Year Award, and Georgia Tech's 2009 Luther Long Memorial Award in Engineering Mechanics. In 2020, Dr. Trexler was awarded as APL's first female Master Inventor (recipient of 10 patents). She received her B.S. in Materials Science & Engineering and Biomedical Engineering from Carnegie Mellon University, and her M.S. and Ph.D. in Materials Science & Engineering from Georgia Institute of Technology.

Rudy Wojtecki

Member

RUDY WOJTECKI is the director for process engineering at Applied Materials. Previously he was a research staff member at the IBM Almaden Research Center. Dr. Wojtecki has over a decade of experience in polymer chemistry, with a focus on polymer synthesis and electronic materials. Ongoing research on applied materials for lithography and patterning schemes in semiconductor manufacturing. Recent work centers the development of new selective deposition schemes using atomic layer deposition and optimization of existing patterning materials. In addition, continued contributions to this field provides significant experience in the patent process, he is co-inventor on over 30 issued patents and recognized as a 2017 IBM Master Inventor. He recently completed the Massachusetts Institute of Technology professional certificate program in applications of quantum computing.

Pablo D. Zavattieri

Member

PABLO D. ZAVATTIERI is the Jerry M. and Lynda T. Engelhardt Professor in Civil Engineering, Engineering at Purdue University. Prior to his academic position at Purdue he was a senior/staff researcher at the General Motors Research and Development Center. His research interest is at the intersection of solid mechanics and materials engineering. His contribution to the field of materials have been focused on the structure-function relationship of advanced materials at multiple length-scales, combining state-of-the-art computational techniques and experiments to understand and characterize key mechanisms that contribute to material performance; thus enabling design guidelines for novel materials, including architected/metamaterials, biological and bioinspired materials. Some of his recent work also includes advanced manufacturing applied to infrastructure materials. Dr. Zavattieri received his B.S. and M.S. degrees in Nuclear Engineering from the Balseiro Institute (Argentina) and his Ph.D. in Aeronautics and Astronautics Engineering from Purdue University. He has authored or co-authored over 110 peer-reviewed articles and holds 10 patents. Dr. Zavattieri is member of the editorial board of three journals and has chaired and co-chaired several committees for different organizations. Additionally, Dr. Zavattieri has strong links, commitments and involvement with the Hispanic engineering community. Dr. Zavattieri is the recipient of the NSF CAREER award and was appointed a Purdue University Faculty Scholar among other recognitions. He is a National Academy of Engineering Frontiers of Engineering Alumnus and a National Academy of Science Kavli Frontier of Science Fellow.

Erik B. Svedberg

Staff Officer

ERIK B. SVEDBERG is a Scholar and the materials and manufacturing lead for the physical sciences, systems and infrastructure at the National Academies of Science, Engineering and Medicine a position he has held since 2008. In this role, he works with experts from across the nation to develop, negotiate, and oversee scientific and technical advisory studies for federal agencies related to questions of materials science, manufacturing and engineering design. His previous and current activities at the National Academies includes work as a Study Director for; Materials Needs and R&D Strategy for Future Aerospace Propulsion Systems; Corrosion Research Grand Challenges; Opportunities in Protection Materials; Optics and Photonics, Essential Technologies for Our Nation; Review of the National Nanotechnology Initiative; Airport Passenger Screening; Frontiers of Materials Research, A decadal Survey; Participation by DOD in its Manufacturing USA Institutes; and High Performance Bolting Technology for Offshore Oil and Gas Operations. As well as overseeing workshops such as: Big Data in Materials Research and Development; Limited Affordable Low-Volume Manufacturing; Materials and Manufacturing Capabilities for Sustaining Defense Systems; New and Novel Processes that are on the Verge of Industrial Modernization; and Emerging Needs in Quantum-Enabled Systems. Dr. Svedberg has a decade of industry experience with both small and large companies in the materials science area and has been a guest researcher at NIST for several years. He has been awarded and overseen five research grants and has published over 80 scientific articles, been granted two patents and is cited over 1,600 times with an h-index of 22. His Ph.D. and masters are in materials science and he is a fellow of the American Association for the Advancement of Science (AAAS), American Vacuum Society (AVS), and the Washington Academy of Science (WAS) including being their 2019 leadership in material science award recipient.