

# Nuclear Science and Engineering Education Sourcebook 2020



**U.S. Department of Energy**



**American Nuclear Society**

# **Nuclear Science & Engineering Education Sourcebook 2020**

**North American  
Edition**

**American Nuclear Society**  
Education, Training, and Workforce Division

**US Department of Energy**  
Office of Nuclear Energy

**Editor and Founder**  
**John Gilligan**  
Professor of Nuclear Engineering  
North Carolina State University

**Assistant Editor**  
**Sherry Bailey**  
North Carolina State University

**Version 8.20**

\*Front Cover Photo – Graphic from U.S. Department of Energy, Office of Nuclear Energy Website

Welcome to the 2020 Edition of the Nuclear Science and Engineering Education (NS&EE) Sourcebook. We keep evolving and improving! The core mission of the Sourcebook has not changed, however. Our purpose is to facilitate interaction among faculty, students, industry, and government agencies to accomplish nuclear research, teaching and service activities. Since 1986 we have compiled critical information on nuclear engineering enrollments, degrees, and faculty expertise in printed and electronic formats.

We currently use a web based input format that allows changes to the Sourcebook and the capability to do ranking and sort manipulations in a spreadsheet environment as the data is displayed. We will publish a PDF version of the Sourcebook. We will also include programs that are new and growing, which might include undergraduate curricula with a nuclear energy minor or graduate programs that offer a track or certificate option. We will list only faculty involved in the nuclear options in all of these cases. In general we list faculty that have at least a budgeted 25% appointment in nuclear activities.

Other nuclear energy or related programs can be found under the listings for the University Reactors. The Sourcebook data will be placed on the web at the Nuclear Energy University Programs (NEUP) site and on the DOE-NE website. The Sourcebook is usually printed on even years. When printed, copies are distributed to academic Department Heads, and libraries, as well as key industry, society and government officials. A limited number of extra printed copies can be requested in cases where web access is limited or inconvenient.

The Sourcebook is a publication by the Education, Training and Workforce Division of the American Nuclear Society with the support of the Department of Energy, Office of Nuclear Energy. Appreciation is expressed to the Executive Committee of the ETWD of the ANS for their encouragement for this project. Special thanks go to the US DOE Office of Nuclear Energy and the NEUP Integration Office at the Idaho National Lab for providing support and a web site home for the NS&EE Sourcebook. We would also like to acknowledge the diligent work of Ms. Sherry Bailey for accumulating the Sourcebook information and for maintenance of the Sourcebook website.

We are excited to present the 2020 Edition of the NS&EE Sourcebook (Version 8.20) available in PDF file format and on the web at [www.neup.gov](http://www.neup.gov) > Documents > Nuclear Science and Engineering Sourcebook.

To update information, please contact Assistant Editor, Ms. Sherry Bailey ([sbbailey@ncsu.edu](mailto:sbbailey@ncsu.edu) or 919-515-1897).

John Gilligan, Editor and Founder  
Distinguished University Professor of Nuclear Engineering  
North Carolina State University  
[gilligan@ncsu.edu](mailto:gilligan@ncsu.edu)  
919-515-3939

<b>Table of Contents</b>	
<b>UNIVERSITY OF CALIFORNIA-BERKELEY</b>	<b>3</b>
<b>COLORADO SCHOOL OF MINES</b>	<b>8</b>
<b>UNIVERSITY OF FLORIDA</b>	<b>10</b>
<b>GEORGIA INSTITUTE OF TECHNOLOGY</b>	<b>14</b>
<b>UNIVERSITY OF IDAHO</b>	<b>20</b>
<b>IDAHO STATE UNIVERSITY</b>	<b>23</b>
<b>UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN</b>	<b>26</b>
<b>KANSAS STATE UNIVERSITY</b>	<b>35</b>
<b>UNIVERSITY OF MARYLAND</b>	<b>37</b>
<b>MASSACHUSETTS INSTITUTE OF TECHNOLOGY</b>	<b>39</b>
<b>UNIVERSITY OF MASSACHUSETTS, LOWELL</b>	<b>46</b>
<b>McMASTER UNIVERSITY</b>	<b>49</b>
<b>UNIVERSITY OF MICHIGAN</b>	<b>52</b>
<b>UNIVERSITY OF MISSOURI, COLUMBIA</b>	<b>64</b>
<b>MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY</b>	<b>66</b>
<b>US NAVAL ACADEMY</b>	<b>70</b>
<b>UNIVERSITY OF NEVADA, LAS VEGAS</b>	<b>72</b>
<b>UNIVERSITY OF NEW BRUNSWICK</b>	<b>73</b>
<b>UNIVERSITY OF NEW MEXICO</b>	<b>74</b>
<b>NORTH CAROLINA STATE UNIVERSITY</b>	<b>76</b>
<b>OHIO STATE UNIVERSITY</b>	<b>82</b>
<b>ONTARIO TECH UNIVERSITY</b>	<b>84</b>
<b>OREGON STATE UNIVERSITY</b>	<b>89</b>
<b>PENNSYLVANIA STATE UNIVERSITY</b>	<b>93</b>
<b>UNIVERSITY OF PITTSBURGH</b>	<b>97</b>
<b>POLYTECHNIQUE MONTRÉAL</b>	<b>101</b>
<b>PURDUE UNIVERSITY</b>	<b>102</b>
<b>RENSELAER POLYTECHNIC INSTITUTE</b>	<b>105</b>
<b>UNIVERSITY OF SOUTH CAROLINA</b>	<b>108</b>
<b>SOUTH CAROLINA STATE UNIVERSITY</b>	<b>112</b>
<b>UNIVERSITY OF TENNESSEE, KNOXVILLE</b>	<b>113</b>
<b>TEXAS A&amp;M UNIVERSITY</b>	<b>119</b>
<b>UNIVERSITY OF TEXAS, AUSTIN</b>	<b>123</b>
<b>UNIVERSITY OF UTAH</b>	<b>126</b>
<b>UTAH STATE UNIVERSITY</b>	<b>127</b>
<b>VIRGINIA COMMONWEALTH UNIVERSITY</b>	<b>129</b>
<b>VIRGINIA POLYTECHNIC INSTITUTE</b>	<b>131</b>
<b>UNIVERSITY OF WISCONSIN, MADISON</b>	<b>136</b>
<b>RESEARCH TRAINING AND FISSION REACTORS IN NORTH AMERICA</b>	<b>141</b>
<b>FACULTY INDEX</b>	<b>145</b>



## UNIVERSITY OF CALIFORNIA-BERKELEY

Nuclear Engineering  
4149 Etcheverry Hall  
Berkeley, CA 94720-1730

510-642-5760

FAX: 510-643-9685

Administrative Contact: Kirsten Wimple Hall

510-642-5760

kirstenw@berkeley.edu

Website: [www.nuc.berkeley.edu](http://www.nuc.berkeley.edu)

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	21	8	14	19	18
Masters	16	14	8	24	19
PhD	6	9	6	11	11

Graduate Student Enrollment: 19 Masters/ 81 Ph.D.

ABET Accreditation: BS degree in Nuclear Engineering

### Nuclear Science and Engineering Faculty

**Peter Hosemann**, Professor and Department Chair (510-717-5752) [peterh@berkeley.edu] Dr., Montanuniversitaet Leoben, Austria, 2008. Small scale materials testing on irradiated and unirradiated structural materials for nuclear applications; Investigating new advanced structural materials concepts (e.g. oxide dispersion strengthened steels) for nuclear applications using accelerated materials testing via ion beam irradiations; Liquid metal corrosion of structural materials for nuclear applications.  
Website: <https://materials.nuc.berkeley.edu/>

**Rebecca Abergel**, Assistant Professor [rjabergel@lbl.gov] Ph.D., University of California, Berkeley, 2006. Nuclear, Radio, Inorganic, Coordination, and Biological Chemistry; Medical Countermeasures and Radiopharmaceuticals Development; Nuclear/Radiological Emergency Preparedness; Nuclear Fuel Related Element and Isotope Solution Thermodynamics and Separation.

**Massimiliano Fratoni**, Assistant Professor (510-664-9079) [maxfratoni@berkeley.edu] Ph.D., University of California, Berkeley, 2008. Advanced reactor design; computational methods; and nuclear fuel cycle. Current projects focus on accident tolerant fuels for light water reactors; molten salt reactors for used fuel transmutation; and thermal analysis of generic repository.  
Website: <http://www.nuc.berkeley.edu/people/massimiliano-fratoni>

**Edward C. Morse**, Professor (510-642-7275) [morse@nuc.berkeley.edu] Ph.D., University of Illinois, Urbana-Champaign, 1979. Fusion reactor design and applied plasma physics, experimental investigation of

RF plasma heating; rotating target neutron source at UC Berkeley; experimental studies of compact toroids; a spectral method for magnetohydrodynamic stability.

Website: <http://www.nuc.berkeley.edu/people/edward-morse>

**Per F. Peterson**, Professor, William and Jean McCallum Floyd Endowed Chair (510-643-7749) [peterson@nuc.berkeley.edu] Ph.D., UC Berkeley, 1988. High-temperature fission and fusion energy systems; topics related to the safety and security of nuclear materials and waste management: heat transfer; fluid mechanics; regulation and licensing for high temperature reactors, principally designs that use liquid fluoride salts as coolants. Website: <http://www.nuc.berkeley.edu/people/per-peterson>

**Raluca O. Scarlat**, Assistant Professor [scarlat@berkeley.edu] Ph.D., Nuclear Engineering, University of California, Berkeley, 2012. Chemical and thermophysical characterization of high-temperature molten salts and other inorganic fluids, and heat and mass transport pertaining to energy systems. Electrochemistry, corrosion, thermodynamics. Nuclear reactor safety analysis, licensing and design, and engineering ethics.

**Rachel Slaybaugh**, Assistant Professor (570-850-3385) [slaybaugh@berkeley.edu] Ph.D., University of Wisconsin, 2011. Research is based in numerical methods for neutron transport with an emphasis on supercomputing. Prof. Slaybaugh applies these methods to reactor design, shielding, and nuclear security and nonproliferation. Website: <http://www.nuc.berkeley.edu/people/rachel-slaybaugh>

**Karl A. van Bibber**, Professor (510-642-3477) [karl.van.bibber@nuc.berkeley.edu] Ph.D., Massachusetts Institute of Technology, 1976. Nuclear Physics; Particle Physics; Particle Astrophysics; Nuclear Instrumentation; Accelerator Science & Technology. Website: <http://www.nuc.berkeley.edu/people/karl-van-bibber>

**Kai Vetter**, Professor in Residence (510-642-7071) [kvetter@nuc.berkeley.edu] Ph.D., J. W. Goethe-University, Frankfurt, 1995. Development and demonstration of new and/or improved gamma-ray (and neutron) imaging concepts for applications ranging from homeland security and nuclear non-proliferation to biomedical imaging; search for neutrino-less double-beta decay in  $^{76}\text{Ge}$  to obtain better understanding on fundamental properties of neutrinos to answer fundamental questions; developing and demonstrating new and improved concepts in Ge detector technologies to provide unprecedented capabilities in observing rare decays or rare interactions; basic nuclear physics experiments and associated instrumentation to better understand the basic structure of nuclei. Website: <http://www.nuc.berkeley.edu/people/kai-vetter>

**Jasmina L. Vujic**, Professor (510-643-8085) [vujic@nuc.berkeley.edu] Ph.D., University of Michigan, 1990. Numerical methods in reactor physics, neutron and photon transport, reactor core design and analysis, shielding and radiation protection, biomedical application of radiation, optimization techniques for vector and parallel computers: neutronics analysis of fissile material behavior in geologic repositories; computer modeling for radiation diagnostic and cancer therapy; development of multiprocessor multiassembly neutron transport theory code; development and validation of the GT-SCALE code package for advanced reactor core designs; development of a unified multidimensional computational method for neutral particles in complex non-uniform domains. Website: <http://www.nuc.berkeley.edu/people/jasmina-vujic>

## **Other Faculty**

**Lee Bernstein**, Adjunct Professor (510-642-4077)[labernstein@berkeley.edu] Ph.D., Rutgers University, 1994. Statistical properties of nuclear matter; Nuclear physics in high energy density plasmas; Neutron-induced reaction cross section measurements; Surrogate nuclear reactions.

**Ehud Greenspan**, Professor of the Graduate School (510-643-9983) [gehud@nuc.berkeley.edu] Ph.D., Cornell University, 1966. Generation IV reactors - conception and analysis of advanced nuclear reactors; Transmutation - minimization of nuclear waste as well as the disposition of nuclear waste and the closing of the nuclear fuel cycle; Advanced fuel cycles for improving proliferation resistance and nuclear fuel utilization; as well as development of automated nuclear design optimization methods and their application in the areas of criticality safety, boron neutron capture therapy, radiation shields, and fusion energy systems. Website: <http://www.nuc.berkeley.edu/people/ehud-greenspan>

**Daniel M. Kammen**, Professor (510-643-2243) [kammen@socrates.berkeley.edu] Ph.D., Princeton University, 1988. Science and technology policy focused on energy, development and environmental management; Technology and policy questions in developing nations, particularly involving: the linkages between energy, health, and the environment; technology transfer and diffusion; household energy management; renewable energy; women; minority groups; Global environmental change including deep cuts in greenhouse gas emissions and resource consumption; Environmental and technological risk; Management of innovation and energy R&D policy. Geographic expertise: Africa; Latin America. Website: <http://www.nuc.berkeley.edu/people/daniel-kammen>

**William E. Kastenberg**, Professor Emeritus [kastenbe@nuc.berkeley.edu] Ph.D., UC Berkeley, 1966. Ethical issues in emerging technologies, risk assessment and risk management for technological and natural complex systems, nuclear reactor safety, environmental risk analysis, environmental conflict resolution. Website: [http://www.nuc.berkeley.edu/people/bill\\_kastenberg](http://www.nuc.berkeley.edu/people/bill_kastenberg)

**Ka-Ngo Leung**, Professor of the Graduate School (510-486-7918) [knleung@lbl.gov] Ph.D., UCLA, 1975. Plasma and Ion Beam technology in microfabrication processes: maskless ion beam lithography technology as candidates for next generation lithography (NGL) that will be used to produce feature sizes of 100 nm and below; focused ion beam (FIB) systems equipped with plasma ion sources; compact neutron tube with rf plasma ion source. Website: <http://www.nuc.berkeley.edu/people/ka-ngo-leung>

**Eric B. Norman**, Professor of the Graduate School (510-643-9984) [ebnorman@lbl.gov] Ph.D., University of Chicago, 1978. Developing active neutron-based interrogation system to screen sea-going cargo containers for fissionable material; Cryogenic Underground Observatory for Rare Events (CUORE) – a planned large-scale bolometric detector designed to search for the neutrinoless double beta decay of  $^{130}\text{Te}$ ; Measurements of neutron and charged-particle induced reaction cross sections for homeland security, nuclear astrophysics, and neutrino physics. Website: <http://www.nuc.berkeley.edu/people/eric-norman>

**Donald R. Olander**, Professor Emeritus (510-642-7055) [fuelpr@nuc.berkeley.edu] Sc.D., MIT, 1958. High-temperature kinetic and thermodynamic behavior of nuclear reactor fuels; performance of degraded nuclear fuels. Website: <http://www.nuc.berkeley.edu/people/donald-olander>



**Haruko Wainwright**, Associate Adjunct Professor (510-847-0036) [HMWainwright@lbl.gov] Ph.D., University of California, 2010. Environmental remediation at nuclear contaminated sites; regional-scale radiation monitoring; groundwater remediation and long-term monitoring; radionuclide transport modeling; uncertainty quantification and parameter estimation; Bayesian geostatistical methods; geospatial ecological mapping and modeling. Website: <https://eesa.lbl.gov/profiles/haruko-murakami-wainwright/>

## **Nuclear Science and Engineering Research Centers**

**Nuclear Science and Security Consortium (NSSC):** The NSSC is a consortium of seven major research universities and five DOE national laboratories, of which UC Berkeley is the lead institution. Funded by the DOE Office of Non-Proliferation (\$25M/5 years), the purpose of the NSSC is to reinvigorate the pipeline of scientific, engineering and policy talent into the national laboratories and federal service in national security. Primarily the Consortium is intended to fund undergraduate, graduate student and postdoctoral research, introducing and connecting this talent with participating DOE labs. The NSSC supports research across the entire spectrum of relevant disciplines, including nuclear and particle physics, nuclear instrumentation and radiation detection, nuclear- and radiochemistry, nuclear engineering, and nuclear security international policy and programs. Additionally, NA-22 has expanded and augmented the program to include solicitations for research grants and internships to Minority Serving Institutions (MSI) as well.

**Applied Nuclear Physics Laboratories:** These labs are concerned with the low-energy nuclear physics and interaction of radiation with matter important to nuclear chemistry, nuclear technology and applications. Research programs include fundamental nuclear physics measurements for applied purposes and the development of advanced detectors and methodologies, in addition to the application of nuclear techniques in a wide range of studies. Current emphasis is on experimental and modeling studies in support of neutrino mass measurements, the design of methodologies and systems to counter the possible transport of clandestine nuclear materials and applications in the biomedical and radiological sciences.

**Detection Laboratory** - Kelp Watch (<http://kelpwatch.berkeley.edu/>) and Rad Watch. Additional Research Areas: Computational Methods, Nonproliferation, Risk, Safety, and Large-Scale Systems Analysis, Ethics and the Impact of Technology on Society, Energy Systems and the Environment, Bionuclear and Radiological Physics, Laser, Particle Beam, and Plasma Technologies Plasma and Fusion Science and Technology

**Nuclear Materials Laboratory:** This lab uses thermogravimetric techniques with microbalances to investigate the hydriding and oxidation of nuclear reactor core materials and positron annihilation spectroscopy to characterize the microstructural changes in irradiated structural steels. In addition to understanding the performance of nuclear fuels and materials in current nuclear fission plants, the materials aspects of new fuel element designs and advanced nuclear fuels and structural material systems are investigated. The lab is devoted to understanding the many causes of materials degradation and failure in nuclear technology. Specific emphasis is on the behavior of nuclear fuels, cladding and structural materials in nuclear fission and fusion environments where radiation damage and corrosion are the

overarching concerns. This research combines computational, experimental and theoretical techniques to investigate the dynamic response of nuclear materials.

**Nuclear Waste and Fuel Cycle Laboratory:** The lab focuses on performance assessment of nuclear and radioactive waste management. Research topics include (1) mass-flow analyses in the nuclear fuel cycle to quantify compositions and quantities of wastes from various concepts of fuel cycles, ranging from reactors, separation processes, and waste stabilization processes, (2) performance assessment of geological disposal for various different waste forms and repository concepts and designs, ranging from shallow-land burial for low and intermediate level wastes, mined repository for spent nuclear fuels and high-level wastes, and most recently deep borehole disposal for separated long-lived iodine, and (3) development of integrated performance assessment systems covering both the fuel cycle and the geological disposal. After the Fukushima accident, the criticality safety for geological disposal of molten corium and accumulated plutonium has emerged as an important topic.

