

HEMI / MSEE Impact Research Workshop Speaker Biographies

Naresh Thadhani

Naresh Thadhani is Professor and past Chair of the School of Materials Science and Engineering (MSE) at Georgia Tech (GT), currently serving a 12-month assignment as Jefferson Science Fellow with the Bureau of Overseas Building Operations at the U.S. State Department, in Washington D.C.

He joined the GT faculty in 1992, after serving for six-years in the Center for Explosives Technology Research at New Mexico Tech, and for two years as a post-doctoral research fellow at Cal Tech. He received his B.E. in 1980 from Malaviya National Institute of Technology in Jaipur, India; M.S. from South Dakota School of Mines; and Ph.D. from New Mexico Tech, all in Metallurgical Engineering.



Professor Thadhani is recognized for his research in high-pressure shock-compression and high-strain-rate deformation of materials. His current research has focused on shock-induced phase transformations and mechanical properties in advanced steels, bulk metallic glasses, and additively manufactured materials; design, development, and characterization of structural energetic materials; and shock-compression of highly heterogeneous materials, including granular/particulate systems and high-solids loaded polymer composites.

He has advised 15 visiting scientists/post-docs; 29 Ph.D and 18 M.S degree students; and mentored 60+ undergraduate student researchers. He has co-edited 12 books/proceedings, published more than 275 refereed papers (including several invited review articles), and 173 publications in conference proceedings, and presented more than 170 invited talks and seminars.

Professor Thadhani is recipient of the Jefferson Science Fellowship through the National Academies of Science, Engineering, and Medicine, and the TMS Leadership award. He is an elected Fellow of ASM International and the American Physical Society, and Academician of the EuroMediterranean Academy of Arts and Sciences.

David Lambert

Dr. David E. Lambert, a member of the scientific and professional cadre of senior executives, is the Chief Scientist, Munitions Directorate, Air Force Research Laboratory, Eglin Air Force Base, FL. He serves as the principal scientific and technical advisor to the director and is the primary authority for the technical content of the directorate's science and technology portfolio. The Munitions Directorate leads the discovery, development and integration of affordable warfighting conventional air-launched weapon technologies for the US Air Force. The directorate consists of a staff of more than 735 military, civilian and contracted professionals pursuing a wide variety of research and development efforts in energetic and explosives, fuzes, warheads, missile seekers, guidance, navigation and control, weapon airframes, assessment methodology, and the integration of these into weapon systems.



Dr. Lambert began a DoD civilian in 1985. He has fulfilled a variety of technical positions ranging from bench level research scientist to branch technical advisor and core technical competency leader while in AFRL/RW and its predecessor organizations (Air Force Armament Laboratory and Wright Laboratories). Dr. Lambert was recognized in 2011 as an AFRL Fellow for his innovative research and strong technical leadership in ordnance and weapons related science and technology. He is recognized for his visionary experimental research for advancing detonation physics and explosive-metal interactions to pioneering warhead concepts. This research and his collaborations have laid the foundations for tomorrow's selectable effects and multi-mode munitions that today are being considered as the basis of the suite of next generation weapons. Dr. Lambert has published over 110 technical papers and proceedings in national and international journals and forums. He has an extensive experimental background in areas of fundamental characterization and advancement of detonation physics, focused energy warheads, penetration mechanics and ordnance integration.

EDUCATION

1987 Bachelor of Science degree in Mechanical Engineering, Florida State University, Tallahassee, Florida

1991 Master of Science degree in Engineering Mechanics, University of Florida, Gainesville, Florida

1998 Doctor of Philosophy degree in Engineering Mechanics, University of Florida, Gainesville, Florida

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CAREER CHRONOLOGY

1. 1987 - 2002, Mechanical engineer, Warheads Branch, Air Force Armament Laboratory, Aeronautical Systems Command, Eglin Air Force Base, Florida.
2. 2002 - 2009, Team Leader and Senior Scientist, Damage Mechanisms Branch, Munitions Directorate, Air Force Research Laboratory, Eglin Air Force Base, Florida
3. 2009 - 2013, Damage Mechanisms Sciences Core Technical Competency Lead, Damage Mechanisms Branch, Munitions Directorate, Air Force Research Laboratory, Eglin Air Force Base, Florida
4. 2013 - 2015, Ordnance Sciences Core Technical Competency Lead, Ordnance Division, Munitions Directorate, Air Force Research Laboratory, Eglin Air Force Base, Florida
5. 2015 - present, Chief Scientist, Munitions Directorate, Air Force Research Laboratory, Eglin AFB, Florida

