**Robert Bean** is an Assistant Professor in the School of Nuclear Engineering at Purdue University in West Lafayette, Indiana. Dr. Bean received his B.S.N.E. (summa cum laude), M.S.N.E. and Ph.D. from Purdue University all in nuclear engineering in 1995, 1999, and 2003, respectively. His research interests include application of advanced safeguards to the design of nuclear facilities (next-generation nuclear reactors, aqueous processing plants, and pyroprosessing facilities), radiation detection and measurement (gas detectors, solid state detectors, gamma spectroscopy, neutron detectors). Bean was director of the Radiation Laboratories for Purdue's School of Nuclear Engineering from 1996 to 2003. In addition to working with the reactor supervisor to operate and maintain the PUR-1 reactor, he taught the radiation detection laboratory courses and introductory nuclear engineering courses, and acted as the undergraduate advisor.

**Jeffrey Allen Chapman**, **Jeffrey Allen Chapman**, **Jeffrey Allen Chapman**, In 1977, Jeff enrolled at Birmingham Southern College as a professional musician and future medical doctor. Then he found physics, and in particular, nuclear physics and engineering. In 1982, having graduated in physics, he was accepted to two graduate schools: Purdue, and Texas A & M. Purdue was a close second. And in spite of this poor decision making, graduated from Texas A & M in 1983. After working for 8 years in industry, he enrolled in the University of Tennessee nuclear engineering Ph.D. program. He is a registered professional engineer (nuclear) and currently on the part II panel for the American Board of Health Physics.
Jeff first arrived at Oak Ridge National Laboratory in 1979. After having worked for Texas A&M, Houston Lighting and Power, Florida Power and Light, Black and Veatch, Pinellas, Rocketdyne, Rocky Flats, and Los Alamos, he has been at ORNL, since 1989, with a relatively brief nuclear-renaissance tour of duty at AREVA. He designed, built, tested, scrapped, and redesigned nondestructive assay (NDA) systems for most of his career, as well as supported nuclear operations for criticality and nuclear safety. Currently, his primary function is the regional support lead for the Republic of South Africa, under NA-241, International Safeguards Engagement Program, with secondary support to Armenia and Kazakhstan.

With a great working team at ORNL, he has commercialized three inventions; and was co-author of patent 8,848,87, granted just last month.

This is Jeff's first time back on the Purdue campus since 1981. I thank you for extending this invitation.

**Dr. Desmond Chan** is the Manager of Technology for Bechtel Power Corporation, a global architect/engineering /construction company based in the U.S. He is responsible for technology evaluation and due diligence, performance guaranty review and risk assessment, technical expertise development, and expert consultation in several global power business sectors, including communications, fossil, nuclear, renewables, and transmission. Dr. Chan has also the functional responsibility to oversee three Bechtel Fellows, fourteen Bechtel Distinguished Engineers/Scientists, and 185 senior technical specialists in different engineering disciplines, including civil, mechanical, electrical, control systems, plant design, geotechnical, and material. Before becoming the Manager of Technology, Dr. Chan served as the Chief Nuclear Engineer.
Dr. Chan has served on various government advisory board and industrial committees, including ASME Industry Advisory Board, ASME Section III Strategy Advisory Council, Business Roundtable Working Group, National Coal Council, Nuclear Innovation Alliance Steering Committee, State of Maryland Radiation Control Board, Nuclear Energy Institute Task Force for Early Site Permit, Nuclear Utilities Committee on Below Concern Radioactive Waste (chair), Power-Gen International Program Planning Committee, Power-Gen Natural Gas Organizing Committee, EPRI Advanced Nuclear Technology Committee, EPRI Coal Fleet P66C Committee on Carbon Capture, EPRI Steering Committee on Below Regulatory Concern Radioactive Waste, and Oversight

Committee on Radiation Protection for Consolidated Edison Company. Dr. Chan has also served on several university Nuclear Engineering Program Advisory Boards, including University of California at Berkeley and University of Tennessee.
Dr. Chan received his Ph.D. in Computational and Nuclear Physics, M.S. in Nuclear Physics, and B.S. in Physics from the University of Massachusetts, Lowell.