**Nuclear Science User Facility Partner Institution:** UCB-NE's department is a NSUF partner facility providing facilities to the NE community as a whole. SEM/FIB/EBSD/EDS for active and non-active samples is available as well as nanoindentation, (insitu and ex-situ) as well as Helium Ion Beam Microscopy, cry and heating capability, macroscale tensile testing on active and non-active samples as well as heat treatments and sample preparation. All facilities are available through the NSUF user facility access process.

**Thermal Hydraulics Laboratory:** The UCB Thermal Hydraulics Laboratory studies heat transfer and fluid mechanics phenomena that are relevant to fission and fusion energy systems. A principal focus of the laboratory is on the development of and experimental validation of models for passive safety systems. Experimental work in the laboratory has investigated effects of noncondensables on condensation in passive light water reactor containments, large-scale mixing processes in reactor containments and high level waste tanks, coolant fluid mechanics for inertial fusion energy chambers, convective heat transport for high Prandtl number fluids simulating the behavior of fluoride salts, pebble bed granular flows, and other phenomena. The laboratory has extensive capabilities for quality assurance, instrumentation and data acquisition, and modeling and simulation.

## COLORADO SCHOOL OF MINES

Nuclear Science and Engineering Program

201 Hill Hall; 1500 Illinois St.

Golden, CO 80401

303-384-3640

FAX: 303-273-3795

Administrative Contact: Mark Jensen

303-273-3785

mjensen@mines.edu

Website: <http://nuclear.mines.edu>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	7	6	4	4	4
PhD	1	3	1	3	1

Graduate Student Enrollment: 6 Masters/ 16 Ph.D.

### Nuclear Science and Engineering Faculty

**Mark Jensen**, Professor, Program Director and Grandey University Chair in Nuclear Science and Engineering (303-273-3785) [mjensen@mines.edu] Ph.D., Florida State University. Nuclear fuel cycle, chemical separations, biochemistry and environmental chemistry of the transuranium elements. Website: <https://chemistry.mines.edu/project/mark-jensen/>

**Mark Deinert**, Associate Professor (303-384-2387) [mdeinert@mines.edu] Ph.D., Cornell University. Understanding the broader impacts of Advanced Nuclear Fuel Cycles.

**Uwe Greife**, Professor (303-273-3618) [ugreife@mines.edu] Dr. rer. nat., Ruhruniversitaet Bochum, 1994. Nuclear astrophysics; applied nuclear physics; nuclear fission and fusion; radiation detector development. Website: <https://physics.mines.edu/project/uwe-greife/>

**Jeffrey C. King**, Associate Professor and Director, Nuclear Science and Engineering Center (303-384-2133) [kingjc@mines.edu] Ph.D., Nuclear Engineering, University of New Mexico, 2006. Reactor physics and design; neutron imaging; nuclear materials. Website: <http://www.mines.edu/~kingjc>

**Andrew G. Osborne**, Assistant Professor (303-273-3650) [osbornea@mines.edu] Ph.D, University of Glasgow, 2006. Nuclear reactor theory; nuclear fuel cycles; reactor optimization; numerical methods; energy systems analysis.

**Jennifer C. Shafer**, Associate Professor (303-273-3996) [jbraley@mines.edu] Ph. D., Washington State University, 2010. Actinide separations; medical radioisotope production; environmental chemistry; nuclear forensics. Website: <https://chemistry.mines.edu/project/jenifer-shafer/>

## Other Faculty

**Linda Figueroa**, Professor (303-273-3491) [lfiguero@mines.edu] Ph.D., University of Colorado at Boulder, 1989. Bioremediation of radionuclides and metals. Professional Engineer.  
Website: <http://inside.mines.edu/Figueroa>

**Zeev Shayer**, Research Professor (303-273-3037) [zshayer@mines.edu] Ph.D., Tel-Aviv University, Israel, 1985. Advanced fuel cycle and new reactor concept design; thermal hydraulics; radiation physics; dose rate and material degradation assessments; criticality safety analysis; probability risk assessment and reliability analysis; nuclear waste transmutation and compaction; low energy nuclear physics; computational methods in engineering and science. Professional Engineer.  
Website: <https://physics.mines.edu/project/zeev-shayer/>

## Nuclear Science and Engineering Research Centers

**Nuclear Science and Engineering Center (NuSEC)** - Coordinates nuclear science and engineering research across campus and maintains the CSM nuclear science and engineering laboratory facilities located adjacent to the GSTR.

**Geological Survey TRIGA Reactor (GSTR)** - 1 MW thermal TRIGA reactor used for teaching and research located on the Denver Federal Center, approximately 10 minutes from campus.

**Active Materials Characterization Laboratory (ActMCL)** - Provides materials synthesis and characterization capabilities for radioactive materials. Located adjacent to the GSTR. Capabilities include scanning electron microscopy, transmission electron microscopy, optical microscopy, x-ray diffraction, and x-ray nano-computed tomography.

**Mines Neutron Radiography (MINER)** - Provides neutron radiography capabilities at the GSTR. Capabilities include direct and indirect foil imaging capabilities. The facility can provide a beam flux of  $2.2 \times 10^6$  n/cm<sup>2</sup>-s with an effective L/D of approximately 200.

**Laboratory for Applied & Environmental Radiochemistry (LAER)** – Located on the Mines Campus, the Laboratory for Applied & Environmental Radiochemistry (LAER) is a multi-user facility well equipped for use and analysis of radioactive materials, especially transuranic elements. Our emphasis is on understanding the behavior of radionuclides relevant to nuclear energy. Capabilities include all forms of radioactive counting, alpha and gamma spectroscopy, UV-visible spectroscopy calorimetry, biochemistry, chemical synthesis, and all types of chemical separations.

## UNIVERSITY OF FLORIDA

Nuclear Engineering Program  
100 Rhines Hall, PO Box 116400  
Gainesville, FL 32611  
(352) 846-3300  
FAX: (352) 392-3380  
Administrative Contact: Andreas Enqvist  
(352) 846-3782  
enqvist@ufl.edu  
Website: <http://nuceng.ufl.edu>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	32	20	24	15	12
6	5	9	16	7	6
PhD	1	2	6	6	5

Graduate Student Enrollment: 9 Masters/ 18 Ph.D.  
ABET Accreditation: Nuclear Engineering (BS)

### Nuclear Science and Engineering Faculty

**Andreas Enqvist**, Nuclear Engineering Program Director and Associate Professor (352-294-2177) [enqvist@mse.ufl.edu] Ph.D., Chalmers University of Technology, Sweden, 2010. Nuclear safeguards; detection statistics of radiation from fissile materials and the physics behind particle-detector interactions; neutron physics & detectors; neutron noise signals; radiation signal analysis, Data Fusion and Machine Learning. Website: <http://enqvist.mse.ufl.edu>

**James Baciak**, Professor (352-273-2131) [jebaciak@mse.ufl.edu] Ph.D., University of Michigan, 2004. Radiation measurements; radiation detector development; new radiation detector materials; detector testing and characterization for gamma-ray spectroscopy; environmental monitoring; non-proliferation and treaty verification; nuclear security. Website: <http://mse.ufl.edu/people/name/james-baciak/>

**Assel Aikaliyeva**, Assistant Professor (352-846-3778) [aitkaliyeva@ufl.edu] Ph.D., Texas A&M, 2012. Nuclear Fuels and Materials, with emphasis on characterization and property evaluation; Mechanical and Thermal properties of materials; Reactor Irradiation; Radiation damage in materials; Ion Implantation; Kinetics; Composites; Nanostructured materials; Multi-Scale simulation of nuclear fuel. Website: <http://manatee.mse.ufl.edu>

**Kyle Hartig**, Assistant Professor (202-270-4721)[hartig@mse.ufl.edu] Ph.D., Pennsylvania State University. Remote Sensing, Nuclear Nonproliferation/counterproliferation, Nuclear Security, and Nuclear Policy.

**Christopher McDevitt**, Associate Professor (352-846-3785) [cmcdevitt@ufl.edu] Ph.D., University of San Diego at California, 2008. Fusion; Plasma Physics; Plasma Turbulence; Momentum Transport; Runaway Electrons; Monte Carlo Methods.

**Michael Tonks**, Associate Professor (352-846-3779) [michael.tonks@ufl.edu] Ph.D., University of Illinois, Urbana-Champaign, 2008. Computational nuclear materials, reactor fuel performance, computational materials science, computational mechanics. Website: <http://tonks.mse.ufl.edu/>

**Nathalie A. Wall**, Professor (352-273-0279) [Nathalie.Wall@ufl.edu] Doctorate, University of Paris, France, 1993. Radiochemistry; environmental behavior of radionuclides; nuclear forensics. Website: <https://faculty.eng.ufl.edu/wall-research/>

**Justin Watson**, Associate Professor (352-273-0241)[justin.watson@ufl.edu] Ph.D., The Pennsylvania State University, 2010. Reactor Kinetics and Dynamics, Neutronics, Thermal Hydraulics, Multiphysics Simulation, Advanced Numerical Methods, Applied Mathematics, Advanced Code Coupling Techniques, Scientific Software Development, High Performance Computing. Website: [watson.mse.ufl.edu](http://watson.mse.ufl.edu)

**Yong Yang**, Associate Professor (352-392-1401) [yongyang@ufl.edu] Ph.D., University of Wisconsin-Madison, 2005. Reactor structure materials; nuclear fuel and cladding materials; environmental degradations including thermal aging, corrosion and radiation damage; advanced manufacturing including additive manufacturing and new welding technology development. Website: <http://manatee.mse.ufl.edu/>

### **Other Faculty**

**Wesley E. Bolch**, Professor of Biomedical Engineering (352-273-0303) [wbolch@ufl.edu] Ph.D., University of Florida, 1988. Dosimetry; computational medical physics; dose assessment.

**Edward Dugan**, Adjunct Associate Professor Emeritus (352-273-2129) [edugan@mse.ufl.edu] Ph.D., University of Florida, 1976. Backscatter x-ray imaging; reactor analysis; nuclear power plant dynamics and control; space nuclear power and propulsion; radiation transport and Monte Carlo simulations.

**David Gilland**, Associate Professor of Biomedical Engineering (352-273-0302) [gilland@ufl.edu] Ph.D., University of North Carolina at Chapel Hill, 1989. Molecular imaging, instrumentation and algorithm development using PET and SPECT.

**Ira Harkness**, Lecturer (352-846-3329) [ira@mse.ufl.edu] Ph.D., University of Florida, 2018. Monte Carlo methods; neutron transport; nuclear safeguards and nonproliferation.

**Michele V. Manuel**, Professor & Department Chair (352-846-3780) [mmanuel@ufl.edu] Ph.D., Northwestern University, 2007. Computational Thermodynamics and Kinetics; Materials Design; Materials Characterization and Processing in Extreme Environments.

**Juan C. Nino**, Professor of Materials Science and Engineering (352-846-3787) [jnino@mse.ufl.edu] Ph.D., The Pennsylvania State University, 2002. Multifunctional ceramics; energy materials; dielectrics and ionic conductors in bulk and thin film; single crystal growth; nuclear materials and detectors; bioceramics.

**Simon Phillpot**, Professor and Chair of Materials Science and Engineering (352-846-3782) [sphil@mse.ufl.edu] Ph.D., University of Florida, 1985. Nuclear fuel and clad; mechanical properties; thermal transport properties, point defects and microstructure; hierarchical waste forms.

**DuWayne Schubring**, Associate Engineer and NE Undergraduate Coordinator (352-392-1401x314) [dlschubring@ufl.edu] Ph.D., University of Wisconsin-Madison, 2009. Two-phase flow; nuclear reactor thermal hydraulics; quantitative visualization; nuclear reactor safety; computational and numerical methods including coupled codes; advanced nuclear power systems.

**James S. Tulenko**, Professor Emeritus (352-392-1427) [tulenko@ufl.edu] M.S., Massachusetts Institute of Technology, 1963. Nuclear fuel cycle; processing, fabrication and in-core and ex-core performance of nuclear fuel; multi-scale simulation of nuclear fuel; economic and environmental evaluation of all forms of electrical energy generation.

**William Vernetson**, Adjunct Faculty (retired) (352-392-1401x309) [vernet@ufl.edu] Ph.D., University of Florida, 1978. Reactor safety; reactor operations and training; systems design; probabilistic risk assessment; criticality analysis; neutron activation analysis.

**Donald E. Wall**, Professor of Practice & Director University of Florida Training Reactor (352-273-3662) [donald.wall@ufl.edu] Ph.D., Florida State University, 2001. Nuclear reactor cooling systems; research reactor operation; actinide and fission product thermodynamics; research reactor operator licensing.

### **Nuclear Science and Engineering Research Centers**

**Backscatter Radiography by Selective Detection (RSD) Lab:** *Dr. James Baciak*. X-ray backscatter imaging for a wide variety of imaging applications focused on non-destructive testing in aerospace, nuclear facility, roadway/railway infrastructure, and medical applications.

**HiPerGator:** The Department of Research Computing provides comprehensive support for researchers that use HiPerGator, the university supercomputer. HiPerGator is currently ranked as the 136th most powerful supercomputer in the world, and third most powerful among public U.S. universities. UF anticipates acquiring some of the nation's most advanced AI machinery before the end of 2020, through collaboration and donation from Nvidia. **Website:** <https://www.rc.ufl.edu/services/hipergator/>

**Nuclear Fuels & Materials Characterization Facility:** Characterization of nuclear fuels and materials, including scanning electron microscope (SEM), focused ion beam (FIB), transmission electron microscope (TEM), energy dispersive spectrometer (EDS), electron backscattering diffraction (EBSD), and in-situ mechanical testing. *Drs. Assel Aitkaliyeva & Yong Yang*. Website: <https://rsc.aux.eng.ufl.edu/nfmcf/>

**Optical Science and Remote Sensing Laboratory:** The laboratory comprises approximately 1,000 ft<sup>2</sup> of quality laboratory space that is approved for use of radioactive materials and contains state-of-the-art experimental laser sources, plasma diagnostics, and scientific infrastructure. His group and laboratory conduct extensive work on machine learning, X-ray imaging, laser remote sensing of nuclear materials,

laser induced plasmas, and chemistry of actinides in plasmas for nuclear forensics, fuel cycle, and security applications. *Dr. Kyle C. Hartig*

**Radiochemistry Laboratory:** Radioanalytical tools and instrumentations for nuclear fuel cycle applications, including environmental behavior of radionuclides, nuclear forensics, and radiopharmaceutical compounds. *Dr. Nathalie A. Wall.*

**Radiation Detection and Nuclear Instrumentation Lab:** Provides an opportunity for undergraduate and graduate students in the department to learn about and operate various radiation detectors, detector systems, and their associated electronics. Laboratory space and equipment is also provided for advanced research in radiation detector development. Other non-destructive testing systems are also available for investigative/educational purposes.

**Radiation measurement and detection system labs:** Labs focused on radiation measurements, radiation detector development; new radiation detector materials; detector testing and characterization for gamma-ray spectroscopy; Radiation -detection interaction measurements, Neutron detector development and characterization, Radiation data Analysis, non-proliferation and treaty verification; nuclear security. *Drs. James E. Baciak & Andreas Enqvist.*

**Simulation and modelling center:** Investigates the co-evolution of microstructure and properties of materials in harsh environments using multiscale modeling and simulation (*Dr. Tonks*). Kinetic simulation of magnetic and inertial confinement fusion plasmas (*Dr. McDevitt*). Coupled multi-scale, multi-physics simulations for design, operation, and safety analysis of light water and Gen IV nuclear power systems (*Dr. Watson*). Atomic-level simulation of fuel systems and waste forms (*Dr. Phillipot*).

**University of Florida Training Reactor (UFTR):** A 100 kW reactor used for training and demonstration, including the design licensing and construction of a fully digital control and safety system.



## GEORGIA INSTITUTE OF TECHNOLOGY

Nuclear and Radiological Engineering and Medical Physics Programs

770 State Street

Atlanta, GA 30332-0745

404-894-3718

FAX: 404-894-3733

Administrative Contact: Steven Biegalski

404-894-3717

steven.biegalski@me.gatech.edu

Website: nremp.gatech.edu

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	32	23	21	30	32
Masters	24	29	8	5	6
PhD	6	11	9	11	4

Graduate Student Enrollment: 32 Masters/ 31 Ph.D.

ABET Accreditation: B.S.N.R.E.

CAMPEP Accreditation: M.S.M.P. and Ph.D. NRE – MP option

### Distance Education Program

Offers Nuclear Engineering Courses Online

[www.dlpe.gatech.edu](http://www.dlpe.gatech.edu)

### Nuclear Science and Engineering Faculty

**Steven R. Biegalski**, Professor and Chair (404-385-5973) [steven.biegalski@me.gatech.edu] Ph.D.

University of Illinois at Urbana-Champaign, 1996. Nuclear analytical methods; nuclear forensics; nuclear instrumentation; nuclear reactor design; neutron radiography; analysis of environmental media with nuclear methods; modeling of environmental pathways; reactor operations and reactor safety analysis. Professional Engineer.

**Said I. Abdel-Khalik**, Southern Nuclear Distinguished Professor (404-894-3719)

[said.abdelkhalik@me.gatech.edu] Ph.D., University of Wisconsin-Madison, 1973. Reactor thermal-hydraulics; reactor operations; reactor safety; fusion technology.

**Chaitanya S. Deo**, Associate Professor (404-385-4928) [chaitanya.deo@nre.gatech.edu]

Ph.D., University of Michigan, 2003. Structure property relationships in nuclear materials: theory and simulations across electronic; atomic, mesoscopic and continuum scales. Radiation effects in materials for nuclear energy including structural materials and nuclear fuels identifying atomic mechanisms in defect mobility and interaction in crystalline solids and modeling the collective evolution of defects.

**Anna Erickson**, Assistant Professor (404-894-3731) [anna.erickson@nre.gatech.edu] Ph.D., Massachusetts Institute of Technology, 2011. Advanced reactor design; nuclear safety and safeguards; radiation detection systems.

**Dan Kotlyar**, Assistant Professor [dan.kotlyar@me.gatech.edu] Ph.D., Ben-Gurion University of the Negev, 2013, Development of advanced numerical methods and algorithms for fuel depletion and thermal hydraulic coupled Monte Carlo codes.

**Nolan E. Hertel**, Professor (404-894-3601) [nolan.hertel@nre.gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 1979. Radiation spectrometry; transport; dosimetry and shielding; radiation detector simulations and design; neutron measurements and applications; computational dosimetry; radiation protection. Professional Engineer.

**Henry La Pierre**, Assistant Professor [la\_pierre@chemistry.gatech.edu] Ph.D., University of California, Berkeley, magnetism, electronic structure, and reactivity of f-element complexes and materials, lanthanide/actinide separations, transuranic coordination chemistry and X-ray absorption spectroscopy.

**Tianye Niu**, Associate Professor (404-894-4085)[tyniu@gatech.edu] Ph.D., University of Science and Technology of China, 2009. Nuclear imaging, advanced conebeam CT reconstruction, artifacts correction, dual-energy imaging, radiomics analysis with emphasis on the guidance and evaluation in cancer treatment.