AWARDS AND HONORS

2001 AF Commendation Medal - Exemplary Civilian Service Award

2006 S&T Achievement Award, American Institute of Aeronautics and Astronautics

2010 AFRL Science, Engineering and Technical Award

2010 AFMC Science, Engineering and Technical Award

2011 Fellow, Air Force Research Laboratory

2012 AF Commendation Medal - Civilian Achievement Award

2012 AF Commendation Medal - Meritorious Civilian Service Award

2015 Leroy Collins Distinguished Graduate – Northwest Florida State College

2015 Distinguished Alumnus, Dept. of Mechanical and Aerospace Engineering, Univ. of Florida

2017 Hall of Fame, Choctawhatchee High School, Fort Walton Beach, FL

2018 Fellow, American Society of Mechanical Engineers

PROFESSIONAL MEMBERSHIPS AND ASSOCIATIONS

Hypervelocity Impact Society (past President)

International Ballistics Society (Founding Senior Member)

American Society of Mechanical Engineers (Fellow)

KT Ramesh

K.T. Ramesh, the Alonzo G. Decker, Jr., Professor of Science and Engineering at Johns Hopkins University, is the Executive Director of the Johns Hopkins AI-X Foundry. He was the founding director of the Hopkins Extreme Materials Institute (HEMI), as well as Senior Advisor to the President of Johns Hopkins. His current research focuses on AI in materials design, impact biomechanics including concussions, protection materials, hypersonics, the dynamic limits of life, and protecting the Earth from incoming asteroids. Ramesh is a Professor in the Department of Mechanical Engineering, with appointments in the Departments of Earth and Planetary Sciences as well as Materials Science and Engineering, and is a member of the Principal Professional Staff at the Johns Hopkins Applied Physics Laboratory. He has written over 250 archival journal publications and is the author of the book “Nanomaterials: Mechanics and Mechanisms.” Professor Ramesh also has a particular interest in the ways in which creativity can be integrated into the sciences, arts, and engineering. He is most excited about having an asteroid named after him: (32518) 2001 OZ₆₉, which also tells you that he revels in being a geek.



Saryu Fensin

Saryu Fensin is a staff scientist and team leader for the quasi-static and dynamic behavior of materials team in MPA-CINT at Los Alamos National Laboratory. Her research interests focus on the role of heterogeneities and defects on the dynamic behavior of materials. Fensin's expertise is related to coupling both experiments and modeling efforts to not only understand the mechanisms that contribute to damage in metals but also working with collaborators in implementing some of these insights into strength and damage models. Fensin's skills in this area are nationally recognized as demonstrated by collaborations both inside and outside the laboratory, service as a proposal reviewer for DOE-BES, NSF and NNSA, and requests to review articles for premier journals in the field. Fensin earned a Ph.D. in materials science and engineering from the University of California, Davis



