

Army Next Generation Armor Workshop

Committee

George (Rusty) T. Gray, III

Chair

Dr. George T. (Rusty) Gray III is a Laboratory Fellow and Laboratory Associate in the dynamic properties and constitutive modeling team within the Materials Physics and Applications Division of Los Alamos National Laboratory (LANL). He received his BS (1976) and MS (1977) from South Dakota School of Mines and Technology. He came to LANL following a three-year visiting scholar post at the Technical University of Hamburg-Harburg in Hamburg, Germany after his PhD in Materials Science in 1981 from Carnegie-Mellon University. He conducts fundamental, applied, and focused programmatic research on high-strain-rate and shock deformation. He is a Life Member of Clare Hall, University of Cambridge in the UK where he was on sabbatical in 1998. He co-chaired the Physical Metallurgy Gordon Conference in 2000. He is a Fellow of the American Physical Society (APS), a Fellow of ASM International (ASM), and a Fellow of the Minerals, Metals, and Materials Society (TMS). He is a member of APS, ASM, TMS, and serves on the Advisory Board of the European DYMAT Association. In 2010 he served as the President of the Minerals, Metals, and Materials Society (TMS). Starting in 2012 he became the Chair of the Acta Materialia Board of Governors which oversees the publication of the journals Acta Materialia, Scripta Materialia, Acta Biomaterialia, and Materialia. He has authored or co-authored over 490 publications. In 2017 he was elected to the National Academy of Engineering (NAE). In 2018 he was awarded the Rinehart Award from the European DYMAT Association. In 2019 the American Physical Society awarded him the 2019 George E. Duvall Shock Compression Science Award. In January 2020, he was awarded the American Ceramic Society ICACC Plenary Lecture. In 2020-2022, he served on the congressionally-mandated National Academy Study Panel Assessing the Feasibility of the Strategic Long-Range Canon (SLRC) for the US Army. In December 2021 he was recognized by the South Dakota Mines with a Distinguished Alumni Award. In 2023 he received the Edward DeMille Campbell Memorial Lecture Award from ASM International.

Julie A. Christodoulou

Member

Dr. Julie A. Christodoulou is an independent consultant on matters of materials science and engineering, manufacturing, and strategic program development. She is recently retired from the position of Director, 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, and manufacturing technology. A defining aspect of all efforts is an emphasis on the integration of experimental and computational work to accelerate the development of foundational understanding and technology insertion. Dr. Christodoulou has served critical roles in the formation and leadership of the Materials Genome Initiative and establishment of the Materials Manufacturing Institute, Lightweight Innovations for Tomorrow (LIFT); and has held leadership positions within the DoD Reliance 21 Program and The Technical Collaboration Program, an international body that coordinates member nations' defense science and technology investments. She has been recognized with the Department of Navy Meritorious Civilian Service Award, the Presidential Rank of Meritorious Senior Executive, the Acta Materialia 2018 Holloman Award and Distinguished Lecture, the 2016 ASM-TMS Joint Distinguished Lectureship on Materials and Society, the 2013 TMS Leadership Award. She is a Fellow of The Mining, Metals and Materials Society (TMS) and of ASM International. Dr. Christodoulou earned her PhD in materials science from Imperial College, London. She is currently an active member of the National Materials and Manufacturing Board (NMMB) and the Defense Materials, Manufacturing and their Infrastructure standing committee (DMMI). While at ONR, she interacted closely with the NMMB and provided briefings in support of studies on Accelerating Materials Transition and Integrated Computational Materials Engineering.

Thomas R. Kurfess

Member

Dr. Thomas R. Kurfess is the Executive Director of the Georgia Tech Manufacturing Institute and the HUSCO/Ramirez Distinguished Chair in Fluid Power and Motion Control and Regents' Professor of Mechanical Engineering at Georgia Tech. He also serves as the Chief Technology Officer at the National Center for Manufacturing Sciences. 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 an elected member the NAE and served as President American Society of Mechanical Engineers in 2023-24, and President of Society of Manufacturing Engineers in 2018. He holds 3 degrees (Ph.D., S.M. and S.B.) in Mechanical Engineering from M.I.T. and an S.M. in Electrical Engineering and Computer Science from MIT. He is a registered professional engineer.

Sean MacFarland

Member

LTG (Ret) Sean B. MacFarland led armored and cavalry units in peace and war at every echelon from cavalry platoon to armored corps over his 37-year Army career, earning numerous awards, including multiple Distinguished Service Medals. As a colonel in 2006, he played a pivotal role in the Sunni Arab Awakening in Iraq that changed the course of the war. He later commanded all joint and coalition forces in the war against ISIS from 2015-2016, breaking the stalemate and liberating almost half of the so-called “caliphate.” In 2016 he was recognized as one of Time Magazines 100 Most Influential People in the World. He holds bachelor’s and master’s degrees in aerospace engineering and worked on the national missile defense program following graduate school. Upon retirement, Sean was VP of Weapons Programs at General Atomics Electromagnetic Weapons Group, where he led such programs as hypersonic glide bodies and long-range projectiles, tactical vehicle electrification, and free space optical communications. He remains a parent board member of the Army Science Board and has led or supported studies pertaining to system resilience in large scale combat operations and human-machine integration.