**Bojan Petrovic**, Professor (404-894-8173) [bojan.petrovic@gatech.edu] Ph.D., The Pennsylvania State University, 1995. Reactor physics; transport theory; shielding; Monte Carlo methods; advanced reactor design; nuclear fuel cycle; numerical simulations of nuclear systems.

**Farzad Rahnema**, Georgia Power Company Distinguished Professor (404-894-3731) [farzad@gatech.edu] Ph.D., University of California, Los Angeles, 1981. Radiation transport theory; reactor physics; computational medical physics; perturbation and variational methods.

**Weston M. Stacey, Jr.**, Regents' and Callaway Professor (404-894-3714) [weston.stacey@nre.gatech.edu] Ph.D., Massachusetts Institute of Technology 1966. Fusion plasma physics; reactor physics and conceptual design for fusion and fission reactors.

**C-K Chris Wang**, Professor (404-894-3727) [chris.wang@nre.gatech.edu] Ph.D., The Ohio State University, 1989. Radiation physics; detection; protection and dosimetry; micro- and nano-dosimetry; radiobiological modeling; radiation biology; and radiotherapy modalities using neutrons. Professional Engineer.

**Shannon Yee**, Assistant Professor [shannon.yee@me.gatech.edu] Ph.D., University of California Berkeley, 2013, heat transfer, energy systems, direct energy conversion, thermoelectrics, and thermal energy conversion.

### **Other Faculty**

**Armin Ansari**, Adjunct Associate Professor; Health Physicist, Radiation Studies Branch, Centers for Disease Control and Prevention (770-488-3654) [AAnsari@cdc.gov] Ph.D., University of Kansas, 1989; radiation emergency preparedness and response; radiation biology; internal dosimetry.

**Seung-Kyum Choi**, Associate Professor (912-966-6771) [seungkyum.choi@me.gatech.edu]; Ph.D., Wright State University, 2006. Probabilistic risk assessment; reliability-based design; multidisciplinary design optimization; and decision support method.

**Anees Dhabaan**, Assistant Professor of Radiation Oncology and Director of Medical Physics Residency Program, Emory University School of Medicine; Adjunct Assistant Professor at Georgia Tech (404-778-3535) [anees.dhabaan@emory.edu] Ph.D., University of Birmingham, England, United Kingdom, 1994. Diplomate, American Board of Radiology 2003; Head physicist for the stereotactic radiosurgery program at Emory University; neutron and photon transport and the use of Monte Carlo method in dense media; clinical services including implementing new technologies.

**Eric S. Elder**, Associate Professor of Radiation Oncology and Director of Clinical Medical Physics, Emory University School of Medicine, Adjunct Assistant Professor at Georgia Tech (404-778-2304) [eric@radonc.emory.org] Ph.D., Georgia Institute of Technology, 1997. Certified by the American Board of Radiology – Therapeutic Radiologic Physics 1997; image-guided radiation therapy (IGRT) methods; endovascular brachytherapy.

**Timothy Fox**, Vice President, Varian Medical Systems, Adjunct Assistant Professor at Georgia Tech (770-372-1410) [tim.fox@varian.com] Ph.D., Georgia Institute of Technology, 1994. Medical imaging; radiation treatment planning; oncology data analytics.

**Srinivas Garimella**, Professor (404-894-7479) [srinivas.garimella@me.gatech.edu] Ph.D., The Ohio State University, 1990. Heat transfer; thermal-hydraulics; microchannel phase change.

**S. Mostafa Ghiaasiaan**, Professor (404-894-3246) [mghiaasiaan@gatech.edu] Ph.D., University of California, Los Angeles, 1983. Heat transfer; two-phase flow; nuclear reactor engineering. Professional Engineer.

**Jarrold Hayes**, Associate Professor (404.894.0289) [jarrod.hayes@gatech.edu] Ph.D., University of Southern California, 2009. Nuclear proliferation; nuclear strategy and arms control; South and East Asia; Europe.

**Tom C.-C. Hu**, Project Officer, The Biomedical Advanced Research and Development Authority (BARDA), within the Office of the Assistant Secretary for Preparedness and Response (ASPR) in the U.S. Department of Health and Human Services (HHS) [tom.hu@hhs.gov] Part-Time Assistant Professor of Radiology and Founding Director of Small Animal Imaging Program, Medical College of Georgia; [thu@mail.mcg.edu]; Adjunct Assistant Professor at Georgia Tech; Ph.D., Carnegie Mellon University, 2001; MBA, Villanova University, 2005. Non-invasive magnetic resonance imaging (MRI) in small animals.

**Laurence J. Jacobs**, Professor (404 -894-2344) [laurence.jacobs@coe.gatech.edu] Ph. D, Columbia University, 1987. Development of measurement techniques for the quantitative nondestructive evaluation of structural materials; nonlinear acoustics for damage characterization and life prediction of structural materials.

**Sheldon M. Jeter**, Associate Professor (404-894-3211) [sheldon.jeter@me.gatech.edu] Ph.D., Georgia Institute of Technology, 1979. Heat transfer; thermal hydraulics. Professional Engineer.

**Bernd Kahn**, Professor Emeritus (404-407-6776) [bernd.kahn@me.gatech.edu] Ph.D., Massachusetts Institute of Technology, 1960. Radiochemistry; radiochemical analysis; radiological monitoring.

**Ratib Karam**, Professor Emeritus (404-894-3620) [ratib.karam@nnrc.gatech.edu] Ph.D., University of Florida, 1963. Reactor physics; transport theory.

**Benjamin Klein**, Professor (912-966-7945) [bklein@gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 2000. Reactor physics; transport theory; optical; optoelectronic; and electronic device simulation and design; wide-bandgap semiconductors; nanowire FETs and LEDs; scintillator characterization and design; photonic crystal devices.

**Margaret E. Kosal**, Associate Professor (404-894-9664) [margaret.kosal@inta.gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 2001. Nuclear, chemical, and biological nonproliferation; counterproliferation; counterterrorism; and consequence management; CBRN defensive countermeasures and policy; deterrence; emerging technologies (nanotechnology, including metamaterials; biotechnology, including synthetic genomics; neuro- and cognitive sciences) and international security.

**Jolinta Lin**, Assistant Professor in Department of Radiation Oncology at Emory University, Adjunct Assistant Professor at Georgia Institute of Technology, M.D., University of Maryland School of Medicine, understanding mechanisms of toxicity from radiation therapy, identifying potential pathways to decrease side effects, and improving patients' quality-of-life issues.

**David L. McDowell**, Carter N. Paden Jr. Distinguished Chair in Metals Processing and Regents' Professor (404-894-5128) [david.mcdowell@me.gatech.edu] Ph.D., University of Illinois at Urbana-Champaign, 1983. Effects of radiation on metals. multiscale modeling and materials design.

**Jonathon A. Nye**, Assistant Professor of Radiology, Emory University School of Medicine (404-778-4227) [jnye@emory.edu] Ph.D., University of Wisconsin – Madison, 2005. Nuclear Medical Physics; Radioisotope production; Positron emission tomography; Kinetic Modeling.

**Pretash Patel**, Assistant Professor of Radiation Oncology, Emory University School of Medicine; Adjunct Assistant Professor at Georgia Tech (404-778-3473) [pretesh.patel@emory.edu] M.D., Duke University, 2008. HDR brachytherapy in gynecological and genitourinary malignancies; advancements in clinical and technical aspects of SBRT; use of information technology to improve quality and safety in oncology clinical practice.

**Devesh Ranjan**, Associate Professor [devesh.ranjan@me.gatech.edu] Ph.D., University of Wisconsin-Madison, 2007, fluid mechanics, turbulent mixing process in the complex flow environment, design of more efficient fuel pellets for inertial confinement fusion, Use of Brayton cycle for any high-temperature heat sources including the very High Temperature Reactor, the Sodium Fast Reactor and the Fluoride High temperature reactor.

**Justin Roper**, Medical Physicist, Hospital Corporation of America, Adjunct Assistant Professor at Georgia Tech (404-894-1044) [justin.roper@emory.edu] Ph.D., Duke University, 2010. Certified by the American Board of Radiology - Therapeutic Medical Physics 2013; image guided radiation therapy, functional and molecular imaging as a means to design treatments based on the biology of cancer and normal tissue.

**Lawrence P. Rubin**, Assistant Professor (404-385-4081) (lawrence.rubin@inta.gatech.edu) Ph.D., University of California, Los Angeles, 2009. Nuclear nonproliferation; terrorism; energy security; and Middle East politics and security.

**Michael P. Shannon**, Adjunct Principal Research Engineer, [michael.shannon@gtri.gatech.edu] Ph.D., Georgia Institute of Technology, 2009, radiation transport, radiation detection and measurement, Monte-Carlo methods, and radiation dosimetry.

**Joseph Shelton**, Assistant Professor Department of Radiation Oncology at Emory University, Adjunct Assistant Professor at Georgia Institute of Technology, M.D., University of North Carolina. The treatment and outcomes of patients with gynecologic and genitourinary malignancies. Current work focuses on development of new treatment strategies combining modern radiotherapy and chemotherapy in post-cystectomy bladder cancer patients. Other work involves investigating strategies for adapting brachytherapy and external beam radiation treatments to improving outcomes in cervical cancer patients.

**Adam N. Stulberg**, Professor and Co-Director of the Center for International Strategy, Technology, and Policy (404-385-0090) [adam.stulberg@inta.gatech.edu] Ph.D., University of California, Los Angeles, 1996. Nuclear strategy; arms control; and nonproliferation; internationalization of the fuel cycle; illicit nuclear trafficking; nanotechnology and international security.

**Christopher J. Summers**, Professor Emeritus (404-385-0697) [chris.summers@mse.gatech.edu] Ph.D., Physics, University of Reading, England, 1966. Phosphors and luminescent materials for displays; solid-state lighting and scintillators; synthesis of nanophosphors and quantum dots; photonic crystals; optical and electrical properties of semiconductors; semiconductor growth; particularly the development of new atomic layer deposition techniques and processes for optimizing photonic crystals and metamaterials.

**James J. Wall**, Adjunct Assistant Professor, Ph.D., University of Tennessee, 2007, nondestructive evaluation, characterization of structural materials for nuclear applications, materials aging, structure-property relationships, neutron and high energy x-ray scattering.

**William J. Wepfer**, Professor Emeritus (404-894-3200) [bill.wepfer@me.gatech.edu] Ph.D., University of Wisconsin-Madison, 1979. Heat transfer; energy systems; and fuel cells.

**Rachel Whitlark**, Assistant Professor, [rachel.whitlark@inta.gatech.edu] Ph.D. George Washington University 2014, International security, international relations, foreign-policy decision-making, nuclear weapons and proliferation, military intervention, U.S. foreign and national security policy, grand strategy, defense policy, qualitative methods.

**Xiaofeng Yang**, Assistant Professor in Department of Radiation Oncology at Emory University, Director of Medical Physics Residency Program, Adjunct Assistant Professor at Georgia Institute of Technology, Ph.D. Xi'an Jiaotong University , 2006. Medical imaging, image-guided radiotherapy, machine learning, medical image analysis, and prostate cancer.

**Dingkang Zhang**, Research Engineer II (404-894-2087) [dingkang.zhang@me.gatech.edu] Ph.D., Georgia Institute of Technology, 2005. Computational radiation transport theory; computational reactor physics; medical physics. Website: <http://nremp.gatech.edu/faculty/dzhan>

**Ting Zhu**, Professor (404-894-6597) [ting.zhu@me.gatech.edu] Ph.D., Massachusetts Institute of Technology, 2004. Mechanical behavior of solids and thin films; nanomechanics of defect in crystals; coupled mechano-chemical phenomena; multiscale and nuclear energy related materials modeling.

### **Nuclear Science and Engineering Research Centers**

**Fusion Research Center:** [www.frc.gatech.edu], Director, Weston Stacey (NRE), [weston.stacey@nre.gatech.edu] (404-894-3714). Plasma edge physics, plasma and neutral particle transport, fusion neutron source applications, next-step tokamak design analysis, transmutation of spent nuclear fuel.

**Radiological Science and Engineering Laboratory:** [www.rsel.gatech.edu] (404-894-3606) The RSEL provide a wide variety of nuclear and accelerator-driven research and irradiation services to the needs of faculty, staff and external customers. Facilities in the RSEL include: Varian Clinical Linear Accelerator (VCLA) laboratory, A Neutron Reference Field Laboratory, A Neutron Generator Irradiation Facility, A Gamma Calibration Laboratory, and Sub-critical Graphite and Natural Uranium Pile, as well as various radiological support instruments.

## UNIVERSITY OF IDAHO

Nuclear Engineering  
1776 Science Center Drive  
Idaho Falls, ID 83402

208-282-7816

FAX: 208-282-7929

Administrative Contact: Richard Christensen

208-533-8102

rchristensen@uidaho.edu

Alice Allen

208-757-5452

alicew@uidaho.edu

Website: [www.uidaho.edu/idahofalls/nuclearengineering](http://www.uidaho.edu/idahofalls/nuclearengineering)

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	9	5	6	3	4
PhD	4	5	0	3	0

Graduate Student Enrollment: 29 Masters/27 Ph.D.

### Nuclear Science and Engineering Faculty

**Richard Christensen**, Professor, Director of Nuclear Engineering (208-533-8201)

[rchristensen@uidaho.edu] Ph.D., Stanford University, 1974. Design, fabrication and testing of heat exchangers for advanced reactors; single and two-phase flow; heat transfer.

**David Arcilesi**, Assistant Professor (208-533-8107) [darcilesi@uidaho.edu] Ph.D., The Ohio State University. Thermal hydraulics; heat transfer; scaling analyses; experiments.

**Robert Borrelli**, Assistant Professor (208-533-8122) [rborrelli@uidaho.edu] Ph.D., University of California Berkeley. Safeguards-by-design; fuel cycle analysis; modeling and scientific computing; risk assessment; nuclear hybrid energy system design; fuel cask design and analysis; nuclear system data analytics; cybersecurity.

**Indrajit Charit**, Professor (208-885-5964) [icharit@uidaho.edu] Ph.D., University of Missouri-Rolla, 2004. Nuclear materials; radiation effects; high temperature materials; microstructure-properties correlations.

**Samrat Choudhury**, Assistant Professor (208-885-7572) [samrat@uidaho.edu] Ph.D., Pennsylvania State University, 2008. Structural nuclear materials; nuclear fuels; machine learning; multi-scale modeling of materials; photovoltaic and alloy design.

**Michael Haney**, Assistant Professor (208-533-8209) [mhaney@uidaho.edu] Ph.D., University of Tulsa, 2015. Human-cyber-physical systems (industrial control protocols, digital instrumentation and control);

cybersecurity for nuclear, power and water systems; computer and network security; digital forensics; active defenses; critical infrastructure resilience.

**Robert Hiromoto**, Professor (208-533-8119) [hiromoto@uidaho.edu] Ph.D., California State University-Long Beach, 1978. Parallel algorithms; communication protocols for UAV's; secure wireless networks.

**Michael McKellar**, Assistant Professor, Director of Industrial Technology (208-757-5431) [mmckellar@uidaho.edu] Ph.D., Purdue University. Modeling of thermal and chemical processing; process heat applications and power conversion with nuclear micro-reactors; heat exchangers.

**Krishnan Raja**, Associate Professor (208-885-1693) [ksraja@uidaho.edu] Ph.D., Indian Institute of Technology, 1993. Degradation of nuclear structural materials; non-destructive materials evaluation; electrochemistry of molten salt reprocessing.

**Dakota Roberson**, Assistant Professor (208-533-8120)[dakotar@uidaho.edu] Ph.D., University of Wyoming. Power system stability and security; high performance control; renewable energy integration; estimation and detection.

**Vivek Utgikar**, Professor (208-885-6970) [vutgikar@uidaho.edu] Ph.D., University of Cincinnati, 1993. Hydrogen and energy systems; advanced fuel cycles; energy storage.

**Haiyan Zhao**, Associate Professor (208-533-8123) [haiyanz@uidaho.edu] Ph.D., Virginia Polytechnic University, 2009. Catalysis for environment and fuels; electrochemistry; corrosion; molten salts/ionic liquids; pyro processing; fuel cycle; waste form.

### **Other Faculty**

**Matthew Bernards**, Associate Professor (208-885-2150) [mbernards@uidaho.edu] Ph.D., University of Washington. Biology-materials interfacial reactions; beta-voltaic batteries.

**Lee Ostrom**, Professor, Center Executive Officer (208-757-5427) [ostrom@uidaho.edu] Ph.D., Texas Technology University, 1988. Risk assessment; nuclear safety; project management; industrial ergonomics.

**You Qiang**, Professor (208-885-7558) [youqiang@uidaho.edu] Ph.D., Albert Ludwig University Freiburg. Nanomaterials and nanotechnology for nuclear energy; magnetics separation for spent nuclear fuel recycling; neutron radiation detection and instrumentation; radiation shielding.

**John Russell**, Associate Professor, Associate Director for Center for Advanced Energy Studies (208-533-8164)[jtrussell@uidaho.edu] Ph.D., University of Illinois, Chicago. Energy policy; cybersecurity; big data and analytics.

**Robert Smith**, Professor (208-885-2560) [smithbob@uidaho.edu] Ph.D., New Mexico Mining & Technology. Aqueous biogeochemistry; groundwater contamination remediation; nuclear waste disposal and management; geological carbon sequestration, geothermal energy.



**Nuclear Science and Engineering Research Centers**

**Center for Advanced Energy Studies – Website: [www.uidaho.edu/idahofalls/caes](http://www.uidaho.edu/idahofalls/caes)**

## IDAHO STATE UNIVERSITY

Nuclear Engineering and Health Physics

921 S. 8th Avenue

Pocatello, ID 83209

208-282-2902

Fax: 208-282-4538

Administrative Contact: Chad L. Pope

208-282-2875

popechad@isu.edu

Website: [www.engr.isu.edu/ne](http://www.engr.isu.edu/ne)

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	*	16	8	14	14
Masters	*	13	13	14	11
PhD	*	3	2	5	4

Graduate Student Enrollment: 20 Masters/ 6 Ph.D.

ABET Accreditation: B.S. in Nuclear Engineering, B.S. in Health Physics, & MS in Health Physics

### **Nuclear Science and Engineering Faculty**

**Chad L. Pope**, Professor and Program Director (208-282-2875) [popechad@isu.edu] Ph.D., Idaho State University, 2011. Risk analysis, nuclear safety. Professional Engineer.

**Amir Ali**, Assistant Professor (208-553-8113) [ali Amir@isu.edu] Ph.D., University of New Mexico, 2013. Experimental and computational thermal-hydraulics; two-phase heat transfer; heat-pipe; thermal energy storage. Professional Engineer.

**Richard Brey**, Professor and Dean of College of Science and Engineering (208-282-2667) [rbreyrich@isu.edu] Ph.D., Purdue University. 1994. Health physics, internal dosimetry, radiation instrumentation, environmental radioactivity. Certified Health Physicist.