**Derek Ebeling-Koning** is a Fellow Engineer in New Plants Engineering at the Westinghouse Electric Company. Dr. Ebeling-Koning received his Bachelor degree in nuclear engineering at Rensselaer Polytechnic Institute, and subsequently his Masters and Ph.D. in 1983 at Massachusetts Institute of Technology. His area of graduate research was in experimental studies of single- and two-phase flow in inclined rod arrays. Derek has worked for 31 years in the nuclear power industry at both Westinghouse and Asea Brown Boveri. His career has encompassed many roles including: PWR safety analyst; managing BWR analysis, licensing, and first delivery of Westinghouse/ABB Boiling Water Reactor fuel in the United States; as a Master Black Belt, teaching Design for Six Sigma to the Westinghouse technical community. Derek, an ANS and ASME members, is currently a Fellow Engineer in the New Plants Engineering organization. Most recently he had led over 80 cross-functional teams in technical issue resolution for the first deliveries of eight AP1000 plants in China and the U.S.; and, represents New Plants on the Westinghouse Core Team for Innovation.

**Dr. Anter El-Azab** is a professor in the School of Nuclear Engineering at Purdue University in West Lafayette, Indiana. Dr. El-Azab received his B.S. and M.S. in Nuclear Engineering from the University of Alexandria, Egypt in 1986 and 1989. He received his Ph.D. in Nuclear Engineering, University of California, Los Angeles, 1994. His research areas include structure, thermodynamics and kinetics of materials, mesoscale mechanics, radiation effects in nuclear materials, surfaces and interfaces in material, and computational methods in materials science. He is a member of the Materials Research Society (MRS), Society of Engineering Sciences (SES), Florida Society of Materials Simulations (FSMS), and The Minerals, Metals and Materials Society (TMS).

**Christopher Fallon** is the Vice President of the Office of Nuclear Development for Duke Energy Corporation ("Duke Energy"). He has responsibility for furthering the regulated nuclear development in the Carolinas and Midwest, identifying and developing nuclear partnership opportunities, and integrating internal efforts associated with the development of the Lee Nuclear Station in Cherokee, SC. In addition to his Office of Nuclear Development responsibilities, he is responsible for transmission business development. Chris led Duke's efforts on the Pioneer Transmission LLC, a joint venture with AEP to build a 240 mile 765 kV transmission line in Indiana. Chris is a member of the Board of Managers for Pioneer Transmission, LLC. Prior to joining the Office of Nuclear Development, Chris was Managing Director, Strategy and Business Planning. He had responsibility for developing the strategy for Duke Energy's operating utilities, including Duke Energy Carolinas, LLC; commercial support for operating utility activities, such as overseeing Requests For Proposals ("RFPs") for renewable generation resources; and major project/initiative business case analysis. Chris began his career at Duke Power Company in 1992 as a Power Quality engineer and after a series of promotions was named Manager of Transmission Planning and Engineering Studies in 1999. Chris became General Manager, Asset Strategy and Planning in 2006 and Managing Director, Strategy and Business Planning in 2007. Chris assumed his current position in 2009. Chris is a registered Professional Engineer in North Carolina.

**Phillip Finck** is the Chief Scientist, Idaho National Laboratory (INL) at Idaho Falls in Idaho. Dr. Finck started his career at Novatome in Paris, where he was involved in developing and applying new tools for the safety analysis of the Superphenix LMFBR. In 1986, he joined Argonne National Laboratory where he headed the Neutronics Analysis Section, with a specific focus on EBR-II operations and experiments.
In 1993, Phillip moved to the CEA Cadarache Research Center to head the CEA Reactor Physics Laboratory; during that period, he also chaired JEF, the European Nuclear Data effort.
Moving back to Argonne in 1997, he developed and run the Advanced Fuel Cycle program, was a key developer of the GNEP initiative, and a proponent of the Generation IV initiative. He became the Associate Laboratory Director for Applied Science and Technology, with broad programs in Energy and National Security.

