

Roy Schwitters (Chair), *University of Texas*

Roy F. Schwitters is the S.W. Richardson Foundation Regental Professor of Physics and former Chair of the Department of Physics at the University of Texas at Austin, where he teaches and conducts research in experimental high energy physics. From its founding in 1989 until cancelled by Congress in 1993, he was director of the Superconducting Super Collider (SSC) laboratory in Dallas, Texas. Before moving to Texas, he was a professor of physics at Harvard. Since 1996, Dr. Schwitters has been a member of JASON, a group of academic scientists and engineers who advise agencies of the U.S. government on technical matters related to issues of national security. Currently, he is chair of the JASON steering committee. Dr. Schwitters has been involved with research in experimental high energy physics and related developments in particle detectors and accelerators for over thirty years. During the period 1980-1988, Dr. Schwitters was co-spokesman and head of construction for the Collider Detector at Fermilab (CDF) in Batavia, Illinois, a \$100M-level construction project and related international scientific collaboration. Dr. Schwitters joined the Harvard faculty in 1979; previously he was assistant and then associate professor at the Stanford Linear Accelerator Center (SLAC) in Stanford, California. He joined SLAC in 1971 as a research associate after receiving his Ph.D. degree in physics from the Massachusetts Institute of Technology, where he also earned his Bachelor of Science degree in physics in 1966. Dr. Schwitters is a fellow of the American Academy of Arts and Sciences, the American Physical Society and the American Association for the Advancement of Science. He received the 1980 Alan T. Waterman Award of the National Science Foundation, the 1996 Panofsky Prize of the American Physical Society and was awarded a Research Prize by the Alexander von Humboldt Foundation of Germany in 1998.

Todd Allen, *Idaho National Laboratory*

Professor Allen is a nuclear engineer and material scientist with research interests centered primarily in fuels and materials for nuclear energy systems. He especially emphasizes the areas of radiation damage and corrosion. His research group is advancing materials for Generation IV energy systems. He is currently the Scientific Director of the Advanced Test Reactor National Scientific User Facility located at the Idaho National Laboratory. He is also the Director of the Center for Material Science of Nuclear Fuel, an Energy Frontier Research Center. In [January 2013](#), he will become the Deputy Laboratory Director-Science & Technology at the Idaho National Laboratory.

Christina Back, *General Atomics*

Christina Back is an experimental physicist with expertise in the study of radiation in high energy density plasmas, and the development of novel materials for fusion and fission. Currently, she is the Advanced Nuclear Materials Program Leader at General Atomics and leads a group developing high-density uranium fuels and advanced fuel cladding materials. She received her B. S. in Physics from Yale in 1984 and earned her Ph.D. in plasma physics from the University of Florida in 1989. After a 2 year postdoc with the CNRS at the Ecole Polytechnique in France, she spent 13 years at Lawrence Livermore National Laboratory in the Inertial Confinement Fusion and High Energy Density Science programs, specializing in radiation transport and spectroscopy. Her research was instrumental in establishing an experimental testbed and suite of diagnostics for research on optically thick and thin plasmas produced by heating of novel underdense aerogel target materials. This work was the major underpinning of a series of science-based stockpile stewardship experiments in radiation transport. Her experiments drew on the resources of high-powered lasers in the US, France, and England and required advanced simulations to model the energy transport in extreme high photon flux environments. In 2005, she moved to the Inertial Fusion Technology division of General Atomics where she was the High Energy Density Science Program Leader, responsible for target production coordination, and Radiation Physics manager, performing research to develop novel radiation sources. In this work, she identified strategic areas in target development and was a technical point of contact to the NNSA Department of Energy. With her knowledge of experimental methods and fusion and HED needs, she interfaced closely with colleagues in laboratories and universities not only in the US, but also internationally. In 2009, Dr. Back took on the challenge of developing new fuel materials for advanced nuclear reactor concepts in the Fission division. She established a dedicated laboratory and has an active program of research fabricating and

characterizing new fission fuel prototypes, especially those for gas-cooled high temperature reactors. In her position, she also interacts with the Department of Energy Office of Nuclear Energy and participates in senior management decisions concerning growth, operations, and strategic investments. Dr. Back has been recognized by two Department of Energy Technical Excellence Awards, and four Lawrence Livermore National Laboratory Directorate awards for scientific achievements. Over the years, she has served on many American Physics Society (APS) committees (DPP-Executive, Program, Award for Excellence in Plasma Physics, Publication Oversight, Forum on Industrial and Applied Physics), and also been elected as a APS General Councillor. Other professional service includes serving on the National Research Council (NRC) Board of Physics and Astronomy Plasma Committee, and as member of the NRC committee to Review the Quality of Science and Engineering Research at the DOE's National Security Laboratories Phase II (2012). In addition to being a reviewer for journals, she has also been a reviewer on DOE-NLUF proposals, served on the Stanford Physics Review Panel for LCLS proposals (2008-2010), and is currently a reviewer of DOE HED grants and US government SBIR grants. Dr. Back is a Fellow of the American Physical Society.