**Mary Lou Dunzik-Gougar**, Associate Professor and Associate Dean (208-533-8111) [mldg@isu.edu] Ph.D., Pennsylvania State University, 2003. Nuclear fuel cycle; radioactive waste management; waste form development; irradiated nuclear graphite.

**George R. Imel**, Professor (208-705-2344) [gimel@isu.edu] Ph. D., Pennsylvania State University, 1971. Experimental reactor physics, fast reactor physics.

**Daniel LaBrier**, Assistant Professor (208-533-8165) [labrdani@isu.edu] Ph.D., Idaho State University, 2013. Nuclear materials; high-temperature degradation; used fuel recycling; thermal hydraulics; fuel; and material qualification processes. Professional Engineer.

## Other Faculty

**Steve Aumeier**, Adjunct Faculty and Director of CAES, (208-522-7479) [steven.aumeier@inl.gov] Ph.D., Univ. Of Michigan. Idaho National Laboratory. Reactor engineering, fast reactor physics.

**Bob Boston**, (208-533-4250) [bostonrd@id.doe.gov] MS, Idaho State University. U.S. Department of Energy. Reactor safety and regulations. Professional Engineer.

**Kevin Claver**, EAL Supervisor (208-282-4066) [clavkevi@isu.edu] BS in Health Physics, Idaho State University, 1995. Environmental radiation and radionuclide metrology.

**Roy Dunker**, EML Supervisor (208-282-4368) [dunkroy@isu.edu] MS in Health Physics, Idaho State University, 1998. Radionuclide metrology and low-level radionuclide measurements of the environment

**Thomas Gesell**, Emeritus Professor (208-282-3669) [gessthom@isu.edu] Ph.D. Health physics, environmental radioactivity.

**Hans Gougar**, Adjunct Faculty (208-526-1314) [hans.gougar@inl.gov] Ph.D. Idaho National Laboratory. Reactor engineering and reactor physics.

**J. Stephen Herring**, Adjunct Faculty (208-526-9497) [j.herring@inl.gov] Ph.D. MIT. Idaho National Laboratory. Reactor engineering and reactor physics, fuel cells and high temperature electrolysis.

**Richard T. Jacobsen**, Professor, at large. (208-313-3999) [jacorich@isu.edu] Ph.D. (Engineering Science), Washington State University, 1972. Thermo-physical properties of fluids, of fluid mixtures, of hydrogen; and natural gas; energy system design and analysis; Professional Engineer

**Jay F. Kunze**, Emeritus and Reactor Administrator (208-282-4147) [kunzejay@isu.edu] Ph.D., Carnegie-Mellon, 1959. Reactor engineering, reactor physics, health physics, medical physics. Professional Engineer.

**Richard Schultz**, Adjunct Research Professor (208-521-5605) [srr@srv.net] Ph.D. Idaho State University, 2010. Idaho National Laboratory Thermal hydraulics experimentation, instrumentation, and analysis. Reactor safety analysis. Professional Engineer.

**Curtis Smith**, Adjunct Professor (208-526-9804) [curtis.smith@inl.gov] Ph.D. MIT, 2002. Idaho National Laboratory. Probabilistic risk assessment, reactor safety analysis.

**Sebastian Teyseyre**, Adjunct Faculty (208-526-8263) [Sebastien.Teyseyre@inl.gov] Ph.D. in Material Science, Ecole Nationale Supérieure des Mines de Saint Etienne, France, 2001. Idaho National Laboratory. Material behavior in nuclear reactors, radiation damage.

## **Nuclear Science and Engineering Research Centers**

**AGN-201M, 5 W Reactor Laboratory:** Administrator: Jay Kunze, PhD, (208 -282-4147/FAX: 208- 282-4538) [kunzejay@isu.edu] Adam Mallicoat, Reactor Supervisor, (208-282-4237) [mallaem@isu.edu] Lillibridge Engineering Laboratory, Pocatello, ID 83209-8060. Used for training and research.

**Environmental Assessment and Monitoring Laboratory:** Director, Richard Brey, Ph.D. (208-282-4539) [breyrich@isu.edu] Low level radiation monitoring, instrument calibration, trace element analysis. High range dosimetry support for the Idaho Accelerator Center. Annual Research Expenditures: \$500,000.

**Environmental Monitoring Laboratory:** Director: Richard Brey, Ph.D. (208-282-4539) [gesethom@isu.edu] Low level radiation monitoring, radio analytical analysis, instrument calibration, trace element analysis. Research Expenditures: \$300,000/year.

**CAES (Center for Advanced Energy Studies)** Director, Dr. Noel Bakhtian (INL), Associate Director, Dr. Richard Jacobson (ISU) [jacorich@isu.edu]. Built by Idaho State University for joint research with Idaho National Laboratory, Boise State University, and University of Idaho. Annual expenditures for research ~ \$6 million

## UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN

Nuclear, Plasma, and Radiological Engineering

104 S. Wright Street

216 Talbot Laboratory

Urbana, IL 61801

217-333-2295

FAX: 217-333-2906

Administrative Contact: Barbara Russell

[bjrussel@illinois.edu](mailto:bjrussel@illinois.edu)

Website: <http://npre.illinois.edu/>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	30	36	36	37	30
Masters	6	11	18	16	13
PhD	6	5	7	16	9

Graduate Student Enrollment: 38 Masters/ 54 Ph.D.

ABET Accreditation: B.S. (N.E.)

### **Nuclear Science and Engineering Faculty**

**Rizwan Uddin**, Professor and Department Head (217-244-4944) [[rizwan@illinois.edu](mailto:rizwan@illinois.edu)] Ph.D., University of Illinois at Urbana-Champaign, 1987. Reactor thermal hydraulics; computational methods; nuclear reactor theory; homogenization techniques; nuclear engineering education; virtual reality; computational biology; nonlinear dynamical systems. Website: <http://verl.npre.illinois.edu>

**Daniel Andruczyk**, Research Assistant Professor (217-244-4583) [[andruczy@illinois.edu](mailto:andruczy@illinois.edu)] Ph.D., The University of Sydney-Australia, 2006. Experimental plasma and fusion research; fusion and plasma diagnostics; plasma heating; fusion materials; plasma material interaction; plasma facing components. Website: <http://npre.illinois.edu>

**Caleb Brooks**, Assistant Professor (217-265-0519) [[csbrooks@illinois.edu](mailto:csbrooks@illinois.edu)] Ph.D., Purdue University, 2014. Nuclear thermal hydraulics and reactor safety; boiling heat transfer; modeling and experiment of multiphase flows; multiphase flow instrumentation; microreactors. Website: <http://mtdl.npre.illinois.edu>

**Davide Curreli**, Associate Professor and Donald Biggar Willett Faculty Scholar (217-300-1787) [[dcurreli@illinois.edu](mailto:dcurreli@illinois.edu)] Ph.D., University of Padova, Italy, 2011. Plasma sources; transport phenomena in plasmas; plasma modeling using fluid and kinetic models; plasma-material interactions. Website: <http://curreli.npre.illinois.edu/>

**Angela Di Fulvio**, Assistant Professor (217-300-3739) [[difulvio@illinois.edu](mailto:difulvio@illinois.edu)] Ph.D., University of Pisa, Italy, 2012. Neutron detection, spectroscopy, dosimetry, and imaging; detection systems and inference algorithms for safeguards and nonproliferation applications; measurement-aided artificial intelligence clinical decision support. Website: <https://nmlab.npre.illinois.edu/>

**Brent J. Heuser**, Professor and Associate Head for Undergraduate Programs (217-333-9610) [bheuser@illinois.edu] Ph.D., The University of Michigan, 1990. Nuclear materials; corrosion and radiation damage processes in LWR metals; accident tolerant cladding; molten salt reactor materials issue; application of scattering techniques to materials science; hydrogen in metals. Website: <http://positron.npre.illinois.edu>

**Kathryn D. Huff**, Blue Waters Assistant Professor (217-300-3132) [kdhuff@illinois.edu] Ph.D., University of Wisconsin - Madison, 2013. Development of modeling and simulation tools for advanced nuclear reactors and fuel cycles; coupled multi-physics simulation; open & reproducible scientific computing; data science applications in nuclear energy. Website: <http://arfc.npre.illinois.edu>

**Tomasz Kozlowski**, Associate Professor (217-333-4096) [txk@illinois.edu] Ph.D., Purdue University, 2005. Reactor physics and thermal-hydraulics; reactor design and safety analysis; multi-physics methods and modeling; numerical analysis and computational methods. Website: <http://arts.npre.illinois.edu/>

**Ling-Jian Meng**, Professor (217-333-7710) [ljmeng@illinois.edu] Ph.D., University of Southampton-UK, 2001. Professor Meng's research area is focused on advanced radiological imaging techniques and their applications in medicine and biology, which include the development of high-performance semiconductor imaging sensors, Positron Emission Tomography (PET), Single Photon Emission Computed Tomography (SPECT), functional X-ray CT instrumentations, radiation-induced therapeutics and image-guided drug delivery. Website: <http://radimg.npre.illinois.edu>

**Zahra Mohaghegh**, Assistant Professor (271-300-5076) [zahra13@illinois.edu] Ph.D., University of Maryland, College Park, 2007. Spatiotemporal probabilistic risk assessment; probabilistic physics of failure; human-system reliability modeling; and risk-informed regulation for conventional nuclear power plants and advanced reactors. Website: <http://soteria.npre.illinois.edu>

**R. Mohan Sankaran**, Donald Biggar Willett Professor (217-244-7316)[rms1002@illinois.edu] Ph.D., California Institute of technology, 2004. Low-temperature, atmospheric-pressure plasmas; plasma synthesis of nanoparticles; plasma-liquid electrochemistry; plasma synthesis of chemicals; plasma-assisted additive methods to thin-film fabrication.

**Magdi Ragheb**, Associate Professor (217-333-6569) [mragheb@illinois.edu] Ph.D., University of Wisconsin, 1978. Computational methods; radiation protection and shielding; probabilistic risk assessment; applied artificial intelligence; supercomputing. Website: <http://mragheb.com/>

**David N. Ruzic**, Abel Bliss Professor (217-333-0332) [druzic@illinois.edu] Ph.D., Princeton University, 1984. Experimental fusion research; modeling of edge plasma; atomic properties of potential first-wall materials; plasma-material interaction; plasma processing of semiconductors; extreme ultraviolet (EUV) sources for lithography; physical and chemical vapor deposition. Website: <http://cpmi.illinois.edu>

**James F. Stubbins**, Donald Biggar Willett Professor (217-333-6474) [jstubbin@illinois.edu] Ph.D., University of Cincinnati, 1975. Japan WPI International Institute on Carbon Neutral Energy Research; development, analysis and application of materials, primarily for energy-related applications; nuclear systems design and

analysis; nuclear materials; irradiation damage and effects, mechanical properties; high temperature corrosion; electron microscopy; energy analysis and policy. Professional Engineer.

**Yang Zhang (YZ)**, Associate Professor, Donald Biggar Willett Faculty Scholar and Associate Head for Graduate Programs (217-300-0452) [zhyang@illinois.edu] Ph.D., Massachusetts Institute of Technology, 2010. Non-equilibrium physics and accelerated molecular simulations (long timescale phenomena, rare events, irreversibility, randomness); Physics and chemistry of liquids and molecular fluid mechanics, especially under interfacial/non-equilibrium/extreme conditions (water, metallic liquids, molten salts, ionic liquid, electrolyte solutions); Neutron scattering, sources, and instrumentation); soft robotic sand human-compatible machines; Understandable artificial intelligence. Website: <http://z.engineering.illinois.edu>

### **Other Faculty**

**Shiva Abbaszadeh**, Adjunct Assistant Professor (217-300-2542) [sabbasza@illinois.edu] Ph.D., University of Waterloo, Canada, 2014. Radiation detection and instrumentation for molecular imaging; biomedical devices and sensors; data acquisition and readout electronics; computational problem solving; quantitative characterization of biological processes.

**John R. Abelson**, Affiliate Professor Emeritus (217-333-7258)[abelson@illinois.edu] Ph.D. Stanford University, 1987. Superconformal coatings and bottom-up filling; CVD for hard coatings, surface process mechanism. Website: <https://abelson.matse.illinois.edu/>

**Jean Paul Allain**, Adjunct Professor (814-863-8575) [allain@psu.edu] Ph.D., University of Illinois at Urbana-Champaign, 2001. Engineering design for global social impact; ion-driven nanostructures on metals, semiconductors and polymers; advanced nanostructured biointerfaces for regenerative medicine; multi-scale computational surface physics; plasma-surface and materials interactions in fusion devices; in-situ surface characterization techniques; irradiation surface science.

**Jont Allen**, Affiliate Professor (217-369-7711)[jontalle@illinois.edu] Ph.D., The University of Pennsylvania, 1970. Multi-physics modeling and simulation; plasma physics and fusion; two-phase flow and heat transfer. Website: <http://auditorymodels.org/>

**Michael Aref**, Adjunct Assistant Professor (217-333-2295) [maref@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 2003. M.D., University of Illinois at Urbana-Champaign, 2006. Research interests in nuclear medicine and specifically MRI imaging; contrast agent effectiveness; bioresceptors and bioresponse; functional MRI.

**Roy A. Axford**, Emeritus Professor (217-333-2295) [prefers phone or regular mail] Sc.D., Massachusetts Institute of Technology, 1958. Reactor physics, safety, and risk assessment; radiation hydrodynamics; heat transfer; optimal reactor control; synthesis and nuclear fuel management; hydrodynamic stability; lie groups and systems of nonlinear differential equations; plasma physics; group invariant difference schemes. Website: <http://npre.illinois.edu>

**Stephen Boppart**, Affiliate Professor (217-244-7479 [boppart@illinois.edu] Ph.D., Massachusetts Institute of Technology, 1998; M.D., Harvard Medical School, 2000. Optical diagnostics of cancer; medical engineering; image-guided surgery; optical coherence tomography; lasers in medicine and biology; optical biomedical imaging. Website: <http://biophotonics.illinois.edu/>

**Jeffrey Louis Binder**, Adjunct Professor (217-244-0338) [jlbinder@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1990; Research interests in nuclear systems and technologies; advanced nuclear systems design; energy and nuclear energy policy; nuclear reactor thermal-hydraulics and reactor safety analysis.

**Paul T. Debevec**, Affiliate Professor Emeritus (217-333-0285)[debevec@illinois.edu] Ph.D., Princeton University, 1972. Measurement of the stored muon distribution; parent muon distribution; development of microstrip gas chamber.

**Thomas J. Dolan**, Adjunct Professor (217-333-2295) [dolantj@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1970. Nuclear fusion technology; molten salt fission reactors; thorium energy; low energy nuclear reactions.

**Masab H. Garada**, Adjunct Assistant Professor (217-333-2295) [Masab.H.Garada@osfhealthcare.org] Ph.D., University of Illinois at Urbana-Champaign, 2006. Intensity modulated radiation therapy (IMRT); image guided radiation therapy (IGRT); three-dimensional conformal radiation therapy; linac radiosurgery and stereotactic; low dose-rate brachytherapy: prostate seed implants, medium dose-rate brachytherapy; cervical cesium implants, high dose-rate brachytherapy; iridium lung implants, tumor and normal tissue response and radiobiological models.

**Brian E. Jurczyk**, Adjunct Research Assistant Professor (217-333-2295) [bjurczyk@starfireindustries.com] Ph.D., University of Illinois at Urbana-Champaign, 2003. Advanced plasma debris mitigation; advanced tin and lithium fuels research; optics contamination; erosion and lifetime research; self-healing optics research; halide etching and condensable material removal; fast ion suppression with light gas mixtures. Website: <http://www.starfireindustries.com>

**Michael David Kaminski**, Adjunct Professor (217-333-2295) [mdkamins@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1998. Research interests in radiochemistry; radioactive materials separations technologies; radiological decontamination; radiological and nuclear threat mitigation; spent nuclear fuel separations; nuclear materials analysis and security applications; pre and post detonation analysis; magnetic-based separations; portable detection systems.

**Ernie J L Kee**, Research Associate Professor (217-333-2295) [erniekee@illinois.edu] B.S., University of Idaho. Research interests in light water reactor risk assessment, operations, research, performance evaluation, and maintenance with the South Texas Project Nuclear Operating Company; dynamic thermal-hydraulics analysis with RELAP5 and TRAC.

**Kyekyoon Kim**, Affiliate Professor (217-333-7162)[kevinkim@illinois.edu] Ph.D., Cornell University, 1971. Tailored organometallic, Sol-Gel processing, charged liquid cluster beam deposition and chemical vapor



deposition; controlled fabrication of thin films, nanofibers, and nanoparticles using charged liquid cluster beams of precursor solutions; fabricating micro and nanoscale structures for development of new devices and material systems for controlled release, lighting, display, solar cells, photosensors, and power storage; fabricating uniform micro and nano spheres and capsules of biodegradable and biocompatible materials for advanced drug delivery and cell-based therapy; development of high power electronic devices based on III-V Nitride semiconductors using plasma assisted molecular beam epitaxy and selective area growth technology. Website: <http://tfcp.ece.illinois.edu/index.htm>

**Susan Larson**, Affiliate Associate Professor (217-244-3817) [smlarson@illinois.edu] Ph.D., California Institute of Technology, 1982. Experimental, field, and modeling investigations in air quality; aerosol optics; growth mechanisms of air pollution particles.

**Charles P. Marsh**, Adjunct Professor (217-333-2295) [Charles.P.Marsh@usace.army.mil] Ph.D., University of Illinois at Urbana-Champaign, 1989. Materials research across multiple scales; corrosive degradation, assessment and mitigation; quantum dot based self-sensing materials; pumped thermal flow and transfer using Microencapsulated Phase Change Materials (MPCM) and nanofluids; fullerene based material synthesis and incorporation into composites; bacteria based biodeposition for self-healing concrete; induced vortical flow for enhanced heat transfer.

**George H. Miley**, Emeritus Professor (217-333-3772) [ghmiley@illinois.edu] Ph.D., The University of Michigan, 1959. Fusion systems; plasma engineering; reactor kinetics; high voltage technology; nuclear pumped lasers; direct energy conversion; hydrogen energy production; low-energy nuclear reactions in solids. Professional Engineer. Website: <http://fsl.npre.illinois.edu>

**David W. Miller**, Adjunct Assistant Professor (217-333-2295) [dmiller2@illinois.edu] Ph.D., Purdue University, 1976. Occupational dose reduction at nuclear power plants; colloidal source term removal and mitigation studies in primary coolant at light water reactors; tritium recapture modeling at pressurized water reactors; UNSCEAR US effluent databases and analysis; radiological work management research at nuclear power plants; medical shielding validation studies; ACCESS relational database development for dose trend analysis.

**Richard F. Nelson**, Adjunct Assistant Professor (217-351-0846) [rfnelson@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1984. Radiological physicist; Radiation oncology-external beam and internal sources; diagnostic radiology; consultant physicist.