A strong desire to further nuclear energy research capabilities in the US led Phillip to join the newly formed Idaho National Laboratory in 2006, as the Associate Laboratory Director for Nuclear Science and Technology, developing and leading a variety of programs that are the basis of the current US nuclear research. In 2011 Phillip became the Chief Scientist at INL and is currently focused on understanding and developing the path for future nuclear systems.
Dr. Finck is a graduate from the Ecole des Mines de Paris, holds a Ph.D. from MIT and a MBA from the University of Chicago. He is the chairman elect of the International Nuclear Academy.

**Sal Golub** is the Associate Deputy Secretary for Nuclear Technologies at the U.S. Department of Energy. As Associate Deputy Assistant Secretary for Nuclear Reactor Technologies, Mr. Golub manages a portfolio of nuclear reactor technologies, including light water, gas and liquid metal coolants, advanced reactor concepts, small modular reactor deployment and space and defense power systems.
Prior to his current assignment, Mr. Golub led the reactor development component of the Global Nuclear Energy Partnership as Director of Fast Reactor Development. Mr. Golub has also served as the Office of Nuclear Energy's Director of Corporate Communications and External Affairs.

While in the private sector, he completed a variety of challenging projects in the commercial nuclear industry, including supervisory and management positions at 4 nuclear power stations in the areas of design, construction engineering, plant startup, licensing, operations and maintenance.
Mr. Golub received his degree in Civil and Environmental Engineering from Clarkson University and is a graduate of the Federal Executive Institute.

**Ahmed Hassanein** is the Paul L. Wattelet Professor of Nuclear Engineering and director of CMUXE. Dr. Hassanein has more than 30 years of experience in research and development in the fields of nuclear and plasma physics, engineering, and material science. Professor Hassanein is nationally and internationally recognized as one of the world's foremost leaders in the area of modeling and benchmarking material responses to different radiation and particle sources. He has developed unique models and comprehensive computer packages as well as state-of-the art experimental facilities to predict material behavior, lifetime issues, plasma evolution, and fluid hydrodynamics under various irradiation conditions. These models and results are being used in several national and international research fields. He has authored more than 500 journal publications and technical report in more than 30 different national and international journals in physics, engineering, materials, and computer science. Before coming to Purdue, Prof. Hassanein was senior scientist and group leader and the director of Fusion Power Program at the Department of Energy's Argonne National Laboratory. Prof. Hassanein received the IEEE Merit Award for 2013, the highest IEEE technical achievement award of the nuclear and

plasma sciences society, for his seminal contributions in these fields. He is fellows of SPIE, AAAS, IEEE, ANS, and OSA.

Dr. Hassanein has a degree in Nuclear Engineering from the University from Alexandria, Egypt, and graduate degrees from the University of Wisconsin, Madison.

**Leah Jamieson,** is the John A. Edwardson Dean of the College of Engineering at Purdue University, Ransburg Distinguished Professor of Electrical and Computer Engineering, and holds a courtesy appointment in Purdue's School of Engineering Education. She served as 2007 President and CEO of the IEEE. She is co-founder and past director of the EPICS – Engineering Projects in Community Service – Program.