William Barletta, *Massachusetts Institute of Technology*

William Barletta received his Ph.D. in experimental high energy physics from the University of Chicago in 1972. After a term as instructor of physics at Yale University, he joined Lawrence Livermore National Laboratory where he held several research and management positions. From 1993 – 2006, he served as Director of the Accelerator and Fusion Research Division at the Lawrence Berkeley National Laboratory. While at Berkeley he was also founding Director of the Homeland Security and Non-proliferation Program. He is director of the US Particle Accelerator School and Adjunct Prof. of Physics at MIT and UCLA. He is also the coordinating editor-in-chief of the international journal, "Nuclear Instruments and Methods in Physics Research – A: Accelerators, Spectrometers, Detectors and Associated Equipment". He is a fellow of the American Physical Society.

Jill Dahlburg, *Naval Research Laboratory*

Jill Dahlburg has been Superintendent of the Space Science Division (SSD) at the Naval Research Laboratory (NRL) and a member of the Department of the Navy (DON) Senior Executive Service since December 2007. In this position she leads conception, planning and execution of scientific research and development programs on instruments to be flown on satellites, sounding rockets and balloons, ground-based facilities and mathematical models, to study the atmospheres of the Sun and Earth, solar activity and its effects on the Earth's atmosphere, and physics and properties of celestial sources, and transitions capabilities to operational use. Dr. Dahlburg served as NRL Senior Scientist for Science Applications from June 2003 to December 2007, with duties that included facilitating/ expediting the accomplishments of the scientific missions of organizations within NRL, with emphasis on interdisciplinary areas of opportunity and distributed autonomous systems. From 2001 to mid-2003, Dr. Dahlburg left NRL to work for General Atomics (GA) as the Director of the Division of Inertial Fusion Technology (IFT) and Co-Director of the Theory and Computing Center. In 2000, Dr. Dahlburg served as Head of the NRL Tactical Electronic Warfare Division (TEWD) Distributed Sensor Technology Office, where she co-proposed and was co-principal investigator for the first year of development of the small, expendable unmanned aerial vehicle Dragon Eye, which saw active duty in Iraq. Dr. Dahlburg began her DON federal career at NRL in 1985, working as a research physicist. As a member of the NRL Nike KrF Laser Program from its inception through 1999, she contributed to laser matter interaction research, implosion and coronal hydrodynamics, and laser beam imprinting. Her work included spearheading the development of the first three-dimensional multi-group radiation transport hydro-code appropriate for laser-plasma modeling. Dr. Dahlburg holds a B.A. degree (1978) from St. John's College in Annapolis, and a M.S. degree in physics (1980) and a Ph.D. degree in theoretical plasma physics (1985) from the

College of William & Mary. She is Chair of the American Physical Society (APS) Panel on Public Affairs (2011-2012), 2012 Past-Chair of the APS Topical Group on Energy Research and Applications, inaugural Chair-Elect and Chair of the Program Committee for the new APS Mid-Atlantic Section (2012-2013), and Chair of the DON Space Experiments Review Board (2007-). Dr. Dahlburg's previous professional service includes serving as 2005 Chair of the APS/ Division of Plasma Physics, Member of the LLNL Defense & Nuclear Technologies Director's Review Committee (2001-2006), and Member of the National Research Council Committee: Quality of the Management of S&E at the Department of Energy (DOE) NNSA Laboratories (Part 1, 2011; Part 2, 2012). Her honors include six NRL Allan Berman Awards for scientific publication excellence, and a DOE Appreciation Award presented by DOE Under Secretary for Science Raymond L. Orbach for outstanding service as the Chair of the DOE Advanced Scientific Computing Advisory Committee. Dr. Dahlburg is a Fellow of the APS.