**Martin J. Neumann**, Adjunct Assistant Professor (217-840-5490) [martin@mjneumann.com] Ph.D., University of Illinois at Urbana-Champaign, 2007. EUVL related technologies; semiconductor fabrication and processing and plasma-material interactions related to fusion applications.

**William R. Roy**, Adjunct Professor (217-840-9769) [wroy@illinois.edu] Ph.D., University of Illinois at Urbana-Champaign, 1985. **Geology/Geochemistry** radioactive and hazardous waste management; partitioning of chemical constituents at solid-liquid interfaces; solid-phase equilibria and kinetics in aqueous solution; chemical fate and transport of contaminants in groundwater and environmental impacts of coal utilization.

**Tatsuya Sakurahara**, Research Assistant Professor (217-244-7546)[sakurah2@illinois.edu] Ph.D., University of Illinois, Urbana-Champaign, 2018. Probabilistic Risk Assessment (PRA) for conventional plants and advanced reactors; Fire PRA; Common Cause Failure (CCF) modeling; reliability engineering; maintenance analysis; Human Reliability Analysis (HRA); Bayesian inference; uncertainty quantification; importance measure; sensitivity analysis; risk-informed decision-making. Website: <https://soteria.npre.illinois.edu/>

**Clifford E. Singer**, Emeritus Professor (217-333-1814) [csinger@illinois.edu] Ph.D., University of California, Berkeley, 1971. Advanced spacecraft propulsion systems; spent nuclear fuel management; nuclear proliferation; energy systems analysis; and energy econometrics. Website: <http://npre.illinois.edu>

**Robert A. Stubbers**, Adjunct Research Assistant Professor (217-333-2295) [rstubbers@starfireindustries.com] Ph.D., University of Illinois at Urbana-Champaign, 1994. Plasma innovations for aerospace; defense, industrial, instrumentation, medical; semiconductor applications. Website: <http://www.starfireindustries.com>

**Clair Sullivan**, Adjunct Research Assistant Professor (217- 333-2295) [cjsulli@illinois.edu] Ph.D., University of Michigan, 2002. Radiation detection; instrumentation; radiation dosimetry and shielding; measurements and localization of algorithms for detector devices.

**Dallas Trinkle**, Affiliate Professor (217-244-6619)[dtrinkle@illinois.edu] Ph.D., The Ohio State University, 2003. Computational materials science: atomistics, electronic structure; mechanical behavior: plasticity and phase transformation at atomistic scale; defect properties: point defects, dislocations, interfaces; transport: interstitial diffusion, vacancy-mediated diffusion. Website: <http://dtrinkle.matse.illinois.edu/dokuwiki/doku.php>

### **Nuclear Science and Engineering Research Centers**

The **Advanced Reactors and Fuel Cycles** group seeks to advance the safety and sustainability of nuclear energy production through improved reactor designs, fuel cycle strategies, and waste management techniques. We achieve this by advancing computational methods and developing software for nuclear engineering with features essential to advanced reactor multiphysics modeling and fuel cycle simulation. Website: <http://arfc.npre.illinois.edu>

The **Center for Plasma Material Interactions (CPMI)**, <http://cpmi.illinois.edu>, objective is to study plasma material interactions relevant to fusion, semiconductors, plasma manufacturing, and plasma-nanosynthesis through a combination of computational and experimental means. Projects are supported by both government and commercial partners to further the application and knowledge of plasma physics. Facilities include HIDRA: the Hybrid Illinois Device for Research and Applications, which is a major-scale stellarator and/or tokamak. HIDRA will be used for testing plasma-material interactions, liquid lithium technologies, nanosynthesis and electron transport. Mock-up Entry Module for EAST (MEME) which is a major facility for development of plasma facing components and liquid metal technology allowing for plug and play systems to be built for EAST and other devices.

The **Functional X-ray Imaging Laboratory (FXIL)**, directed by Professor Ling-Jian Meng, is an extensively equipped experimental facility dedicated to the development of functional X-ray imaging techniques, such as X-ray fluorescence Emission Tomography (FXET), X-ray Luminescence Computed Tomography (XLCT), and the study of physical, chemical and biological mechanisms underlying the interaction of ionizing radiation with matter and ways to activate, modulate and mediate the delivery of radiotherapy and to facilitate the control over fundamental biological processes in living mechanisms.

The **Laboratory of Computational Plasma Physics (LCPP)** develops theoretical and computational models for a variety of Plasma Physics and Plasma Chemistry applications ranging from fusion edge plasmas to industrial plasmas and nuclear forensic, utilizing advanced, predictive simulation capabilities on high-performance computing machines, and multi-physics multi-scale models.

Website: <http://curreli.npre.illinois.edu/>

The **Multiphase Thermo-fluid Dynamics Laboratory**, directed by Assistant Professor Caleb Brooks, conducts research focusing on two phase flow and heat transfer. Active research includes: Generating validation data for CFD and system analysis codes; Natural circulation and thermal hydraulic instability; Characterizing wall nucleation parameters in forced convective flows; Critical Heat Flux (CHF) on traditional and engineered surfaces; Two-fluid model with Interfacial Area Transport Equation (IATE); Two-Phase Flow in Molten Salt. Website: <http://mtdl.npre.illinois.edu>

The **North American Technical Center (NATC) for the Information System on Occupational Exposure (ISOE)** is located at the Department of Nuclear, Plasma, and Radiological Engineering. NATC is one of four technical centers for the Organization for Economic Co-operation and Development (OECD) Nuclear Energy Agency and International Atomic Energy Agency (IAEA) global occupational dose reduction information exchange engineering database. NATC manages the Canadian, Mexican, and US nuclear power plants data analysis. Website: <http://isoe-network.net>

The **High Temperature Nuclear Material Laboratory (HTNML)**, <http://materials.npre.illinois.edu/members.html>, objective is to study nuclear material relevant to microstructure, properties, performance, and interactions with irradiation through microscopy, x-ray analysis, experimental approaches, and modeling for light water reactor, and advanced nuclear reactor. Material studied in this lab includes structural material: copper alloys, nickel-based alloys, stainless/ austenitic/ ferritic/ ODS steel, zirconium alloy, silicon-carbide composites, and fuel material: uranium dioxide, and cerium dioxide. Frederick Seitz Materials Research Laboratory (FS-MRL) in UIUC provides variety of analytical techniques. NSUF program supports activities of post irradiation examination (PIE). State-of-the-art characterization technologies such as IVEM, APS, and ATP enhance research progress via tight collaboration with ANL, ORNL and INL. Projects are supported by department of energy (DOE) to further application and knowledge of nuclear material at elevated temperature. Facilities includes in situ biaxial creep-fatigue system which is capable of dynamic measurement of tubular specimen's dimension change under high temperature creep-fatigue test.

The **Nuclear Measurements and Neutron Metrology Laboratory (NML)** is a neutron experimental facility for both NPRES students and researchers in NPRES and elsewhere. The lab is equipped with a D-T neutron generator with an emission rate of  $\sim 1E8$  neutrons/s. The neutron flux density is well-characterized in

energy and intensity employing various instruments, including novel multisphere spectrometers, deuterated scintillators, ionization chambers, long counters, calibrated to primary reference standards.

**Radiological Imaging Laboratory (RIL)**, directed by Professor Ling-Jian Meng. RIL is the home of an extensive collection of instrumental development projects on developing advanced imaging sensors, PET, SPECT, and Functional X-ray Imaging, and application-specific image processing techniques. It is also the hub for many of our ongoing collaborations with premier medical centers around the world to tackle some of the most pressing medical problems, such as cancer, cardiovascular diseases, and brain disorders.

The **Socio-Technical Risk Analysis (SoTeRiA) Laboratory**, directed by Assistant Professor Zahra Mohaghegh, provides scientific and innovative research solutions to complex real-world problems of nuclear safety, reliability, security, and profitability. SoTeRiA is advancing Probabilistic Risk Assessment (PRA) for conventional nuclear power plants and advanced reactors, pioneering three key areas of scholarly development: (1) spatiotemporal coupling of physical failure mechanisms with human/social performance to generate the dynamic-static Integrated PRA (I-PRA), (2) big data analytics into PRA, and (3) integrating safety risk with financial risk. These three areas have been realized in several research projects and in more than 60 publications (<https://soteria.npre.illinois.edu/publications/>) The on-going research projects on advancing I-PRA for the deployment of new technologies, funded by the Department of Energy (DOE); on organizational risk analysis, sponsored by the National Science Foundation (NSF); on systematic enterprise risk management for utilities, funded by the DOE; on probabilistic physics of failure analysis for advanced water cooled reactors, supported by the International Atomic Energy Agency (IAEA); and the research projects on advancing fire PRA and the risk-informed resolution of Generic Safety Issue, led by the nuclear industry, can be found on the SoTeRiA Lab website: <http://soteria.npre.illinois.edu/research/>

The **Soft Robotics and Artificial Intelligence Laboratory**, directed by Prof. Yang Zhang (YZ), advances the development of soft robotics and human-compatible machines, intelligent and continuous control algorithms, and understandable artificial intelligence, leveraging their expertise in novel soft materials and sensors. These soft robotic devices have demonstrated promising capabilities that could enable a wide range of unique applications not possible with traditional robots. Website: <http://z.engineering.illinois.edu>

**Virtual Education and Research Laboratory (VERL)**: Goals of VERL in the Department of Nuclear, Plasma, & Radiological Engineering at the University of Illinois at Urbana-Champaign span research, teaching, service and outreach. Tools used in this lab are innovative and mostly computer based. From fundamental advances in numerical methods; advanced modeling and simulation of different aspects of scientific and engineering problems; to virtual, 3D models for training, education and outreach, this laboratory is focused on development and use of new methods and tools to address fundamental scientific and applied engineering problems. Applications to problems specific to the field of nuclear power include advanced numerical methods development; high performance computing; neutronics, thermal hydraulics and coupled problems; digital I&C and cyber security of NPPs; etc. Website: <http://verl.npre.illinois.edu>

## **Other Relevant Research Facilities**

The **Beckman Institute for Advanced Science and Technology** at the University of Illinois at Urbana-Champaign is an interdisciplinary research institute devoted to leading-edge research in the physical sciences, computation, engineering, biology, behavior, cognition, and neuroscience. The Institute's primary mission is to foster interdisciplinary work of the highest quality, transcending many of the limitations inherent in traditional university organizations and structures. The Institute was founded on the premise that reducing the barriers between traditional scientific and technological disciplines can yield research advances that more conventional approaches cannot. Website: <http://beckman.illinois.edu>

The University of Illinois' **Coordinated Science Laboratory** is a premier, multidisciplinary research laboratory that focuses on information technology at the crossroads of computing, control and communications. With a rich history of more than 60 years of innovation, CSL has developed and deployed new technologies that have achieved international scientific recognition and transformed society. Led by a faculty of world-renowned experts and researchers, CSL uses these innovations to explore critical issues in defense, medicine, environmental sciences, robotics, life-enhancement for the disabled and aeronautics. Website: <http://csl.illinois.edu>

The **Materials Research Laboratory** Central Research Facilities allow for the sharing of expensive and complex cutting-edge research instrumentation while providing for maintenance and continuous development by a dedicated professional staff. The presence of the facilities dramatically enhances intellectual interactions among users. Additionally, having expert scientists to work with users improves efficiency as well as the quality of the scientific results. Website: <http://mrl.illinois.edu>

**Micro and Nanotechnology Laboratory** (MNTL) is one of the country's largest and most sophisticated university facilities for conducting photonics, microelectronics, biotechnology, and nanotechnology research. MNTL is the place where campus researchers and visiting scientists come to design, build, and test innovative nanoscale technologies with feature sizes that span the range of atoms to entire systems. Our 16 class 100 and 1000 cleanrooms, 46 general purpose labs, and 2,500 square foot biosafety level-2 bionanotechnology complex contain all the tools researchers need to conduct their work. The building houses faculty and graduate students from the departments of Electrical & Computer Engineering, Bioengineering, Physics, Mechanical Science & Engineering, Material Science & Engineering, Agricultural and Biological Engineering, and Chemical & Biomolecular Engineering. Website: <http://mntl.illinois.edu>

The **National Center for Supercomputing Applications** (NCSA) is a hub of transdisciplinary research and digital scholarship where University of Illinois faculty, staff, and students, and collaborators from around the globe, unite to address research grand challenges for the benefit of science and society. Current research focus areas are Bioinformatics and Health Sciences, Computing and Data Sciences, Culture and Society, Earth and Environment, Materials and Manufacturing, and Physics and Astronomy. The Center also provides integrated cyberinfrastructure—computing, data, networking, and visualization resources and expertise that are essential to the work of scientists, engineers, and scholars at the University of Illinois at Urbana-Champaign and across the country. NCSA is also an engine of economic impact for the state and the nation, helping companies address computing and data challenges and providing hands-on training for undergraduate and graduate students and post-docs. Website: <http://www.ncsa.illinois.edu>

## KANSAS STATE UNIVERSITY

Mechanical and Nuclear Engineering  
3002 Rathbone Hall  
Manhattan, KS 66506  
785-532-6805  
FAX: 785-532-7057  
Administrative Contact: William L. Dunn  
785-532-6805  
dunn@ksu.edu  
Website: www.mne.ksu.edu

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	7	12	8	9	*
Masters	1	0	2	1	*
PhD	2	2	2	1	*

Graduate Student Enrollment: # Masters/# Ph.D.  
ABET Accreditation: ME

### Distance Education Program

Offers Nuclear Engineering Courses Online  
www.mne.ksu.edu/big12ne  
<http://www.dce.k-state.edu/engineering/minors/nuclear/>

### Nuclear Science and Engineering Faculty

**William L. Dunn**, Professor and Nuclear Program Director (785-532-6805) [dunn@mne.ksu.edu] Ph.D., North Carolina State University, 1974. Radiation measurement and applications; explosives detection; nondestructive evaluation; quantitative analysis; radiation shielding and dosimetry; Monte Carlo methods and applications; fusion-fission energy systems. Website: [www.mne.ksu.edu/people/faculty/dunn](http://www.mne.ksu.edu/people/faculty/dunn)

**Amir Bahadori**, Assistant Professor (785-532-7040) [bahadori@ksu.edu] Ph.D., University of Florida, 2012. Characterization of radiation environments; response of humans to radiation exposure. Website: <http://www.mne.k-state.edu/people/faculty/bahadori/>

**Hitesh Bindra**, Associate Professor (785-532-3039) [hbindra@ksu.edu] Ph.D., University of Illinois at Urbana Champaign, 2010. Passive nuclear safety; thermal-hydraulics; energy storage; computational physics. Website: <http://www.mne.ksu.edu/people/faculty/bindra>

**Douglas S McGregor**, Professor (785-532-4093) [mcgregor@ksu.edu] Ph.D., University of Michigan, 1993. Development of room temperature gamma ray spectrometers; semiconductor radiation detectors; solid-state neutron detectors; miniaturized neutron detectors; scintillator crystal growth; compound semiconductor crystal growth; radiation detector arrays. Website: <http://www.mne.ksu.edu/people/faculty/mcgregor>

**Walter McNeil**, Assistant Professor (785-532-3379) [wmcneil@ksu.edu] Ph.D., Kansas State University, 2010. Radiation detection systems design; gamma-ray imaging; radiation background monitoring.

**Jeremy Roberts**, Associate Professor (785-532-7182) [jaroberts@ksu.edu] Ph.D., Massachusetts Institute of Technology, 2014. Computational nuclear engineering; reactor physics; neutron transport (both deterministic and stochastic); optimization, sensitivity and uncertainty analysis.  
Website: <http://www.mne.ksu.edu/people/faculty/roberts>

**J. Kenneth Shultis**, Professor (785-532-5626) [jks@ksu.edu] Ph.D., University of Michigan, 1969. Radiation transport and shielding; Monte Carlo techniques; radiation detector design; simulations and modeling.  
Website: [www.mne.ksu.edu/~jks](http://www.mne.ksu.edu/~jks)

### **Nuclear Science and Engineering Research Centers**

**SMART Lab**: design, fabrication and testing of novel radiation detectors. TRIGA MArk II Reactor Facility: 1.25 MS steady power and pulsing capability.

**Radiation Measurement Applications Lab**: research concerning application of radiation to the measurement of physical properties of matter.

## UNIVERSITY OF MARYLAND

Materials Science and Engineering

1113 Chem/Nuc Eng. Building

College Park, MD 20742

301-405-5989

FAX: 301-314-2029

Administrative Contact: Mohammad Modarres

301-405-5226

modarres@umd.edu

Website: [www.mse.umd.edu](http://www.mse.umd.edu)

### Distance Education Program

Offers Nuclear Engineering Courses and Degree Online

<http://www.oaee.umd.edu/>

### Nuclear Science and Engineering Faculty

**Mohammad Modarres**, Professor and Director of Nuclear Engineering Program (301-405-5226) [modarres@umd.edu] Ph.D., Massachusetts Institute of Technology, 1979. Probabilistic risk assessment, Probabilistic modeling of failure mechanisms, Reliability analysis of complex engineering systems, nuclear safety analysis.

**Mohamad Al-Sheikhly**, Professor (301 -405-5214) [mohamad@umd.edu] Ph.D., University of Newcastle Upon Tyne, England, 1981. Polymers, radiation engineering, electronic packaging materials, environmental effects.

**Aris Christou**, Professor (301-405-5208) [christou@umd.edu] Ph.D., University of Pennsylvania, 1971. Materials processing and manufacture technology, Strained engineered materials for optoelectronics, Physics-of-failure in electronic materials, Opto-electronic monolithically integrated optoelectronics, Analog mm-wave integrated circuits; Molecular nanoelectronics devices using 1D and 2D Structures; Tribology of ceramics and surface lubricants; Finite element methods applied to metal alloys, metal-nonmetal composites and electronic packaging.

**Gary Pertmer**, Associate Dean, A. James Clark School of Engineering & Associate Professor (301-405-3936) [pertmer@umd.edu] Ph.D., University of Missouri-Columbia, 1978. Reliability engineering, nuclear power systems design and analysis.



## **Nuclear Science and Engineering Research Centers**

**University of Maryland Radiation Facilities:** Laboratory for Radiation and Polymer Science; High-Energy Linear Accelerator (LINAC); The Biophysical and Polymer Radiation Laboratory

**Maryland University Training Reactor:** a dry cell gamma vault irradiator, and a 10 MeV electron linear accelerator. Website: <http://radiation.umd.edu>

# MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Department of Nuclear Science and Engineering

77 Massachusetts Avenue, Room 24-107

Cambridge, MA 02139-4307

617-253-7522

Administrative Contact: Brandy Baker

617-253-5456

brandyb@mit.edu

Website: <http://web.mit.edu/nse>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	8	9	9	7	12
Masters	22	15	15	14	14
PhD	14	13	13	19	14

Graduate Student Enrollment: 13 Masters/ 90 Ph.D.

