

Assessment of the National Institute of Standards and Technology (NIST) Center for Neutron Research

Committee

Peter F. Green

Chair

PETER GREEN is the Chief Research Officer and the Deputy Laboratory Director for science and technology at the National Renewable Energy Laboratory (NREL), Golden, Co. He began his professional career at Sandia National Laboratories where he spent eleven years in positions that included a senior member of the technical staff and department manager. He subsequently became professor of chemical engineering, and the BF Goodrich Endowed Professor of Materials Engineering, at The University of Texas. In 2005, he became professor and chair of the Department of Materials Science and Engineering (MSE) at, University of Michigan. At Michigan, he was also the Vincent T. and Gloria M. Gorguze Endowed Professor of Engineering, as well as professor of chemical engineering, macromolecular science, and engineering, and of applied physics. During his time at Michigan, he was director of the Department of Energy Frontier Research Center, Center for Solar and Thermal Energy Conversion. Dr. Green was the 2006 president of the Materials Research Society (MRS). He is a fellow of the American Physical Society, the Royal Society of Chemistry (United Kingdom), the American Association of Arts and Science, the American Ceramics Society, and of the MRS. He is a former Divisional Associate Editor for Physical Review Letters and the Inaugural editor-in-chief of MRS communications. Dr. Green is a former member of the Academy's Board on Physics and Astronomy (BPA) and the Board on Army Science and Technology (BAST). He is a former Chair of the National Research Council (NRC) Solid State Sciences Committee (currently known as the Condensed Matter and Materials Research Committee), and former Chair of the Panel for Neutron Research. Dr. Green is a recipient of the US Department of Energy Secretary's Achievement Award, in 2021 and again in 2023. He is a member of the National Academy of Engineering. He earned B.A. and M.A. degrees in Physics, together in 1981, from Hunter College. His M.S. and Ph.D. degrees are from Cornell University, in Materials Science and Engineering.

Ken Andersen

Member

KEN ANDERSEN is the Associate Laboratory Director for Neutron Sciences at the Oak Ridge National Laboratory. As ALD, Ken oversees the operation and management of two neutron facilities: the Spallation Neutron Source (SNS) and the High Flux Isotope Reactor. Each year, these facilities support about 3000 visiting users. Ken aims to further broaden ORNL's role in neutron sciences globally, expand ORNL's instrument capabilities, and prepare for a second target station at SNS. Previously, Ken was director for the Neutron Technologies Division within the Neutron Sciences Directorate. Between 2010 and 2019, Ken was head of the Neutron Instruments Division at the European Spallation Source in Lund, Sweden. He was previously in charge of the Neutron Optics lab at the Institut Laue-Langevin in Grenoble, France, and has worked as a neutron instrument scientist at both ILL and ISIS in the UK, as well as having spent a brief period as a post-doc at the KENS neutron facility in Japan. His research interests center around the design and optimization of neutron instruments for both steady-state and pulsed neutron sources. He has a Ph.D. in physics from the University of Keele in the UK (1994).

Pengcheng Dai

Member

PENGCHENG DAI is Sam and Helen Professor of Physics at Rice University. His research focuses on using neutron scattering as a probe to study strongly correlated electron materials. In his career, he worked on copper, iron, and heavy fermion superconductors, quantum spin liquid, and other magnetic materials, mostly using neutron scattering to study their bulk magnetic properties. He is a fellow of American Physical Society, American Association for the Advancement of Science, and Neutron Scattering Society of America (NSSA). He won Sustained Research Prize of NSSA in 2016, and Kamerlingh Onnes Prize in 2022. He obtained his Ph.D. degree in condensed matter physics from University of Missouri-Columbia in 1993.

Aaron P. Eberle

Member

AARON P.R. EBERLE is the Energy and Technology Advisor to ExxonMobil Corporate Strategic Planning. Over the past decade, he's held various assignments across the company within their Chemicals business and Technology organizations. Before joining ExxonMobil, he held a National Academy of Sciences funded postdoc at the NIST Center for Neutron Science where he studied colloidal systems with cold neutron instruments. He's received BS and Ph.D. degrees in Chemical Engineering from the University of Rochester and Virginia Tech, respectively.