Francis Slakey, *American Physical Society*

Francis Slakey is the Associate Director of Public Affairs for the American Physical Society where he specializes in energy and security policy. He is also The Upjohn Lecturer on Physics and Public Policy at Georgetown University. Dr. Slakey received his PhD in Physics in 1992 from the University of Illinois, Urbana-Champaign. He has written widely on science policy issues, publishing more than fifty articles for the popular press including The New York Times, Washington Post, and Scientific American. He has served in advisory positions for a diverse set of organizations including the National Geographic, the Council on Foreign Relations and the Creative Coalition. He is a Fellow of the APS, a Fellow of the AAAS, a MacArthur Scholar, and a Lemelson Research Associate of the Smithsonian Institution. Dr. Slakey became the 28th American to summit Mt. Everest in an unguided expedition that was the subject of the movie "Beyond the Summit". He is the first person in history to both summit the highest mountain on every continent and surf every ocean. In recognition of his adventures, as part of the 2002 Olympic Games, he carried the Olympic torch from the steps of the US Capitol.

Peter Hosemann, *University of California, Berkeley*

Peter Hosemann is an assistant professor in the Department for Nuclear Engineering at the University of California Berkeley. Professor Hosemann received his PhD in Material Science from the Montanuniversitaet Leoben, Austria in 2008. However, his research on LBE corrosion, ion irradiations and microscale testing was actually carried out at Los Alamos National Laboratory both as a student and post doc. Professor Hosemann joined the faculty at Berkeley in 2009. His work has been recognized by a number of awards and he has been extremely professionally active in organizing conferences and workshops. His interests lie in experimental material science for nuclear applications. His main focus is on structural materials used for nuclear components (fission, fusion, spallation, etc.). His research focuses on developing a basic understanding of the materials degradation processes in a nuclear environment and resulting consequences to engineering application.

Jason Remer, *Nuclear Energy Institute*

Mr. Remer is a Senior Project Manager at the Nuclear Energy Institute where he leads commercial nuclear industry efforts to evaluate and extend useful life of nuclear reactors past sixty years of operation. He works closely with EPRI, DOE, NRC and IAEA to coordinate R&D, license renewal, and worldwide research efforts. Jason is experienced in developing programs to identify and characterize special nuclear materials, nuclear weapons, and weapon components. He served as nuclear science and technology advisor for Congressman Joe Barton as an

IEEE/AAAS Congressional Fellow. He has also independently advised the U.S. Department of Energy on major nuclear and renewable energy programs and provided advice to the Secretary of Energy on design, safety, environmental impact, and cost effectiveness of these programs.

Robert Rosner, *The University of Chicago*

Robert Rosner is William E. Wrather Distinguished Service Professor in Astronomy and Astrophysics and in Physics at the University of Chicago, and currently serves as one of the founding co-directors of the Energy Policy Institute at Chicago, as well as director of the Center for Exascale Simulations of Advanced Reactors. He is former President of UChicago Argonne, LLC, and former Chief Scientist and then Director of the Argonne National Laboratory. Previously, he served as Chairman of the Department of Astronomy and Astrophysics at the University of Chicago, and Director of the University's Center for Astrophysical Thermonuclear Flashes. He was Rothschild Visiting Professor at the Newton Institute for Mathematical Sciences at Cambridge University in 2004. Rosner's research has been in the areas of plasma astrophysics and astrophysical fluid dynamics and magnetohydrodynamics; high energy density physics; computational physics, including boundary mixing instabilities and combustion modeling; applications of stochastic differential equations and optimization problems; and inverse methods. Most recently, he has also worked in the areas of energy and environmental policy, focusing on technical and economic issues. He is a fellow of the American Physical Society and a foreign member of the Norwegian Academy of Science and Letters. He was elected a Fellow of the American Academy of Arts and Sciences in 2001 and serves as a member of its Council and as a Senior Advisor to its Global Nuclear Future Initiative. Rosner received a bachelor's degree from Brandeis University in physics in 1969 and a PhD from Harvard University in physics in 1976.