Jamieson has been recognized for her achievements in education, research, and service. With colleagues Edward Coyle and William Oakes, she was awarded the 2005 NAE Bernard M. Gordon Prize for Innovation in Engineering and Technology Education for the creation and dissemination of EPICS. She was an inaugural recipient of the National Science Foundation Director's Award for Distinguished Teaching Scholars and has been recognized with the 1997 Chester F. Carlson Award for Innovation in Engineering Education from the American Society for Engineering Education (with Edward J. Coyle), the IEEE Education Society's 2000 Harriet B. Rigas "Outstanding Woman Engineering Educator" Award, the Anita Borg Institute's 2007 "Women of Vision Award for Social Impact," and was named 2002 Indiana Professor of the Year by the Carnegie Foundation. She was elected to the U.S. National Academy of Engineering "for innovations in integrating engineering education and community service" and was elected a Fellow of the IEEE for her research on parallel processing algorithms. She is a member of the American Academy of Arts & Sciences, a Fellow of the American Society of Engineering Education and the International Engineering Consortium, an Eminent Member of the Electrical and Computer Engineering Honorary Society, IEEE-Eta Kappa Nu, and an Honorary Member of the Engineering Honorary Society, Tau Beta Pi.

Jamieson's research has focused on speech analysis and recognition; the design and analysis of parallel processing algorithms; and the application of parallel processing to digital speech, image, and signal processing. She has authored over 175 journal papers, conference papers, and book chapters and has co-edited books on *Algorithmically Specialized Parallel Computers* (Academic Press, 1985) and *The Characteristics of Parallel Algorithms* (M.I.T. Press, 1987). She has served on editorial boards for the *IEEE Transactions on Acoustics, Speech, and Signal Processing*, the *IEEE Transactions on Parallel and Distributed Systems*, and the *Proceedings of the IEEE*, and is on the Advisory Board of the *Journal of Engineering Educa*tion. She has been an IEEE Signal Processing Society Distinguished Lecturer and
an IEEE Computer Society Distinguished Visitor.

Jamieson has an B.S. in Mathematics from M.I.T. and a Ph.D. in Electrical Engineering and Computer Science from Princeton University. She joined the faculty of Purdue in 1976.

**David Koltick**, is a Professor of Physics at Purdue University and has been active in research almost 40 years. During that time he worked on elementary particle physics experiments at Fermilab in the Chicago area, Brookhaven National Laboratory in New York, Stanford Linear Accelerator Center in the San Francisco Bay area, KEK near Tokyo Japan, the Super Conducting Super Collider Laboratory in Dallas Texas, and Oak Ridge National Laboratory and experiments in the laboratory he built and directed at Purdue, The Applied Physics Laboratory (APL). In addition to this strong research effort he has been involved in the

managing of research. To facilitate the development of Scintillating Fiber Research, he developed and directed the Center of Scintillating Fiber Research, which involved funding and managing about 10-university groups to build a charged particle tracker for the SSC. He has been involved in Applied Physics for over 14 years. He assisted in the management of the Center for Sensing Science and Technology (CSST), which received significant funding for national security research and resulted in the development of 3 companies. He has also, consulted to, been funded by and worked closely with industrial companies, for example Hitachi, ATK, Raytheon, RapiScan, CALSEC and others. He has been in joint projects with companies including Rockwell International for the development of Visible Light Photon Counters (VLPC), Raytheon for the development of an explosives detection system and ATK on the VIPER project. "I have also managed my own small research company, 2K Corporation that never required the use of red ink." Professor Koltick has also been involved in Indiana politics, first by running for Indiana State Senator and also served multiple terms as both Tippecanoe County Councilman and Precinct Committeeman. Presently Dr. Koltick is developing high rate gamma ray detectors for use in medical, security and national defense applications. He is also developing a neutron elemental imaging technology for in vivo detection of cancer. Recently he was appointed by Lieutenant Governor Skillman to Indiana's Small Modular Reactor (SMR) Committee. Dr. Koltick is a graduate of the University of Michigan.