ABET Accreditation: SB

## Nuclear Science and Engineering Faculty

**Anne E. White**, Professor of Nuclear Science and Engineering and Head of the Department of Nuclear Science and Engineering (617-253-8667) [whitea@psfc.mit.edu] Ph.D., University of California, Los Angeles, 2008. Plasma physics, turbulence and turbulence-driven transport, fluctuation diagnostics for magnetic confinement fusion experiments. Website: <http://web.mit.edu/nse/people/faculty/white.html>

**Emilio Baglietto**, Norman C Rasmussen Associate Professor (617-253-4231) [emiliob@mit.edu] Ph.D., Tokyo Institute of Technology, 2004. Turbulence modeling; Unsteady flow phenomena; multiphase flow and boiling; virtual reactor modeling. Website: <http://web.mit.edu/nse/people/faculty/baglietto.html>

**Matteo Bucci**, Norman C. Rasmussen Assistant Professor (617-253-2336) [mbucci@mit.edu] Ph.D., University of Pisa, Italy, 2009. Multi-phase flow and heat transfer; Reactor thermal-hydraulics; Nanotechnologies for advanced heat transfer; Integration of sensors, simulations and machine learning tools. Website: <http://bucci.mit.edu>

**Jacopo Buongiorno**, TEPCO Professor of Nuclear Science and Engineering and Mechanical Engineering (617-253-7316) [jacopo@mit.edu] Ph.D., Massachusetts Institute of Technology, 2000. Multi-phase flow and heat transfer; innovations in nuclear fission technology; advanced reactor design; reactor thermal-hydraulic. Website: <http://web.mit.edu/nse/people/faculty/buongiorno.html>

**Paola Cappellaro**, Esther and Harold E Edgerton Associate Professor (617-253-8137) [pcappell@mit.edu] Ph.D., Massachusetts Institute of Technology. Quantum control; quantum information; precision measurement; nuclear magnetic resonance.

Website: <http://web.mit.edu/nse/people/faculty/cappellaro.html>

**Areg Danagoulian**, Assistant Professor (617-324-6329) [aregian@mit.edu] Ph.D., University of Illinois at Urbana-Champaign, 2006. Nuclear security; arms control; non-proliferation; nuclear safeguards. Website: <http://web.mit.edu/nse/people/faculty/danagoulian.html>

**Benoit Forget**, Professor and Associate Department head of Nuclear science and Engineering (617-253-1655) [bforget@mit.edu] Ph.D., Georgia Institute of Technology, 2006. Computational transport theory; Reactor Physics and Nuclear Fuel Cycle. Website: <http://web.mit.edu/nse/people/faculty/forget.html>

**Zachary Hartwig**, John C. Hardwick Assistant Professor of Nuclear Science and Engineering (617-253-5471) [hartwig@mit.edu] Ph.D., Massachusetts Institute of Technology, 2013. Head of the SPARC project. High-field superconducting magnet engineering; fusion energy device design; accelerator-based nuclear science; neutronics and radiation detection for accelerator and fusion energy systems.

**Ian H. Hutchinson**, Professor (617-253-8670) [ihutch@mit.edu] Ph.D., Australian National University, 1976. Plasma physics and controlled fusion. Website: <http://web.mit.edu/nse/people/faculty/hutchinson.html>

**Alan Pradip Jasanoff**, Associate Professor of Biological Engineering (617-452-2538) [jasanoff@mit.edu] Ph.D., Harvard University. Functional Magnetic Resonance Imaging (MRI); molecular neuroimaging; behavioral and systems neuroscience. Website: <http://web.mit.edu/jasanofflab/>

**R. Scott Kemp**, Associate Professor (617-324-3308) [rsk@mit.edu] Ph.D., Princeton University, 2010. National security, nonproliferation, and arms control policy; verification techniques; energy policy and climate change. Website: <http://Insp.mit.edu/r-scott-kemp>

**Richard K. Lester**, Associate Provost for International Activities, Japan Steel Industry Professor and faculty chair of Industrial Performance Center (617-253-7704) [rklester@mit.edu] Ph.D., Massachusetts Institute of Technology, 1979. Local, national and international systems of innovation; nuclear technology innovation, management and controls; energy innovation policy. Website: <http://web.mit.edu/nse/lester/index.html>

**Ju Li**, Battelle Energy Alliance Professor of Nuclear Science and Engineering and Professor of Materials Science (617-253-0166) [liju@mit.edu] Ph.D., Massachusetts Institute of Technology, 2000. Overcoming timescale challenges in atomistic simulations; energy storage and conversion; materials in extreme environments and far from equilibrium. Website: <http://web.mit.edu/nse/people/faculty/li.html>

**Mingda Li**, Assistant Professor (617-452-2505) [mingda@mit.edu] Ph.D., Massachusetts Institute of Technology, 2015. Defects on functional properties; Nanoscale radiation matter interaction; Artificial intelligence aided spectroscopy development; Nanoscale energy transport. Website: <http://engnano.mit.edu/>

**Nuno F. G. Loureiro**, Associate Professor (617-253-9741) [nflour@mit.edu] Ph.D., Imperial College, 2005. Theory and computational modeling of plasma physics and controlled fusion.

Website: <http://web.mit.edu/nse/people/faculty/loureiro.html>

**Korush Shirvan**, Assistant Professor (617-452-3017) [kshirvan@mit.edu] Ph.D., Massachusetts Institute of Technology, 2012. Nuclear reactor design; Nuclear fuel performance; Reactor safety; Advanced energy systems. Website: <http://web.mit.edu/nse/people/faculty/shirvan.html>

**Michael Short**, Associate Professor of Nuclear Science and Engineering (617-324-6329) [hereiam@mit.edu] Ph.D., Massachusetts Institute of Technology, 2010. Mesoscale nuclear materials, corrosion and fouling; radiation damage quantification. Website: <http://web.mit.edu/nse/people/faculty/short.html>

**Dennis G. Whyte**, Hitachi America Professor of Engineering and Head of the Department of Nuclear Science and Engineering; Director of the Plasma and Fusion Center (617-253-1748) [whyte@psfc.mit.edu] Ph.D., Université du Québec, 1992. Plasma-surface interactions physics and diagnostics for magnetic fusion energy; accelerator-based simulation of plasma-surface interaction in fusion reactors. Website: <http://web.mit.edu/nse/people/faculty/whyte.html>

**Bilge Yildiz**, Associate Professor of Nuclear Science and Engineering & Materials Science and Engineering (617-324-4009) [byildiz@mit.edu] Ph.D., Massachusetts Institute of Technology, 2002. Electrochemical materials and interfaces; electrochemical energy conversion by fuel cells, electrolyzers, membranes; corrosion and hydrogen resistant films in extreme environments; electrochemical energy storage by solid state batteries; neuromorphic computing materials; redox based memristive information storage and processing; cation based memristive information storage and processing; ceramics; surface science; computational materials science; synchrotron and scanning probe experiments. Website: <http://web.mit.edu/nse/people/faculty/yildiz.html>

### Other Faculty

**Ronald G. Ballinger**, Emeritus Professor of Nuclear Science and Engineering and Materials Science and Engineering (617-253-5118) [hvymet@mit.edu] Sc.D., Massachusetts Institute of Technology, 1982. Corrosion and fatigue. Fuel behavior modeling, environmental effects on materials performance. Website: <http://web.mit.edu/nse/people/faculty/ballinger.html>

**Peter Catto**, Senior Research Scientist (617-253-5825) [catto@psfc.mit.edu] Ph.D. Plasma and neutral flows; electric fields, and edge physics issues in diverted tokamak plasmas, and dipole stability. Website: [http://www.psfc.mit.edu/people\\_new/faculty/catto.html](http://www.psfc.mit.edu/people_new/faculty/catto.html)

**Sow-Hsin Chen**, Professor of Nuclear Science and Engineering Emeritus (617-253-3810) [sowhsin@mit.edu] Ph.D., McMaster University, 1964. Thermal Neutron Spectroscopy of Soft Condensed Matter. Website: <http://web.mit.edu/nse/people/faculty/chen.html>

**Michael J. Driscoll**, Professor of Nuclear Science and Engineering Emeritus (617-253-4219) [mickeyd@mit.edu] Ph.D. Deep borehole waste disposal; Fast reactor physics and engineering.

**Charles W. Forsberg**, Principal Research Scientist; Executive Director, MIT Nuclear Fuel Cycle Project (617-324-4010) [cforsber@mit.edu] Sc.D., Massachusetts Institute of Technology, 1974. Development of integrated nuclear fuel cycles, advanced high-temperature nuclear reactors using liquid-salt coolants, and development of global nuclear-renewables energy systems. Professional Engineer.  
Website: <http://web.mit.edu/nse/people/faculty/forsberg.html>

**Jeffrey P. Freidberg**, Professor of Nuclear Science & Engineering Emeritus (617-253-8670) [jpfreid@mit.edu] Ph.D., Polytechnic Institute of Brooklyn, 1964. Plasma Physics; Fusion Technology.  
Website: [http://www.psf.mit.edu/people\\_new/faculty/jf.html](http://www.psf.mit.edu/people_new/faculty/jf.html)

**Michael W. Golay**, Professor Emeritus of nuclear science and Engineering (617-253-5824) [golay@mit.edu] Ph.D., Cornell University, 1969. Nuclear power innovation, risk and regulation, non-proliferation.  
Website: <http://web.mit.edu/nse/people/faculty/golay.html>

**Linn W. Hobbs**, Professor of Nuclear Science and Engineering and Materials Science and Engineering Emeritus (617-253-6835) [hobbs@mit.edu] D.Phil., Oxford University, UK 1972. Radiation effects in materials (principally ceramics, but also metals and organics); extended defects and non-stoichiometry in nonmetallic solids; atomistic and topological modeling of glass structures; high-temperature corrosion; orthopaedic biomaterials and biomineralization. Website: <http://web.mit.edu/hobbsgroup/>

**Richard C. Lanza**, Senior Research Scientist (617-253-2399) Ph.D. Radiation imaging; radiation detectors; nondestructive testing; radiological and industrial applications of radiation; development of new radiation sources.

**Ronald R. Parker**, Professor Emeritus of Nuclear Science and Engineering and Electrical Engineering and Computer Science (617-258-6662) [parker@mit.edu] Sc.D., Massachusetts Institute of Technology, 1967. Plasma physics and controlled thermonuclear fusion.

**Kord Smith**, Korea Electric Power Company (KEPCO) Professor of the Practice of Nuclear Science and Engineering (617-252-1570) [kord@mit.edu] Ph.D., Massachusetts Institute of Technology, 1980. Reactor analysis methods; computational methods; high performance computing (HPC)s.  
Website: <http://web.mit.edu/nse/people/faculty/smith.html>

**Neil E. Todreas**, Professor of Nuclear Science and Engineering and Professor of Mechanical Engineering Emeritus (617-253-5296) [todreas@mit.edu] Ph.D. Reactor engineering; reactor thermal analysis; heat transfer and fluid flow.

**Sidney Yip**, Professor Emeritus of Nuclear Science and Engineering, and Materials Science and Engineering (617-253-3809) [syip@mit.edu] Ph.D., University of Michigan 1962. Statistical physics and condensed matter of sciences, atomistic simulations. Website: <http://web.mit.edu/nse/people/faculty/yip.html>

## **Nuclear Engineering Research Centers**

### **Center for Advanced Nuclear Energy Systems (CANES)**

[<http://energy.mit.edu/research/future-nuclear-energy-carbon-constrained-world/>]

Director, Professor Jacopo Buongiorno (NSE). CANES has four research themes: Near-term Innovations in Fission Systems, Inventing the Future of Fission, Working at the Foundations of Nuclear Energy Technology, and Educating the Community/Informing the Policy. Ongoing projects cover the full spectrum of fission energy technology and policy from Advanced Reactors to Nuclear Fuel Cycles, from Enhanced Plant Performance to Nuclear Energy and Sustainability. The Center offers three short summer professional courses: Nuclear Systems Safety, Nuclear Energy: Key Facts and Issues, Reactor Technology for Power Plant Executives, and Probabilistic Methods for Nuclear Plant Management. Annual Research Expenditure: >\$10M. The Center has recently completed the seminal study of the Future of Nuclear Energy in a Carbon-Constrained World.

### **Plasma Science and Fusion Center** [<http://psfc.mit.edu/>] Director, Professor Dennis Whyte (NSE)

[[whyte@psfc.mit.edu](mailto:whyte@psfc.mit.edu)]. The Plasma Science and Fusion Center carries out a broad range of experimental and theoretical research in understanding the physics of plasmas and their applications to magnetic and inertial confinement fusion, the physics of waves and beams, development of state-of-the-art superconducting magnet systems, and development of plasma technologies for industry applications. The Center's Magnetic Resonance Division is internationally recognized for advances in Magnetic Resonance Imaging (MRI) and Nuclear Magnetic Resonance (NMR) Spectroscopy, in NMR and MRI magnet development, and in nanoscience condensed matter physics.

**Industrial Performance Center (IPC)** [<http://web.mit.edu/ipc>] Faculty Director, Richard K. Lester (Japan Steel Industry Professor of Nuclear Science and Engineering); Executive Director, Elisabeth B. Reynolds (Principal Research Scientist and Lecturer, DUSP). The Industrial Performance Center (IPC) is an MIT-wide research unit, based in the School of Engineering. The Center serves as a focus at MIT for interdisciplinary research on the rapidly changing global economy. Our interdisciplinary teams observe, analyze and report on strategic, technological, and organizational developments in a broad range of industries and examine the implications for society and the global economy. The IPC currently has four main research areas: innovation; production; energy and globalization. It currently leads the Institute-wide Task Force on the Work of the Future.

### **Laboratory for Nuclear Security and Policy (LNSP)** [<http://lnsp.mit.edu>] Director, R. Scott Kemp (NSE).

LNSP is home to interdisciplinary research that aims to solve the social challenges arising from nuclear technologies. Research has focused in areas such as the detection of nuclear proliferation, the proliferation risk of emerging fuel-cycle technologies, verification technologies for arms control treaties, and the detection of smuggled nuclear material in cargo. LNSP researchers combine a broad range core analytical methods, ranging from low-energy nuclear physics to information science, and history to international politics.

### **MIT Nuclear Reactor Laboratory (6 MW reactor)** [<http://nrl.mit.edu/>] Directors, Dr. Gordon Kohse, Prof.

Jacopo Buongiorno, Dr. Lance Snead. The MIT NRL is an interdepartmental center that operates a high-performance 6 MW nuclear research reactor known as the MIT Reactor (MITR), which is a partner of the

Department of Energy's National Science User Facilities. The MITR is a light-water cooled and moderated, heavy-water reflected, reactor that utilizes flat, finned, aluminum-clad, plate-type, fuel elements. The average core power density is about 70 kW per liter. The maximum fast and thermal neutron flux available to experimenters are  $1.2 \times 10^{14}$  and  $6 \times 10^{13}$  neutrons/cm<sup>2</sup>-s, respectively. Experimental facilities available at the MITR include two medical irradiation rooms, beam ports, automatic transfer facilities (pneumatic tubes), and graphite-reflector irradiation facilities. In addition, several types of in-core experimental facilities are available, e.g., a pressurized-water loop capable of reproducing the temperature, pressure, flow, neutron flux and water chemistry conditions of a commercial power reactor. Focus is on advanced materials, fuel and instrumentation irradiation tests, reactor physics modeling, neutron beam applications, and neutron activation analysis. New methods are under development to enable advanced x-ray and neutron imaging of irradiated nuclear materials. The MITR is also used to support lab courses, irradiation services, student operator training and public outreach activities.

**Center for Ultracold Atoms** [[https://www.rle.mit.edu/cua\\_responsive/](https://www.rle.mit.edu/cua_responsive/)] CUA is an NSF-funded physics frontier center bringing together faculty from MIT and Harvard. CUA research exploits the growing power of controlling complex quantum systems, and single atoms and photons. These techniques are applied to problems of central interest in condensed matter physics, and quantum information science.

**Center for Quantum Engineering** [<https://www.rle.mit.edu/cqe/>] The MIT-CQE is a platform for research, education, and engagement in support of quantum engineering – a new discipline bridging quantum science and engineering to accelerate the development of quantum technologies.

## **Research Laboratories**

### **Center for Science and Technology with Accelerators and Radiation (CSTAR)**

[<https://cstar.mit.edu/home.php>] CSTAR is dedicated to advancing nuclear science and engineering through the development and application of particular accelerators, particle detectors, and linear plasma devices.

**Concrete Sustainability Hub** [<http://cshub.mit.edu/>] The MIT Concrete Sustainability Hub, CSHub, is a dedicated interdisciplinary team of researchers from several departments across MIT working on concrete and infrastructure science, engineering, and economics since 2009. The MIT CSHub brings together leaders from academia, industry, and government to develop breakthroughs using a holistic approach that will achieve durable and sustainable homes, buildings, and infrastructure in ever more demanding environments.

**H.H.Uhlig Corrosion Laboratory** [<http://uhliglab.scripts.mit.edu/>] The H. H. Uhlig Corrosion Lab investigates the causes of failure in materials and the prevention of failure in materials, with an emphasis on nuclear materials.

**Computational Fluid Dynamics Research Group** [<https://baglietto.mit.edu/>] The CFD group in NSE focuses on the advancement of single and multiphase closure models that incorporate novel physical understanding that more generally represent the complex anisotropic nature of the mass, momentum and heat flux processes. The objective is to deliver advances in computational fluid flows and heat transfer

simulations, which will benefit the operation and safety of the current nuclear reactor fleet, and support the deployment of next generation nuclear power systems.

**Laboratory for Nuclear Innovation in Fission Technologies (NIFT)**

[<http://web.mit.edu/kshirvan/www/>] NIFT focuses on acceleration of innovations in nuclear fission technology by utilizing an integrated system-level approach. Innovation is the key for unlocking nuclear energy technology potential for deployment and to support its sustainability. The innovations at NIFT are based on three pillars: artificial intelligence, additive manufacturing and high performing materials. NIFT uses a multi-disciplinary approach including detailed economics and regulatory assessment to quantify the impact of innovations and formulate accelerated pathways for their adoption.

**Laboratory for Electrochemical Interfaces** [<http://web.mit.edu/yildizgroup/LEI/index.html>] Director: Professor Bilge Yildiz (NSE/DMSE). The lab’s research focuses on laying the scientific groundwork and proof-of-principle material systems for the next generation of high-efficiency devices for energy conversion and information processing, based on solid state ionic-electronic materials.

**Laboratory for Innovation in Fusion Technologies (LIFT)** The Laboratory for Innovations in Fusion Technologies (LIFT) is dedicated to exploring disruptive technology solutions for fusion energy with private-sector sponsors within the broader framework of the PSFC, NSE, and the MIT Energy Initiative. Research topics include materials, liquid-immersion blankets and fusion fuels. Commonwealth Fusion Systems and ENI are present sponsors.

**Laboratory for Thermal-Hydraulics Engineering and Design (The Red Lab)** The laboratory for Thermal-Hydraulics Engineering and Design is dedicated to exploring the fundamentals and the application of advanced heat transfer solutions for power technology. The research portfolio includes the development of high-resolution diagnostics and data processing tools, first-of-a-kind experimental capabilities, heat transfer enhancement techniques, and modeling approaches.