Rosario A. Gerhardt

Member

ROSARIO A. GERHARDT is a full professor at the School of Materials Science and Engineering at the Georgia Institute of Technology in Atlanta, Georgia where she has been on the faculty since 1991. She was chosen as the Goizueta Foundation Faculty Chair in 2015. Her primary research expertise relates the underlying structure of materials to their properties from the atomic level to macroscopic dimensions having used x-ray and neutron scattering together with TEM, SEM and AFM to unravel the intricacies of conducting thin films to insulating materials for a number of years. She has worked with ceramics, ceramics composites, polymer composites as well as conducting polymers and metallic alloys, and has expertise on fabrication and characterization of porous materials and percolating composites. She received her D.Eng. Sc. Degree from Columbia University in 1983. She was a NASA/ASEE Faculty Fellow at NASA Marshall Space Flight Center in 1995 and served as visiting professor at the Center for Nanophase Materials Sciences at Oak Ridge National Labs during the 2007-2008 academic year. She is a fellow of the American Ceramic Society, was recently elevated to IEEE Senior Member, and was recently elected to the World Academy of Ceramics. She delivered the 2017 ACeRS Friedberg Lecture Award. She has served as reviewer on many NSF panels and National Academies panels, in particular the Research Associateship Program and the Defense Materials and Manufacturing and Infrastructure Program. Dr. Gerhardt has also assisted the Advanced Photon Source at Argonne National Labs as well as the Spallation Neutron Source and High Flux Isotope Reactor at Oak Ridge National Labs as a reviewer.

Christopher R. Gould

Member

CHRISTOPHER GOULD is an Alumni Distinguished Undergraduate Professor of Physics Emeritus at North Carolina State University. He is a nuclear physicist by training, with interests in cosmology, energy research and policy, science education, and neutron and neutrino physics. He has held visiting appointments at Los Alamos National Laboratory; the Institut für Kernphysik, Frankfurt; the Atomic Energy Institute, Beijing; the University of Petroleum and Minerals, Dhahran; and the Oak Ridge Center for Advanced Studies. Following retirement in 2016, he took a two-year Interagency Personnel Agreement position with the Office of Science, U.S. Department of Energy, serving as program manager for the nuclear structure and nuclear astrophysics programs in the Office of Nuclear Physics. His current interests focus on energy issues and the role that nuclear reactors may play in backing up intermittency concerns associated with solar and wind electrical power generation. Gould is a Fellow of the American Physical Society; a co-recipient of 2008 Presidential award from RTI-International, and the 2016 Breakthrough Prize in Fundamental Physics. He holds a BSc from Imperial College, London, and a Ph.D. from the University of Pennsylvania.

Andrew Harrison

Member

ANDREW HARRISON became Director of Science at the Extreme Light Infrastructure ERIC, in 2022, having been CEO of Diamond Light Source, the UK's national synchrotron facility (2014-2022) and Scientific Director then Director General of the Institut Laue Langevin (ILL) in Grenoble (2006-2014). Prior to that he has held research fellowships and faculty positions at the Universities of McMaster (1988-1990), Oxford (1990-1992) and Edinburgh (1992-2006) where he led research in solid-state magnetism, largely using neutron scattering techniques. He has chaired EIROForum, the collection of European international infrastructures, including CERN, ESO and ESA. He is a UK delegate for the ESFRI Council of the European Commission - when the UK is allowed to participate - and in 2017 he became chair of ERF AISBL, the organisation that represents European research infrastructures not in EIROForum. His awards include FRSE (2002), OBE for services to science (2021), FRS (2022) and he has honorary positions or degrees at St. John's College, Oxford (2015), and the UK Universities of Manchester (2017), Edinburgh (2017) and Bath (2019). He has a doctorate and undergraduate degree in chemistry (Oxford 1986 and 1982). He has served on NRC reviews at NIST twice before.