**Martin Lopez-De-Bertodano** is an Associate Professor in the School of Nuclear Engineering at Purdue University. He graduated from Stevens Institute of Technology with a Bachelor's degree in Mechanical Engineering, Massachusetts Institute of Technology with an M.S. in Nuclear Engineering, and Rensselaer Polytechnic Institute with a Ph.D. in Nuclear Engineering and Engineering Physics. Professor Lopez-De-Bertodano is affiliated with the American Society of Mechanical Engineering and the American Nuclear Society, where he previously was the Chairman of the Programs Committee and a member of the Honors and Awards Committee. His research interests are in experimental two-phase flow, computational fluid dynamics, turbulence, thermal hydraulics and reactor safety, and nuclear systems simulation.

**Dr. Stuart Maloy** has been a Technical Staff Member at Los Alamos National Laboratory for 25 years and is the transmutation clad materials technical leader for the Fuel Cycle Research and Development's Advanced Fuels campaign at LANL. He has a Bachelors ('89), Masters ('91) and Ph.D. ('94) in Materials Science from Case Western Reserve University and is a registered PE in Metallurgy. He has applied his expertise to characterizing and testing the properties of metallic and ceramic materials in extreme environments such as under neutron and proton irradiation at reactor relevant temperatures. This includes testing the mechanical properties (fracture toughness and tensile properties) of Mod 9Cr-1Mo, HT-9, 316L, 304L, Inconel 718, Al6061-T6 and Al5052 after high energy proton and neutron irradiations using accelerators and fast reactors. Characterization of materials after testing includes using transmission electron microscopy for analyzing defects such as dislocations, twins and second phases, using high resolution electron microscopy to characterize defects at an atomic level and nanoscale mechanical testing. Stuart has >140 peer reviewed technical publications and numerous presentations.

**Maureen C. McCann** is the Director of Purdue's Energy Center, part of the Global Sustainability Institute in Discovery Park. She obtained her undergraduate degree in Natural Sciences from the University of Cambridge, UK, in 1987, and then a Ph.D. in Botany at the John Innes Centre, Norwich UK, a government-funded research institute for plant and microbial sciences. She stayed at the John Innes Centre for a post-doctoral, partly funded by Unilever, and then as a project leader with her own group from 1995, funded by The Royal Society. In

January 2003, she moved to Purdue University as an Associate Professor, and she is currently a Professor in the Department of Biological Sciences. The goal of her research is to understand how the molecular machinery of the plant cell wall contributes to cell growth and specialization, and thus to the final stature and form of plants. Plant cell walls are the source of lignocellulosic biomass, an untapped and sustainable resource for biofuels production with the potential to reduce oil dependence, improve national security, and boost rural economies. She is also the Director of the Center for Direct Catalytic Conversion of Biomass to Biofuels (C3Bio), an interdisciplinary team of biologists, chemists and chemical engineers in an Energy Frontier Research Center funded by the US Department of Energy's Office of Science.

**Al Rebar** is the Executive Director of Discovery Park and Senior Associate Vice President for Research. Dr. Rebar received his DVM degree in 1973, and his PhD in 1975, both from Purdue University. Following a brief stay in mixed animal pract*ice,* Dr. Rebar served as assistant professor of Veterinary Clinical Pathology at Purdue University and later as an experimental pathologist at the Lovelace Inhalation Toxicology Research Institute in Albuquerque, New Mexico. In 1979, he returned to Purdue as an Associate Professor and advanced through the ranks to Professor in 1983. He was Head of the Department of Veterinary Pathobiology from 1993-1996; Associate Dean for Research from 1989-1996 and Dean from 1996-2005.

Dr. Rebar's current positions are Purdue University Senior Associate Vice President for Research, Executive Director of Discovery Park at Purdue, and Professor of Veterinary Clinical Pathology in the School of Veterinary Medicine, Purdue University. He is a Diplomate of the American College of Veterinary Pathologists, a former member of the Council of the American College of Veterinary Pathologists, past-president of the American Society for Veterinary Clinical Pathology, and the former editor of the journal *Veterinary Clinical Pathology*. He also served as Section Co-Editor of *Toxicologic Pathology* from 1995-1998 and on the Editorial Boards of *American Journal of Veterinary Research* from 1983-1985 and *Fundamental and Applied Toxicology* from 1983-1986. Dr. Rebar is currently the Editor-in-chief of the *Journal of the American Animal Hospital Association*.