**MIT Computational Reactor Physics Group (CRPG)** [<http://crpg.mit.edu/>] CRPG focuses on the development of novel methods and algorithms for accurate and efficient nuclear reactor simulations. Better simulations help the nuclear industry set well-informed safety margins, but also enable assessment of innovative new fuel and reactor designs. From accurate quantification of uncertainty of neutron cross sections to Exascale simulation of nuclear systems, computing is pushing the boundaries of reactor physics.

**Quantum Engineering Group** [<http://qeg.mit.edu>] Director: Professor Paola Cappellaro (NSE). The Quantum Engineering Group develops transformative tools based on the fundamental laws of quantum physics, with applications in quantum simulation of complex systems, quantum computation beyond current classical limits, and quantum sensing of atomic-scale phenomena in the physical and life sciences.

**Collaborating MIT Academic & Research Units**

**Computer Science and Artificial Intelligence Laboratory (CSAIL)** [<https://www.csail.mit.edu/>]

**Laboratory for Nuclear Science** [<http://web.mit.edu/lns/>]

**Research Laboratory of Electronics** [<https://www.rle.mit.edu/>]



## UNIVERSITY OF MASSACHUSETTS, LOWELL

Nuclear Engineering and Science Programs

1 University Avenue

Lowell, Massachusetts 18540

978-934-3166

FAX: 978-934-3047

Administrative Contacts:

Sukesh Aghara, Nuclear Engineering

978-934-3115

Sukesh\_Aghara@uml.edu

www.uml.edu/nuclear

Mark Tries, Radiological Health Physics

978-934-3353

Mark\_Tries@uml.edu

www.uml.edu/sciences/physics/programs-of-study

Erno Sajo, Medical Physics

978-934-3288

Erno\_Sajo@uml.edu

www.uml.edu/medphys

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	12	*	4	7	*
Masters	14	*	2	2	*
PhD	6	*	0	0	*

Graduate Student Enrollment: # Masters/# Ph.D.

ABET Accreditation: Nuclear Engineering Option in Chemical Engineering (BS),

Radiological Health Physics Option in Physics (BS, MS)

CAMPEP Accreditation: Medical Physics (MS, PhD)

### Distance Education Program

Offers Nuclear Engineering Courses Online

### Nuclear Science and Engineering Faculty

**Sukesh Aghara**, Professor and Director, Nuclear Engineering Program (979-934-3115)

[Sukesh\_Aghara@uml.edu] Ph.D., The University of Texas at Austin, 2003. Radiation transport; space radiation protection; reactor experiments; radiation protection and shielding.

**Partha Chowdhury**, Professor (978-934-3730) [Partha\_Chowdhury@uml.edu] Ph.D., S.U.N.Y. Stonybrook, 1979. Gamma-ray spectroscopy; nuclear structure.

**Justin M. Pounders**, Assistant Professor (978-934-5204) [justin\_pounders@uml.edu] Ph.D., Georgia Institute of technology, 2010. Reactor physics; radiation transport; multiphysics; nuclear plant simulation.

**Erno Sajo**, Professor (978-934-3288) [Erno\_Sajo@uml.edu] Ph.D., University of Lowell, 1989. Radiation transport; medical physics, aerosol physics; radiation biology.

**Mark Tries**, Associate Professor (978-934-3353) [Mark\_Tries@uml.edu] Ph.D., University of Massachusetts, Lowell, 2000. External dosimetry; shielding; radiochemistry.

**Anna N. Yaroslavsky**, Associate Professor (978-934-3766) [Anna\_Yaroslavsky@uml.edu] Ph.D., Saratov State University, Russia. Multimodal image-guided intervention techniques; Biophotonics.

### **Other Faculty**

**Leo Bobek**, Adjunct Professor and Nuclear Reactor Supervisor (978-934-3365) [Leo\_Bobek@uml.edu] M.S., University of Lowell. Research reactor operations.

**Gilbert J. Brown**, Emeritus Professor (978-934-3166) [Gilbert\_Brown@uml.edu] Ph.D., Massachusetts Institute of Technology, 1974. Nuclear workforce development; public acceptance; material characterization; safety energy economics.

**James Egan**, Professor Emeritus (978-934- 3774) [James\_Egan@uml.edu] Ph.D., University of Kentucky. Experimental nuclear physics; neutron physics; spectroscopy; detection.

**Clayton S. French, Jr.**, Professor Emeritus (978-934-3286) [Clayton\_French@uml.edu] Ph.D., University of Lowell, 1985. Internal dosimetry; health physics.

**Marco Marzo**, Associate Director (978-934-5284) [Marco\_Marzo@uml.edu] Ph.D., University of Karlsruhe, Germany, 1981. Nuclear non-proliferation, nuclear safeguards and security; nuclear material accountancy; state evaluation approaches.

**Thomas Regan**, Adjunct Professor and Chief Reactor Operator (978-934-3548) [Thomas\_Regan@uml.edu] M.S., University of Lowell. Research Reactor operations; materials.

**Sirikul Sriprisan, Sr.**, Research Associate (978-934-2519) [Sikikul\_Sriprisan@uml.edu] Ph.D., University of Tennessee, 2008. Radiation shielding and protection, mathematical modeling, space radiation transport, neutron and proton beam experiments.

**John R. White**, Professor Emeritus (978-934-3165) [John\_White@uml.edu] Ph.D., University of Tennessee, 1976. Research reactor digital control and data acquisition; computational reactor physics; computer methods; reactor modeling.

## **Nuclear Science and Engineering Research Centers**

The **UMass Lowell Radiation Laboratory** houses a 1 megawatt Research Reactor, a multimega curie Cobalt-60 Irradiation Facility, and a 5.5 MeV Van de Graaf particle accelerator. The Radiation Laboratory provides controlled radiation environments and analytical measurement services to government organizations and to industry. The laboratory also provides facilities for proton, neutron and gamma environments and has been used for pure and applied nuclear physics research, for simulating radiation conditions of hostile space environments, for non-destructive testing and analysis, for research and development of radiation resistant electronics and materials, and for research and development of radiation induced modifications to materials.

Website: <http://www.uml.edu/centers/RadLab/default.html>

**Integrated Nuclear Security and Safeguards Laboratory (INSSL)** is a multidisciplinary laboratory structured to bring together the expertise in the Nuclear Science and Engineering programs and Center for Terrorism Security Studies to form strategic partnerships in the nuclear security and safeguards area. The INSSL laboratory personnel in partnership with industry and national laboratories work on research projects in radiation detection, material accountancy, and State evaluation processes. INSSL is also engaged in the development of MS and the Graduate Certificate program in Nuclear Security and Safeguards and specialized training programs in this area for working professionals.

## McMASTER UNIVERSITY

Engineering Physics  
1280 Main St West  
Hamilton, Ontario L8S4K1  
905-525-9140  
FAX: 905-527-8409  
Administrative Contact: Shinya Nagasaki  
905-525-9140  
nagasas@mcmaster.ca  
Website: [www.eng.mcmaster.ca/engphys](http://www.eng.mcmaster.ca/engphys)

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	21	17	21	20	25
Masters	14	9	8	8	14
PhD	11	12	13	12	11

Graduate Student Enrollment: 2 Masters/1 Ph.D.

### Distance Education Program

Offers Nuclear Engineering Courses and Degrees Online  
Through the University Network of Excellence in Nuclear Engineering ([www.unene.ca](http://www.unene.ca))

### Nuclear Science and Engineering Faculty

**Adriaan Buijs** (905-525-9140 x24925) [buijsa@mcmaster.ca] Ph.D., Utrecht University, 1987. The physics of nuclear reactor cores, in particular of Small and Very Small Modular Reactors; Development of analysis tools for research in reactor physics.

Website: [www.eng.mcmaster.ca/engphys/people/faculty/adriaan-buijs](http://www.eng.mcmaster.ca/engphys/people/faculty/adriaan-buijs)

**John C. Luxat**, Professor (905-525-9140 x 24670) [luxatj@mcmaster.ca] Ph.D., University of Windsor, 1972. Nuclear safety; severe accidents; thermalhydraulics; advanced fuel cycles; safety analysis methodology; reactor core physics. Professional Engineer.

Website: [www.eng.mcmaster.ca/engphys/people/faculty/john-luxat](http://www.eng.mcmaster.ca/engphys/people/faculty/john-luxat)

**Shinya Nagasaki**, Professor (905-525-9140 x27090) [nagasas@mcmaster.ca] Ph.D., University of Tokyo, 1993. Safety and security of used nuclear fuel and high-level radioactive waste management, Actinide and radionuclide chemistry, and ethics of nuclear fuel cycle engineering in 21st century's society.

Website: [www.eng.mcmaster.ca/engphys/people/faculty/shinya-nagasaki](http://www.eng.mcmaster.ca/engphys/people/faculty/shinya-nagasaki)

**David R. Novog**, Associate Professor (905-525-9140) [novog@mcmaster.ca] Ph.D., McMaster University, 1999. Nuclear safety; thermalhydraulics; reactor physics; reactor control; uncertainty analysis; safety system design and performance; critical heat flux; computational fluid dynamics; computer code coupling. Professional Engineer. Website: [www.eng.mcmaster.ca/engphys/people/faculty/Dave-Novog](http://www.eng.mcmaster.ca/engphys/people/faculty/Dave-Novog)

## Other Faculty

**Simon Day**, Adjunct Professor, Engineering Physics (905-525-9140 x 23191)[dayse@mcmaster.ca] Ph.D., McMaster University, 2003. Reactor Physics with specialties in Safety Analysis, Operations Support, and Criticality Safety. Leading the Reactor Analysis group at the McMaster Nuclear Reactor. Website: <http://mnr.mcmaster.ca/index.php/research/researchers/dr-simon-e-day>

**Laurence Leung**, Adjunct Professor, Ph.D., Ottawa. Manager, Advanced Concepts & Collaboration at Canadian Nuclear Laboratories (retired) [leungl@sympatico.ca]. Website: [experts.mcmaster.ca/display/leungl1](http://experts.mcmaster.ca/display/leungl1)

**Thambiayah Nitheanandan**, Industry Professor, Director, Canadian Nuclear Safety Commission. Ph.D., Manitoba. [nitheant@mcmaster.ca]. Website: [experts.mcmaster.ca/display/nitheant](http://experts.mcmaster.ca/display/nitheant)

**Nik Popov**, Adjunct Professor, Program Director at University Network of Excellence in Nuclear Engineering (UNENE) Ph.D., Zagreb. [npopov@mcmaster.ca] [experts.mcmaster.ca/display/npopov](http://experts.mcmaster.ca/display/npopov)

**Ben Rouben** Adjunct Professor, Ph.D. (Massachusetts Institute of Technology), Reactor Physics, [roubenb@alum.mit.edu]. Website: [experts.mcmaster.ca/display/roubeb1](http://experts.mcmaster.ca/display/roubeb1)

**Victor G. Snell**, Industry Professor (905-525-9140 x20168) [snellv@mcmaster.ca], Ph.D., University of Toronto, 1972. Nuclear safety concepts and philosophy, safety system design and performance, safety analysis, education of staff working in the nuclear industry, nuclear licensing. Website: [experts.mcmaster.ca/display/snellv](http://experts.mcmaster.ca/display/snellv)

**Peter Vilks**, Adjunct Professor (204-753-2311 ext. 63172) [peter.vilks@cnl.ca] Ph.D., McMaster University, 1984. Geochemistry and transport of radionuclides such as sorption, colloids, natural organics and diffusive and advective processes in fractures and rock matrix.

## Nuclear Science and Engineering Research Centers

**McMaster Nuclear Reactor (MNR)**. MNR is an open-pool type Materials Test Reactor (MTR) with a core of low enriched uranium (LEU) fuel that is moderated and cooled by light water. Primary and secondary cooling systems act to remove the heat that is generated in the core of the reactor, with external cooling towers acting as the ultimate thermal sink. The reactor is housed within a concrete containment building and generally operates weekdays from 8 a.m. until 12 midnight at a thermal power of 3 MW. The nuclear reactor was designed with its end use as a multi-purpose research facility in mind. Its open-pool design provides ready access to the reactor core and allows for easy insertion and removal of samples for neutron irradiation, imparting a degree of flexibility that many other classes of reactors lack. As well, several beam-tubes were built into the reactor structure: today, the neutron beams extracted by these tubes are used for applications including neutron radiography and neutron diffraction experiments. MNR also has an industrial hot cell inside the reactor containment building for handling highly radioactive samples.

Staff at the McMaster Nuclear Reactor conduct hundreds of thousands of neutron irradiations every year, many in support of industry (mining exploration, environmental samples). MNR is a world leader in the production of iodine-125, a radioactive isotope that is used in the treatment of prostate cancer, with hundreds of doses produced each week. Neutrons from MNR are also used by Nray Services Inc. to conduct quality assurance testing on turbine blades for jet engines using the neutron radiography facility at one of the beam-ports. Research activities at MNR continue to expand, with a new neutron diffractometer installed in 2009 and a state of the art positron beam facility currently being designed.

**The Centre for Advanced Nuclear Systems (CANS)** CANS provides a unique world-class capability to advance research in three focus areas: 1) nuclear materials, 2) nuclear safety thermalhydraulic behavior, and 3) health physics.

CANS McMaster is comprised of three primary facilities, namely:

1. Post-Irradiation Examination of Nuclear Materials: an irradiated materials examination facility consisting of a suite of custom designed, fabricated and installed hot cells including an instrument room containing a shielded dual beam Scattering Electron Microscope/Focused Ion Beam (SEM/FIB) and a Transmission Electron Microscope (TEM).
2. Nuclear Materials Characterisation Facility: a materials characterization and analysis facility that will be used to investigate the mechanical behaviour of existing and newly developed materials (including irradiated in-reactor core components, GEN IV materials and technology). The facility includes a Three Dimensional Atom Probe (3DAP) and Scattering Electron Microscope/Focused Ion Beam (SEM/FIB).
3. Thermal Testing Facility: to obtain experimental data to develop and test nuclear safety thermalhydraulic models. This facility include a heated Flow Loop, upgraded power supply with 265 kW capacity, cooling heat exchangers, a new heat transfer test section and 3-D Tomography and High Speed Video instrumentation for state-of-the-art visualization.

## UNIVERSITY OF MICHIGAN

Nuclear Engineering and Radiological Sciences

2355 Bonisteel Boulevard

Ann Arbor, Michigan 48109-2104

(734) 764-4260

FAX: (734) 763-4540

Administrative Contact: Besnik Topulli

(734) 936-0122

btopulli@umich.edu

Website: <http://www.ners.engin.umich.edu>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	34	37	25	24	21
Masters	23	29	29	23	23
PhD	20	15	24	15	18

Graduate Student Enrollment: 29 Masters/ 104 Ph.D.

ABET Accreditation: B.S.E. (N.E.R.S)

### Nuclear Science and Engineering Faculty

**Todd R. Allen**, Chair and Professor (734-647-5845) [traumich@umich.edu] Ph.D., University of Michigan, 1997. Nuclear & Climate Policy; Radiation Damage of Materials; High-Temperature Corrosion; Nuclear Fuels. Website: <http://www.ners.engin.umich.edu/people/todd-allen>

**Michael Atzmon**, Professor (734-764-6888) [atzmon@umich.edu] Ph.D., California Institute of Technology, 1985. Thermodynamics and kinetics of materials; mechanical and thermal properties of metallic glasses. Website: <https://ners.engin.umich.edu/people/michael-atzmon/>

**Alex F. Bielajew**, Professor (734-764-6364) [bielajew@umich.edu] Ph.D., Stanford University, 1982. Theory of electron and photon transport; Monte Carlo theory and development; radiation dosimetry theory; radiotherapy treatment planning algorithms. Website: <https://ners.engin.umich.edu/people/alex-bielajew/>

**Thomas Downar**, Professor (734-615-9002) [downar@umich.edu] Ph.D., Massachusetts Institute of Technology, 1984. Computational nuclear reactor physics; nuclear reactor dynamics, and the development of coupled neutronics and thermal-hydraulics methods for power reactor safety analysis. Website: <https://ners.engin.umich.edu/people/thomas-downar/>

**Kevin G. Field**, Associate Professor (734-764-4260) [kgfield@umich.edu] Ph.D., University of Wisconsin-Madison, 2012. Advanced manufacturing, radiation effects, irradiation design and control, advanced characterization, small angle scattering, analytical microscopy, materials processing & design. Website: <https://ners.engin.umich.edu/people/kevin-field/>

**John E. Foster**, Professor (734-764-1976) [jefoster@umich.edu] Ph.D., University of Michigan, 1996. Low-temperature plasma science; propulsion, environmental, energy conversion, and processing plasmas; space and atmospheric plasma phenomena. Website: <https://ners.engin.umich.edu/people/john-foster/>

**Fei Gao**, Professor (734-615-0697) [gaofei@umich.edu] Ph.D., University of Liverpool, UK, 1995. Computational Nuclear Materials; Radiation Detector Materials; Radiation Effects in Metals, ceramics and glasses; Multi-scale computer simulations of ion-solid interaction, electron-solid interaction, mechanical and electrical properties of nanostructures. Website: <http://www.ners.engin.umich.edu/people/fei-gao/>

**Ronald M. Gilgenbach**, Chihiro Kikuchi Collegiate Professor and Director of Plasma, Pulsed Power and Microwave Laboratory (734-763-1261) [rongilg@umich.edu] Ph.D., Columbia University, 1978. Plasmas; fusion, z-pinch, intense electron beam physics, and high power microwave generation. Website: <http://plasmabay.engin.umich.edu/people/ron-gilgenbach/>

**Zhong He**, Professor (734-764-7130) [hezhong@umich.edu] Ph.D., Southampton University, U.K., 1993. Room-temperature semiconductor gamma-ray imaging spectrometers and associated electronics. Website: <https://ners.engin.umich.edu/people/zhong-he/> or <https://cztlab.engin.umich.edu/>

**Igor Jovanovic**, Professor (734-647-4989) [ijov@umich.edu] Ph.D., University of California, Berkeley, 2001. Radiation detection, nuclear security, high-power lasers and optics. Website: <http://ners.engin.umich.edu/people/igor-jovanovic>

**Kimberlee J. Kearfott**, Professor of Nuclear Engineering and Radiological Sciences and Biomedical Engineering (734-763-9117) [kearfott@umich.edu] Sc.D. and C.H.P., Massachusetts Institute of Technology, 1980. Radiation safety, medical physics; radiation detection and dosimetry; environmental radioactivity; explosives detection; homeland security. Website: <https://ners.engin.umich.edu/people/kimberlee-kearfott/>

**Brian Kiedrowski**, Associate Professor (734-615-5978) [bckiedro@umich.edu] Ph.D., University of Wisconsin, 2009. Monte Carlo methods development for radiation transport; sensitivity analysis and uncertainty quantification. Website: <https://ners.engin.umich.edu/people/brian-kiedrowski/>