Andrew Jackson

Member

ANDREW JACKSON is the Group Leader for Instrument Scientists and Acting Head of the Neutron Instruments division at the European Spallation Source (ESS). In this role, he leads the development, design, commissioning, and operation of the neutron scattering instruments. He has worked at ESS since 2011, starting as Instrument Scientist for Small Angle Neutron Scattering. Prior to working at ESS, Jackson held positions as a Guest Researcher at the NIST Center for Neutron Research, Visiting Researcher at the Lawrence Berkeley National Lab, Senior Scientist at the University of Delaware, Research Associate at the University of Maryland, and Postdoctoral Research Fellow at the Australian National University. He has over 25 years of experience in the development and application of neutron and x-ray scattering methods to problems in soft matter physics, colloid science, and polymer science. Dr. Jackson also holds a position as an Associate Professor in Physical Chemistry at Lund University and his current research interest is in the structure and behavior of deep eutectic solvents, self-assembly in these non-aqueous hydrogen bonded solvents. He holds masters (MChem) and doctoral (DPhil) degrees in chemistry from the University of Oxford.

Megumi Kawasaki

Member

MEGUMI KAWASAKI is a Jack R. Meredith Faculty Scholar and Associate Professor in the School of Mechanical, Industrial, and Manufacturing Engineering at Oregon State University. She previously served as an Associate Professor at Hanyang University in Seoul, South Korea, where she joined as an Assistant Professor in 2012. In addition, she held the position of Adjunct Research Associate Professor in Aerospace & Mechanical Engineering at the University of Southern California from 2012 to 2017 and currently holds a Visiting Research Associate Professor position in Materials Science at Osaka Metropolitan University since 2013. Dr. Kawasaki's research expertise lies in the processing of bulk nanostructured metals and materials (BNM) using severe plastic deformation techniques, as well as characterizing the microstructural evolution of BNM under extreme conditions such as stress and heat using X-ray and neutron diffraction, as well as synchrotron high-energy X-rays. Her research has been recognized internationally, with successful beamline proposals awarded in Japan (Spring 8 and JPARC), Germany (DESY), and the US (ALS). She serves on the International NanoSPD Steering Committee.

Thomas K. Kroc

Member

THOMAS KROC is an Applications Physicist III at the Fermi National Accelerator Laboratory (Fermilab). He develops new applications of accelerators and accelerator technologies such as medical device sterilization. He has led the organizing committee for four workshops on medical device sterilization to promote the use of electron beams and x-rays held at Fermilab in 2019 through 2022. For 20 years he worked with the Neutron Therapy Facility at Fermilab which provided external beam radiation therapy for cancer using high-energy neutrons. He assumed leadership of this program from 2008 until its closure in 2013. His educational and professional experience includes accelerator physics, medical physics, experimental high energy physics, and nuclear engineering. He was the chair of an Academies committee that published the report Radioactive Sources: Applications and Alternative Technologies. Kroc holds a BS in engineering physics from The Ohio State University and a Ph.D. in physics from University of Illinois at Urbana-Champaign.

Andrew T. Smolinski

Member

ANDREW SMOLINSKI is Chief of the Radiation Sources Section at the Armed Forces Radiobiology Research Institute (AFRRI), responsible for facility management of the research reactor and cobalt irradiator facilities. His expertise is in radiation facility management, operations, and engineering, with 24 years of experience working with more than 10 research and power nuclear reactors under NRC, Naval Reactors, DOE regulatory frameworks. Andrew performed engineering, research support, and facility management functions for hot cells and research reactors at Idaho National Laboratory to support DOE advanced nuclear fuels and materials. He served as an SRO-certified Shift Technical Advisor at the Kewaunee Nuclear Power Station and worked for Knolls Atomic Power Laboratory (KAPL) as a test engineer in support of reactor startups for the Naval Nuclear Propulsion Program. He has held NRC SRO licenses from AFRRI and the University of Wisconsin. He serves on the executive committee of the National Organization of Training, Research, and Test Reactors (TRTR), various standards committees for American Nuclear Society (ANS), and several reactor and radiation safety committees, including AFRRI and the University of Maryland.