**Shripad Revankar** is a Professor of Nuclear Engineering at Purdue University. His main focus is on energy

science and technology with sustained and distinguished achievements over the past three decades. He is known for working in different fields of energy engineering using experimental and analytical methods to solve complex engineering problems with minimum or no carbon emission. He has made breakthrough contributions on thermalhydraulics, safety and nuclear hydrogen. His research areas are: multiphase flow and heat transfer, two-phase flow instrumentation, multiphase flow in porous media, microgravity multiphase flow in packed beds, fuel cell design, simulation and power systems, thermochemical water splitting hydrogen production, nuclear hydrogen generation, nuclear reactor engineering, advanced reactor design, reactor thermalhydraulics and safety.

**Dan Schmidt** is Governor Pence's Policy Director for Energy, Environment, and Transportation. In this role, he is responsible for providing the Governor with policy advice and supporting the efforts of the communications, legislative, legal, financial, and external affairs teams. Dan also liaisons with the state agencies relevant to his policy portfolio, including the Office of Energy Development, the Utility Regulatory Commission, the Office of the Utility Consumer Counselor, the Department of Natural Resources, and the Department of Environmental Management. Dan holds a law degree from Indiana University and a graduate business degree from the University of Colorado. Dan lives in Carmel with his wife, Jennifer, and their six children.

**Pankaj Sharma** is the Managing Director of the Duke Energy Academy at Purdue. Pankaj holds a Ph.D. in physics and a master's degree in solid-state physics. He has an MBA from Purdue University and an Advanced Certificate in Applied Computer and Information Technology, Rochester Institute of Technology. His field of research has been application of accelerator mass spectrometry for dating and tracing in geological and biomedical systems. He has published over one hundred research papers in international journals. Dr. Sharma joined Discovery Park at its inception in 2002 as an Associate Director for Operations and International Affairs at Discovery Park. The Discovery Park is Purdue's $1 billion home to the university's large-scale interdisciplinary research efforts. Currently, he is a managing director for the Energy Center, Global Sustainability Institute at Purdue's Office of the Vice President for Research. He also currently holds a courtesy associate professor appointment in Technology, Leadership, and Innovation (College of Technology). in 2009-2010, Pankaj was selected as a 'Fulbright New Century Scholar 2009-2010.' His focus for Fulbright research has been on studying (1) innovation capacity in India and (2) university based economic development in Midwest, USA.

**Amit H. Varma** is a Professor in the School of Civil Engineering and a University Faculty Scholar at Purdue University. He is also the Director of the Center for Structural Engineering and Emerging Technologies for Nuclear Power Plants. Dr. Varma received his Ph.D. from Lehigh University. His passions are steel-concrete modular composite structures and their use in civil infrastructure including buildings, bridges, and nuclear power plants. He has conducted research on the experimental behavior, analysis, and design of modular composite structures subjected to earthquake, fire, and thermal accident scenarios. Dr. Varma's research at Bowen Laboratory has been supported by federal and state government agencies and the industry. He is the Vice-Chair of the AISC TC12 sub-committee focusing on the development of a new standard for modular composite construction for safety related nuclear facilities.

**Won Sik Yang** is a Professor in the School of Nuclear Engineering at Purdue University. Professor Yang received his bachelor's degree in nuclear engineering from the Seoul National University, Korea, and earned his PhD in nuclear engineering at Purdue. Before coming to Purdue, he was a senior staff researcher at the Argonne National Laboratory. He is recognized globally as a world leader in reactor physics and reactor design. His other research interests include fuel cycle analysis, accelerator driven systems, cross-section processing, stability analysis, and reliability analysis.