Scott Schoenfeld

As the senior research scientist for terminal ballistics, Dr. Schoenfeld is serves as the Army's leading expert in the field. He is responsible for the guidance broad theoretical and experimental initiatives to understand the mechanics and physics of weapon-target interactions. He previously served as senior scientist for the Lethality and Protection Sciences Campaign within the Army Research Laboratory. His responsibilities included planning, direction, management, and oversight of theoretical and applied research and development of programs associated with ballistics, terminal effects, mechanics, directed energy, and computational science and engineering. Previously, he led the Armor Mechanics Branch in research focused on the development of armor technologies during a time of national crisis and rapid transition of research to field application. His responsibilities included leadership of national and international partnerships and teams conducting investigative programs in the areas of mechanics, physics, and electro-magnetic response of materials and structures under conditions of blast, impact and penetration and the development of ceramic, energetic, smart, electromagnetic, and hybrid protection technologies appropriate for battlefield deployment. From 2004-2005 he led the Impact Physics Branch of the Army Research Lab where he provided direction and oversight to a team of researchers investigating the mechanical behavior of materials at high pressures and high strain-rates relevant to terminal effects of systems for protection and lethality. He was awarded a Ph.D. in applied mechanics in 1995 from the University of California, San Diego and his personal research experiences focus on the mechanics of materials with emphasis on multi-scale theories for single and polycrystalline materials and development of theories into computational algorithms suitable for simulation of impact conditions, penetrator-target interactions, structural failure and high strain-rate deformation processing of materials. He has published numerous peer-reviewed publications, ARL Technical Reports and Conference proceedings and has been active in American Ceramic Society, The Metals Minerals and Materials Society, American Society of Mechanical Engineers, The Materials Research Society, United States Association for Computational Mechanics, and the Hypervelocity Impact Society. He has received numerous honorary awards including the Department of the Army Meritorious Civilian Service Award for cumulative contributions to the development of armor technology, a Department of Army Research and Development Award for Leadership Excellence and two Army Greatest invention awards.



Ghatu Subhash

Professor Ghatu Subhash obtained his PhD from University of California San Diego in 1991 and conducted his post-doctoral research at California Institute of Technology. He is Newton C Ebaugh Professor in Mechanical and Aerospace Engineering at University of Florida, Gainesville, FL. His research focuses on multiaxial behavior of advanced ceramics, metals, composites, gels and biological materials. He has developed novel experimental methods which have been patented and widely used. He has co-authored 215 peer reviewed journal articles (>10300 citations in Google Scholar, h-index=56), 85 conference proceedings, 2-books, and 6 patents. He has given numerous keynote and invited lectures at major international conferences. He has advised 41-PhD students and seven post-doctoral research fellows. Many of his students have received awards at International Student Paper Competitions in professional societies and fellowships from NSF, DOD, and DOE. His former PhD students are employed at major Universities in US and abroad, and national laboratories including SNL, ORNL, PNNL and ARL. He is a Fellow of three societies: ASME, Society for Experimental Mechanics (SEM), and the American Ceramic Society (ACerS). He is the Editor-in-Chief of *Mechanics of Materials* and Associate Editor of *Journal of the American Ceramic Society*. He has received numerous awards, including the SEM Lazan Award (2022) for innovative contributions to experimental mechanics, *University of Florida Doctoral Dissertation Advisor/Mentoring Award-2020-2021 (Feb 2021)*, SEM 'Frocht Award' (2018) in recognition of outstanding achievements as an educator, 'Best Paper'-Journal of Engineering Materials and Technology (2016), 'Significant Contribution Award' from the *American Nuclear Society* for developing a rapid processing scheme for ceramic nuclear fuels, 'Technology Innovator Award' from University of Florida, *ASME Student Section Advisor Award*, 'SAE Ralph R. Teetor Educational Award', and 'ASEE Outstanding New Mechanics Educator' award.



Nathan Barton

Nathan Barton is the Program Group Leader for Condensed Matter Physics in the Weapon Physics and Design Program. Nathan earned a BS degree in mechanical engineering from the University of Illinois, graduating summa cum laude in 1996. Nathan's PhD work was conducted through the Deformation Processes Laboratory at Cornell University, with support from a National Science Foundation graduate fellowship. After completing his PhD, Nathan spent several years at the University of California in San Diego before joining LLNL as a staff member. Nathan's achievements were recognized in 2017 when he was named a Fellow of the American Physical Society, in 2015 when he was selected to be among the first cohort to receive the LLNL Director's Early- Mid-Career Recognition Award, and through several Defense Programs Award of Excellence certificates.



Eric Herbold

Eric Herbold has a PhD in Applied Mechanics from the University of California, San Diego in 2008. Eric has recognized expertise in experimental and numerical investigations of shock wave physics, fracture mechanics, advanced contact/fragmentation algorithms and parallel computing. He has over 12 years of experience as a Physicist at LLNL, and is the Group Leader of the Computational Geosciences group comprised of 20 researchers. Eric has extensive experience building teams, mentoring and leading people and projects towards strategic objectives.