David Teter, *Los Alamos National Laboratory*

David Teter is currently the Materials Science and Technology (MST) Division leader. MST Division provides world-leading, innovative, and agile materials science and technology solutions for national security missions. The Division supports the nuclear weapons, nuclear energy, basic science and global security missions with an annual budget of ~\$80M and a workforce of ~275. He also is jointly responsible for developing the LANL Materials Strategy. David serves as the Chair for the M4 (Making, Measuring and Modeling Materials) Pillar of the Matter-Radiation Interaction in Extremes (MaRIE) experimental facility, which is vital to many national security challenges and is a critical component of the LANL Materials Strategy. The M4 facility will provide the experimental, modeling and research tools to accelerate materials discovery, control synthesis and design of materials, and address the decadal materials challenges of the future. After finishing his doctoral thesis at the University of Illinois in 1996, he began a Postdoctoral Appointment at Los Alamos National Laboratory researching hydrogen storage and solid-state phase transformations in Pd-based alloys. In 1997 he was converted to a full-time Technical Staff Member in the Metallurgy Technology group (MST-6). As a Staff Member, he expanded his research interests into the areas of alloy design, hydrogen storage, hydrogen-induced phase changes, solid-state phase transformations and aging phenomena of weapons materials. In 2002 Dr. Teter became a Weapons Project Leader for Metals Issues. In this role, he was responsible for the technical direction and planning of the program leading to several key decisions regarding material re-use and remanufacturing. This project led to his next role in 2006 as the Project Leader for Enhanced Surveillance. The main focus of this program is to understand and quantitatively predict lifetimes of materials, components and assemblies. This project combines fundamental scientific research of aging mechanisms and kinetics with engineering assessments of performance. Teter has received several DOE Awards of Excellence for the Nuclear Weapons program and Stockpile Stewardship program for his work on lifetime prediction of

materials. David is also currently the president of the Materials Science and Engineering Alumni Board at the University of Illinois.

Gary Was, *University of Michigan*

Dr. Was is a Professor in the Nuclear Engineering and Radiological Sciences Department and the Materials Science and Engineering Department of the University of Michigan and Past Chair of the University's Department of Nuclear Engineering and Radiological Sciences. His major research interests center on radiation materials science and environmental effects on metals, including stress corrosion cracking, high temperature corrosion and hydrogen embrittlement. Current work in the area of stress corrosion cracking focuses on the determination of the mechanism of intergranular cracking in austenitic alloys in high temperature aqueous solutions with emphasis on the role of grain boundary structure, chemistry and deformation.

Rosa Yang, *Electric Power Research Institute*

Rosa Yang is Vice President, Innovation at the Electric Power Research Institute (EPRI). She joined EPRI in 1987 as a Project Manager in the Light Water Reactor Fuel Program, focusing her research activities on fuel design, fuel failure investigation, corrosion, and the impact of plant operation on fuel performance. In 1998, Yang established EPRI's Fuel Reliability Program, with participants from more than 10 countries and 30 nuclear utilities. As Director of the Materials and Chemistry Department within EPRI's Nuclear Power Sector, Yang guided research activities designed to enhance scientific understanding of nuclear issues, and to improve the safe, reliable and economic operation of nuclear power reactors. With a multi-disciplined technical staff of more than 50 and a diverse \$55M per year research portfolio, she lead research activities in boiling water reactor and pressurized water reactor materials aging and degradation, water chemistry control, fuel performance and reliability, spent fuel storage, high and low-level waste disposal, and radiation control. Before joining EPRI, Yang worked for General Electric, where she developed the company's fuel design and licensing code. She also served as the technical lead for several internationally sponsored fuel testing programs. Yang holds a Bachelor of Science in nuclear engineering from the National Tsing Hua University in Taiwan, and a Master of Science and doctorate in nuclear engineering from the University of California at Berkeley. Yang is a frequent guest speaker and published author on nuclear fuel and materials technology issues. She has delivered featured presentations at numerous key industry events, including the International Light Water Reactor Fuel Performance Meeting, Annual American Nuclear Society Meeting, and Nuclear Regulatory Commission's Regulatory Information Conference.

Steve Zinkle, *Oak Ridge National Laboratory*

Steve is currently the Chief Scientist of the Nuclear Science and Engineering Directorate and a Corporate Fellow at Oak Ridge National Laboratory. He previously served as the director of the ORNL Materials Science and Technology Division from 2006 until October, 2010, and in a variety of research scientist and program management roles since he joined ORNL in 1985. He received a PhD in Nuclear Engineering and an MS in Materials Science from the University of Wisconsin-Madison in 1985. His research interests include deformation and fracture mechanisms in structural materials and investigation of radiation effects in ceramics, fuel systems, and metallic alloys for fusion and fission energy systems. He has written over 240 peer-reviewed publications and is a member of the National Academy of Engineering. Steve is a recipient of the 2006 U.S. Department of Energy E.O. Lawrence Award, and is a fellow of the American Ceramic Society, ASM International, The Minerals, Metals and Materials Society (TMS), the American Nuclear Society (ANS), and the American Association for the Advancement of Science. He received the 2007 Mishima Award from ANS for outstanding R&D on nuclear fuels and materials and received the inaugural Robert Cahn Award from Elsevier Ltd. in 2010.