

Panel on Review of In-house Laboratory Independent Research in Computational Sciences at the Army's Research, Development, and Engineering Centers

Committee

Christian Mailhot

Chair

CHRISTIAN MAILHIOT is senior manager of Energy Materials Science at Sandia National Laboratories (SNL) in Livermore, CA. Prior to joining SNL in 2016, he held the position of professor in the College of Arts and Sciences at Washington State University (WSU) during the period 2013 – 2016. At WSU, he also held the positions of director for the Center for Institutional Research Computing (CIRC), and administrative director for the Joint Center for Deployment and Research in Earth-Abundant Materials (JCDREAM). Prior to joining WSU, Dr. Mailhot was a senior technical manager at Lawrence Livermore National Laboratory (LLNL) during the period 1989 – 2013. He has worked in the areas of theoretical and computational condensed matter physics, ab initio many-body calculations of materials, atomic and electronic structure of materials, electronic structure theory and optical properties of semiconductor superlattices and synthetically modulated quantum-confined structures, semiconductor physics, surface and interface science, and static and dynamic pressure-induced phase transformations. He received his B.Eng. in engineering physics in 1978 from L'École Polytechnique de Montréal in Canada. He obtained his M.S. (1980) and Ph.D. (1983) in applied physics from the California Institute of Technology, Pasadena, CA. From 1983 through 1989, he was a member of the technical staff at the Xerox Webster Research Center in Webster, NY, where he worked in the field of semiconductor and solid-state physics. In 2003, he was elected a fellow of the American Physical Society, Division of Materials Physics. He serves on numerous editorial boards and review and scientific advisory committees.

Steven L. Crouch

Member

STEVEN L. CROUCH, NAE is a professor emeritus in the Department of Civil, Environmental, and Geo-Engineering at the University of Minnesota. He was dean of the University's College of Science and Engineering from January 2005 to September 2016. He previously served as the college's associate dean for finance and planning and as head of the civil engineering department. Prior to joining the University faculty, he was a research officer with the Mining Research Laboratory of the Chamber of Mines of South Africa in Johannesburg, South Africa. Dr. Crouch's research focuses on numerical modeling of problems in solid mechanics using boundary integral equation methods. His early research dealt with the stability of underground mine openings; more recently, he has studied numerical stress analysis techniques for fiber-reinforced and particulate composite materials. In the mid-1970s he developed a special numerical method called the displacement discontinuity method, a widely used tool for solving problems ranging from crack propagation in elastic solids to the design of underground mining excavations. He is coauthor of the book *Boundary Element Methods in Solid Mechanics*. Dr. Crouch received a B.S., M.S., and Ph.D. in mineral engineering from the University of Minnesota.

Prabhat Hajela

Member

PRABHAT HAJELA is professor of aerospace engineering, and the vice provost and dean of undergraduate education at the Rensselaer Polytechnic Institute. His research interests include analysis and design optimization of multidisciplinary systems; system reliability; emergent computing paradigms for design; artificial intelligence; and machine learning in multidisciplinary analysis and design. Before joining Rensselaer, he worked as a research fellow at the University of California, Los Angeles for a year, and was on the faculty at the University of Florida for seven years. He has conducted research at NASA's Langley and Glenn Research Centers, and the Eglin Air Force Armament Laboratory. In 2003, Dr. Hajela served as a congressional fellow responsible for Science and Technology Policy in the Office of U.S. Senator Conrad Burns. He worked on several legislative issues related to aerospace and telecommunications policy, including the anti-SPAM legislation that was signed into law in December 2003. Dr. Hajela is a fellow of the American Institute of Aeronautics and Astronautics (AIAA), a fellow of the Aeronautical Society of India (AeSI), a fellow of American Society of Mechanical Engineers (ASME), and the vice-president of the International Society of Structural and Multidisciplinary Optimization (ISSMO). Dr. Hajela has held many editorial assignments including editor of *Evolutionary Optimization*, associate editor of the *AIAA Journal*, and is on the editorial board of six other international journals. He has published over 255 papers and articles in the areas of structural and multidisciplinary optimization, and is an author or co-author of four books in these areas. Dr. Hajela earned a B.A. in aeronautical engineering from Indian Institute of Technology and an M.S. and Ph.D. in aeronautics and astronautics from Stanford University.

John D. Lee

Member

JOHN D. LEE is the Emerson Electric professor in the Department of Industrial and Systems Engineering and director of the Cognitive Systems Laboratory at the University of Wisconsin, Madison. Previously he was a professor at the University of Iowa and director of human factors research at the National Advanced Driving Simulator. His research focuses on the safety and acceptance of complex human-machine systems by considering how technology mediates attention. He is a coauthor of the textbook, *An Introduction to Human Factors Engineering*, and he recently helped to edit *The Oxford Handbook of Cognitive Engineering*, the *APA Handbook of Human Systems Integration*, the *Handbook of Driving Simulation for Engineering, Medicine, and Psychology*, and two books on distraction: *Driver Distraction—Theory, Effects, and Mitigation* and *Driver Distraction and Inattention*. He has served on several National Academy of Sciences committees including the Committee on Human-System Integration and the Committee on Electronic Vehicle Controls and Unintended Acceleration. Dr. Lee earned a B.A in psychology and a B.S. in mechanical engineering from Lehigh University, an M.S. in industrial engineering and a Ph.D. in mechanical engineering from the University of Illinois at Urbana-Champaign.

Panagiotis Tsiotras

Member

PANAGIOTIS TSOTRAS is the dean's professor of aerospace engineering at the Daniel Guggenheim School of Aerospace Engineering at the Georgia Institute of Technology (Georgia Tech). At Georgia Tech, he is also the director of the Dynamics and Control Systems Laboratory and an associate director in the Institute for Robotics and Intelligent Machines (IRIM). He is also affiliated with the Center for Space and Technology Research (C-STAR) and the Decision and Control Laboratory at Georgia Tech. His research interests include dynamics and control of nonlinear systems, optimal and robust control, and their connections with artificial intelligence, robotics, and vehicle autonomy. He has published more than 300 papers in these areas (h-index 53). He has been a member of the editorial boards of the American Institute of Aeronautics and Astronautics (AIAA) *Journal of Guidance, Control, and Dynamics* (1999-2007), the Institute of Electrical and Electronics Engineers (IEEE) *Control Systems Magazine* (2003-2009), the *IEEE Transactions of Automatic Control* (2009-2011), and the *Dynamics and Control: An International Journal* (2000-2002). He is currently the chief editor in the area of space for the publication *Robotics in the Frontiers of Robotics and AI*. He is the recipient of the 1996 CAREER Award from the National Science Foundation, the President's Award for Excellence in Research from the Sigma Xi Society from the University of Virginia, and the 2014 Outstanding Aerospace Engineer (OAE) award from the School of Aeronautics and Astronautics at Purdue University, the 2018 IEEE Technical Excellence Award in Aerospace Control, while his students have received numerous "best thesis" and "best paper" awards. He is fellow of AIAA and a senior member of IEEE. He is a member of the Phi Kappa Phi, Tau Beta Pi, and Sigma Gamma Tau Honor Societies. Dr. Tsiotras received his Ph.D. degree in aeronautics and astronautics from Purdue, and his engineering diploma in mechanical engineering from the National Technical University of Athens, Greece. He also holds M.S. degrees in aerospace engineering from Virginia Tech and mathematics from Purdue University.