Phillip I. Miller

Member

Dr. Phillip I. Miller joined LANL in 2015 as a postdoc in the Focused Experiments group following his PhD work at the University of Washington studying laser shocked materials, and converted to a staff member in 2017. Miller’s primary research interests are high explosives (HE) and HE/metal interactions, utilizing highly diagnosed experiments at LANL firing sites supporting the Science campaigns, directed stockpile work, global security and hydro programs. Miller is also the senior project leader for the ‘Explosive Drive and Hydrodynamics of Metals’ project in the DoD/DOE Joint Munitions Program, which conducts research of mutual interest to conventional and nuclear weapons. Miller has received numerous distinguished performances awards related to weapons science, the hydro program, and level 1 milestones for physics acceptance of direct cast and efficient pit production.

Mark A. Rupersburg

Member

Mr. Mark A. Rupersburg the VP of Engineering at RSGS and is a recognized leader in defense and aerospace, and automotive markets. In addition to supporting large product OEMs and successful, recognized programs, Mark is an innovator and entrepreneur who has founded and led several start-ups. He led the development of a \$30M collaboration center at GD Land Systems. His experience relevant to the Next Generation Armor Workshop includes knowledge of vehicle design and operational concepts; requirements and allocation, system trades and optimization, verification and validation. Mark's domain knowledge includes mobility, powertrain, survivability, lethality, sensing, autonomy, and AI. He is an active member of the Michigan NDIA and supporter of the Ground Vehicle Systems Engineering & Technology Symposium (GVSETS). Mark has been active with DEVCOM and the Detroit Arsenal team throughout his career with GD Land Systems, FLIR Systems, and Rafael. Mark has a BSME from Wayne State University and studied at Stanford University.

Timothy J. Snyder

Member

Mr. Timothy J. Snyder is a Technical Fellow for Oshkosh Defense, LLC and has over 34 years of experience designing, testing, and building Tactical Wheeled Vehicles, Combat Vehicles and Armor systems. He first began working on armor and mine-protection for Oshkosh's HEMTT in 1996. From 2003 to present, Tim has had significant design authority over the armor development for Oshkosh's MTVR, LVSr, M-ATV, JLTV, FHTV, & FMTV platforms successfully meeting US Army, USMC, and foreign customer requirements. As Chief Engineer and Director of Engineering, Tim has led several of Oshkosh's Core technology groups including the Cab & Capsule, Armor & Survivability, and Combat Vehicle teams. These Core tech teams provide subject matter expertise and develop critical subsystems for all Oshkosh Defense platforms. In this role, he's worked closely with numerous armor material & component suppliers, as well as with US Army and USMC customers and Government agencies (ARL, NRL, ATEC, DEVCOM, GVSC, etc.) and is regularly asked by the Army's standards committees to contribute feedback on draft MIL-STD's, MIL-DTL's and ATPD's related to armor. As a Technical Fellow, Tim plays a critical role in shaping technology strategy and innovation to position Oshkosh Corporation & Oshkosh Defense as a leader in the global industrial manufacturing space. His depth of experience and expertise drives the development of advanced solutions to enhance product development, improve efficiencies, and assure long-term growth.

Valerie Wiesner

Member

Dr. Valerie L. Wiesner is a Senior Research Materials Engineer in the Advanced Materials and Processing Branch (AMPB) at NASA Langley Research Center (LaRC) in Hampton, Virginia. She served as Acting Assistant Branch Head in the Crew Systems and Aviation Operations Branch (2022) and in AMPB (2024). Prior to joining LaRC in 2019, she started her NASA career as a Research Materials Engineer in the Ceramic and Polymer Composites Branch at NASA Glenn Research Center in Cleveland, Ohio, in 2014. Her research has spanned ceramic coatings and composites for extreme environment applications ranging from reusable hypersonic vehicles and gas turbine engines to lunar and planetary exploration and surface operations. She oversees unique extreme environmental testing capabilities at LaRC and is an expert in ceramic materials testing and characterization. She holds leadership roles in the American Ceramic Society (ACerS) and American Institute of Aeronautics and Astronautics (AIAA). She participated in the 2022 National Academy of Engineering U.S. Frontiers of Engineering Symposium and has received awards, including the NASA Early Career Achievement Medal and ACerS' Fulrath Award. She earned a Ph.D. in Materials Engineering from Purdue University in West Lafayette, Indiana, and B.A. in physics with Japanese language certificate from Carleton College in Northfield, Minnesota.

Steven Darbes

Staff Officer