**Brendan Kochunas**, Assistant Professor (734-763-3867) [bkochuna@umich.edu] Ph.D., University of Michigan, 2013. Computational reactor physics methods; multiphysics methods; data-driven methods; nuclear reactor design; parallel algorithms and high performance computing. Website: <https://ners.engin.umich.edu/people/brendan-kochunas/>

**Karl M. Krushelnick**, Professor (734-763-4877) [kmkr@umich.edu] Ph.D., Princeton University, 1994. Plasma physics; nuclear fusion; high power lasers. Website: <https://ners.engin.umich.edu/people/karl-krushelnick/>

**Carolyn C. Kuranz**, Associate Professor (734-615-6282) [ckuranz@umich.edu] Ph.D., University of Michigan, 2009. Plasma physics, high-energy-density physics, nuclear fusion, radiation hydrodynamics, hydrodynamic instabilities, magnetized plasmas. Website: <https://ners.engin.umich.edu/people/carolyn-kuranz/>



**Mark Kushner**, Professor (734-647-1695) [mjkush@umich.edu] Ph.D., California Institute of Technology, 1979. Computational plasma science and engineering. Website: <http://uigelz.eecs.umich.edu>

**Y.Y. Lau**, Professor of Nuclear Engineering and Radiological Sciences and Applied Physics Program (734-764-5122) [yylau@umich.edu] Ph.D., Massachusetts Institute of Technology, 1973. Plasma and beam physics; high power radiation sources; vacuum microelectronics. Website: <https://ners.engin.umich.edu/people/yue-ying-lau/>

**Annalisa Manera**, Professor (734-647-2433 [manera@umich.edu] Ph.D., Delft University of Technology, The Netherlands, 2003. Experimental two-phase flow, thermal-hydraulics, computational fluid dynamics, and multiphysics methods for power reactor safety analysis. Website: <https://ners.engin.umich.edu/people/annalisa-manera/>

**Martha Matuszak**, Assistant Professor (734-936-4309) [marthamm@med.umich.edu] Ph.D., University of Michigan, 2007. Treatment planning and optimization for external beam radiotherapy with an emphasis on intensity modulated radiotherapy, volumetric modulated arc therapy, and seteriotactic body radiation therapy. Website: <https://ners.engin.umich.edu/people/martha-matuszak/>

**Ryan D. McBride**, Associate Professor (734-763-7504) [mcbrider@umich.edu] Ph.D., Cornell, 2009. Plasma physics; high-energy-density physics; nuclear fusion; radiation generation; pulsed-power technology; plasma diagnostics; magnetically driven, cylindrically imploding systems. Website: <http://www.engin.umich.edu/ners/people/faculty/ryan-mcbride/>

**Sara Pozzi**, Professor (734-615-4970) [pozzisa@umich.edu] Ph.D., Polytechnic of Milan, Italy, 2001. Development of new methods for nuclear materials identification and characterization for nuclear nonproliferation and homeland security applications. Website: <https://ners.engin.umich.edu/people/sara-pozzi/>

**Xiaodong Sun**, Professor (734-615-9749) [xdsun@umich.edu] Ph.D., Purdue University, 2001. Thermal hydraulics and reactor safety; two-phase flow experimentation, modeling and numerical simulation; interfacial structure characterization and bubble dynamics; thermal hydraulics in high-temperature reactors and high temperature compact heat exchangers. Website: <https://ners.engin.umich.edu/people/xiaodong-sun/>

**Alexander G.R. Thomas**, Professor, (734-763-6008) [agrt@umich.edu] Ph.D., Imperial College, London, UK, 2007. High-power laser-plasma interactions, particle accelerators, radiation sources, kinetic plasma computation. Website: <https://ners.engin.umich.edu/people/alec-thomas/>

**Lumin Wang**, Professor (734-647-8530) [lmwang@umich.edu] Ph.D., University of Wisconsin-Madison, 1988. Radiation effects, ion beam modification of materials; transmission electron microscopy; nano-structured materials, and nuclear engineering materials. Website: <https://ners.engin.umich.edu/people/lu-min-wang/>

**Gary S. Was**, Professor of Nuclear Engineering and Radiological Sciences and Materials Science and Engineering; Walter J. Weber, Jr. Professor of Sustainable Energy, Environmental and Earth Systems Engineering (734-763-4675) [gsw@umich.edu] Sc.D., Massachusetts Institute of Technology, 1980. Radiation materials science; materials degradation and design for advanced reactor systems; materials processing with radiation; ion beam modification and analysis of materials; corrosion, stress corrosion cracking, hydrogen embrittlement, materials degradation modes, nuclear fuels and fuel materials. Website: <https://ners.engin.umich.edu/people/gary-was/>

**David K. Wehe**, Professor (734-763-1151) [dkw@umich.edu] Ph.D., University of Michigan, 1984. Radiation measurements and applications. Website: <http://www.ners.engin.umich.edu/people/david-wewe/> or <https://radmeas.engin.umich.edu>

**Won Sik Yang**, Professor (734-647-8117) [wonyang@umich.edu] Ph.D., Purdue University, 1989. Nuclear Engineering; Nuclear reactor physics; computational methods for reactor analysis; reactor core design; fuel cycle analysis; fast reactors; accelerator driven systems; sensitivity/uncertainty analysis; cross section processing; stability analysis; and reliability analysis. Website: <https://ners.engin.umich.edu/people/won-sik-yang/>

### **Other Faculty**

**Ziya A. Akcasu**, Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-764-5534) [ziya@umich.edu] Ph.D., University of Michigan, 1963. Nonlinear reactor dynamics; Reactor noise analysis; theory and applications of stochastic differential equations; dynamics of dense fluids; calculation of time-correlations and transport coefficients; dynamics of macromolecular solutions and melts. Particle transport in stochastic media (current). Website: <https://ners.engin.umich.edu/people/ziya-akcasu/>

**Kristy Brock**, Adjunct Professor (736-936-4294) [kkbrock@med.umich.edu] Ph.D., University of Michigan, 2003. Developing biomechanical models for cancer diagnosis, image-guided therapies and treatment response assessment. Website: <https://ners.engin.umich.edu/people/kristy-brock/>

**Forrest Brown**, Adjunct Professor (505-667-7581) [fbrown@lanl.gov] Ph.D., University of Michigan, 1981. International reputation in Monte Carlo simulation & advanced computing; reactor physics, criticality safety, radiation transport, teraflop & petaflop computers, large-scale engineering computations, parallel/vector computing, distributed computing, computer benchmarking, & computer code development. Website: <http://www.ners.engin.umich.edu/people/forrest-brown>

**Frederick W. Buckman**, Adjunct Professor (734-764-4260) [fwb@umich.edu] Ph.D., Massachusetts Institute of Technology, 1970. Interests are in the design, development, and operation of nuclear power plants; historical performance of plants, people, and the evolution of our licensing and self-assessment processes. Website: <https://ners.engin.umich.edu/people/frederick-buckman/>

**Adam Burak**, Assistant Research Scientist (734-764-4260) [ajburak@umich.edu] Ph.D., University of Utah, 2019. Molten salt chemistry, electrochemistry, high temperature spent nuclear fuel reprocessing, severe environment materials, molten salt corrosion, experimental design, and prototype design.

**Milos Burger**, Assistant Research Scientist (734-764-8234)[[milosb@umich.edu](mailto:milosb@umich.edu)] Ph.D., University of Belgrade, 2015. Laser-matter interactions, plasma and laser spectroscopy, nonlinear optically-driven processes in gases. Website: <https://ners.engin.umich.edu/people/milos-burger/>

**Jeremy Busby**, Adjunct Associate Professor (865-241-4622) [[jbusby@umich.edu](mailto:jbusby@umich.edu)] Ph.D., University of Michigan, 2000. Irradiation effects in metals for high temperature reactors, fusion reactors, and spacecraft reactors, radiation-effects in refractory metals, identifying the mechanisms of embrittlement for materials under high temperature irradiation, irradiation-assisted stress corrosion cracking, radiation-induced microstructure and microchemistry changes, characterization of radiation-induced changes, deformation mechanics, transmission electron microscopy, scanning electron microscopy. Website: <https://ners.engin.umich.edu/people/jeremy-busby/>

**Shaun D. Clarke**, Associate Research Scientist (734-615-7830) [[clarkesd@umich.edu](mailto:clarkesd@umich.edu)] Ph.D., Purdue University, 2007. Simulation techniques for active interrogation systems using high-energy photons - methods under investigation include photoneutron energy spectra and multiplicity analysis. Website: <https://ners.engin.umich.edu/people/shaun-clarke/>

**Benjamin Collins**, Adjunct Assistant professor (734-764-4260) [[bscollin@umich.edu](mailto:bscollin@umich.edu)] Ph.D., University of Michigan, 2011. Nuclear Engineering and Radiological Sciences; and Scientific Computing. Website: <https://ners.engin.umich.edu/people/benjamin-collins/>

**Gianluigi De Geronimo**, Adjunct Research Scientist (516-983-4859) [[dgianlui@umich.edu](mailto:dgianlui@umich.edu)] Ph.D., Milan Polytechnic, Italy, 1997. Low-noise electronics and microelectronics for radiation detectors. Website: <https://www.dgcircuits.com>

**Donghai Du**, Assistant Research Scientist (734-353-5027)[[donghaid@umich.edu](mailto:donghaid@umich.edu)] Ph.D., Shanghai Jiao Tong University, 2017. Degradation of nuclear materials in high temperature water.

**James J. Duderstadt**, President Emeritus, University of Michigan and University Professor of Science and Engineering (734-647-7300) [[jjd@umich.edu](mailto:jjd@umich.edu)] Ph.D., California Institute of Technology, 1967. Nuclear reactor theory and design (both fission and fusion); radiation transport theory; kinetic theory and statistical mechanics; interaction of intense laser and particle beams with plasmas; inertial confinement fusion, energy systems analysis; computer simulation and networking; energy policy. Website: <https://ners.engin.umich.edu/people/james-duderstadt/>

**Rodney C. Ewing**, Emeritus Professor of Geological Sciences, Materials Science and Engineering, and Professor of Nuclear Engineering and Radiological Sciences (734-763-9295) [[rodewing@umich.edu](mailto:rodewing@umich.edu)] Ph.D., Stanford University, 1974. Nuclear waste management; radiation effects in complex ceramics and glasses. Website: <https://ners.engin.umich.edu/people/rodney-ewing/>

**Gennady Fiksel**, Research Scientist (734-647-3769) [[gfiksel@umich.edu](mailto:gfiksel@umich.edu)] Ph.D., University of Wisconsin, Madison, 1991. Plasma Physics. Website: <https://ners.engin.umich.edu/people/gennady-fiksel/>

**Ronald F. Fleming**, Emeritus Professor of Nuclear Engineering and Radiological Sciences (734-647-9661) [flemingr@umich.edu] Ph.D., University of Michigan, 1976. Neutron activation analysis; materials analysis using nuclear techniques; radiation measurements.

Website: <https://ners.engin.umich.edu/people/ronald-fleming/>

**Michael Flynn**, Adjunct Professor (313-874-4483) [mikef@rad.hfh.edu] Ph.D., University of Michigan, 1975. Radiation imaging with emphasis on medical applications; statistical concepts of image formation for radiography; radioisotope imaging, and computed tomography; measurement methods for image quality assessment; high fidelity image display and human visual perception as pertains to radiological interpretation; active research projects in quantitative lung densitometry, musculo-skeletal tomosynthesis, phase contrast imaging, display calibration, and radiological informatics.

Website: <https://ners.engin.umich.edu/people/michael-flynn/>

**Mitchell Goodsitt**, Adjunct Professor of Nuclear Engineering and Radiological Sciences, Professor of Radiological Sciences Department of Radiology (734-936-7474) [goodsitt@umich.edu] Ph.D., University of Wisconsin, 1982. Medical physicist specializing in research in diagnostic x-ray and ultrasound imaging and quality control such as development of a combined 3D X-ray and 3D ultrasound breast imaging system; diagnostic radiology quality assurance research projects.

Website: <https://ners.engin.umich.edu/people/mitchell-goodsitt/>

**Mark Hammig**, Associate Research Scientist (734-764-5225) [hammig@umich.edu] Ph.D., University of Michigan, 2005. Radiation detector development; stochastic systems research; photonic devices.

Website: <https://ners.engin.umich.edu/people/mark-hammig/>

**James P. Holloway**, Arthur F. Thurnau Professor and Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-936-3126) [hagar@umich.edu] Ph.D., University of Virginia, 1989. Radiation transport, reactor physics, plasma kinetic theory, computational physics, nonlinear dynamics.

Website: <https://ners.engin.umich.edu/people/james-holloway/>

**Zhijie Jiao**, Associate Research Scientist (734-615-7761) [zjiao@umich.edu] Ph.D., Polytechnic University of New York, 2004. Irradiation-assisted stress corrosion cracking; high temperature corrosion; radiation effects; microstructure evolution under irradiation; transmission electron microscopy; focus ion beam microscopy; atom probe tomography. Website: <https://ners.engin.umich.edu/people/zhijie-jiao/>

**Nicholas M. Jordan**, Associate Research Scientist (734-763-0213) [jordann@umich.edu] Ph.D., University of Michigan, 2008. Plasma Physics. Website: <https://ners.engin.umich.edu/people/nicholas-jordan/>

**Terry Kammash**, Stephen S. Attwood Professor of Engineering and Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-764-0205) [tkammash@umich.edu] Ph.D., University of Michigan, 1958. Theoretical and computational investigations of high temperature plasma confinement in magnetic fusion devices, including the study of equilibrium, transport, and stability of plasma in toroidal and open-ended devices; inertial confinement fusion; plasma engineering; power producing fusion reactors; space applications of nuclear energy.

Website: <https://ners.engin.umich.edu/people/terry-kammash/>

**Dale Lancaster**, Adjunct Professor (814-574-1912)[dalelan@umich.edu] Ph.D., Massachusetts Institute of Technology, 1981. Criticality, Spent Fuel Management, Core Design and Fuel Management. Website: <https://ners.engin.umich.edu/people/dale-lancaster/>

**Edward W Larsen**, Professor Emeritus of Nuclear Engineering and Radiological Sciences, College of Engineering (734-936-0124) [edlarsen@umich.edu] Ph.D., Rensselaer Polytechnic Institute, 1971. Numerical and analytical methods for neutron, electron, photon, and thermal radiation transport. Website: <https://ners.engin.umich.edu/people/edward-larsen/>

**John C. Lee**, Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-764-9379) [jcl@umich.edu] Ph.D., University of California, Berkeley, 1969. Nuclear reactor physics; reactor safety; power plant simulation and control; fuel cycle analysis. Website: <https://ners.engin.umich.edu/people/john-lee/>

**Yuxuan Liu**, Assistant Research Scientist (734-764-5603) [yuxuanl@umich.edu] Ph.D., University of Michigan, 2015. Computational neutron transport, cross section data and nuclide transmutation methods; Reactor physics; Numerical methods and scientific computation. Website: <https://ners.engin.umich.edu/people/yuxuan-liu/>

**Yang Ma**, Assistant Research Scientist (734-239-34840)[yongm@umich.edu] Ph.D., Institute of Physics, University of the Chinese Academy of Sciences, 2016. Laser-plasma interactions; Laser Wakefield accelerators; Advanced Radiation Sources. Website: <https://cuos.engin.umich.edu/researchgroups/hfs/profiles/Yong-Ma/>

**William R. Martin**, Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-764-5534) [wrm@umich.edu] Ph.D., University of Michigan, 1976. Computational methods development for the solution of the Boltzmann transport equation including deterministic and Monte Carlo methods. Website: <https://ners.engin.umich.edu/people/william-r-martin/>

**Thomas A. Mehlhorn**, Adjunct Professor (505-363-6106)[thmehlho@umich.edu] Ph.D., University of Michigan, 1978. Plasma physics and nuclear fusion.

**Namdoo Moon**, Adjunct Professor (734-764-4260) [namdoo.moon@HQ.DHS.GOV] Ph.D., University of Michigan, 1993. Nuclear Detection. Website: <https://ners.engin.umich.edu/people/namdoo-moon/>

**Imre Pazsit**, Adjunct Professor (46-31-772-3081) [imre@nephy.chalmers.se] Ph.D., Roland Eotvos University, Budapest, 1975. Theory of neutron fluctuations in multiplying materials with application to nuclear material detection and identification; stochastic theory of neutron slowing down, energy deposition and light generation in detectors; solving inverse problems in material identification; deterministic and stochastic transport of neutrons and charged particles; dynamics and diagnostics of current and future reactor systems. Website: <https://ners.engin.umich.edu/people/imre-pazsit/>

**Victor Petrov**, Associate Research Scientist (734-763-4626) [petrov@umich.edu] Ph.D., Institute of Engineering Physics (IIF) and Moscow State Industrial University, Russia, 2008. Experimental and Computational Fluid Dynamics. Website: <https://ners.engin.umich.edu/people/victor-petrov/>

**Dipankar Ray**, Adjunct Assistant Professor (734-963-7286) [dipray@med.umich.edu] Ph.D, Indian Institute of Science, Bangalore, India, 2001. Radiation pneumonitis and lung fibrosis; understanding and development of molecularly targeted approaches in cancer therapeutics. Website: <https://ners.engin.umich.edu/people/dipankar-ray/>

**Miao Song**, Assistant Research Scientist (734-764-4260) [meowsong@umich.edu] Ph.D., Texas A&M University, 2014. Materials Science & Engineering. Website: <https://ners.engin.umich.edu/people/miao-song/>

**David Stuenkel**, Adjunct Associate Professor (859-426-0173) [stuenkel@umich.edu] Ph.D., University of Michigan, 1997. Health Physics; Radiation detection and measurements; statistics; nondestructive assay of nuclear materials and waste, radiological dose/risk assessment and environmental transport modeling; radiological emergency preparedness, decontamination and decommissioning; radioactive/hazardous waste management. Website: <http://www.ners.engin.umich.edu>

**Dieter Vincent**, Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-936-1592) [dvincent@umich.edu] Ph.D., Universitaet Goettingen, 1956. Radiation effects in materials, hydrogen (and helium) in metals; ion beam analysis; moessbauer spectroscopy; positron lifetime spectroscopy. Website: <https://ners.engin.umich.edu/people/dietrich-vincent/>

**Peng Wang**, Associate Research Scientist (734-763-3116) [wpf@umich.edu] Ph.D., University of Manchester, UK, 2011. Corrosion Behavior of Zirconium Alloys, High Temperature Aqueous Environment by Electrochemical Impedance Spectroscopy. Website: <https://ners.engin.umich.edu/people/peng-wang/>

**Ruth Weiner**, Adjunct Assistant Professor (505-284-8406) [rfweine@sandia.gov] Ph.D., Johns Hopkins University, 1962. Radiation risk analysis; radioactive waste management, transportation and storage of radioactive materials. Website: <https://ners.engin.umich.edu/people/ruth-f-weiner/>

**Yuefeng Zhu**, Associate Research Scientist (734-763-8566) [zhuyuef@umich.edu] Ph.D., University of Michigan, 2012. Digital signal processing methods for pixelated 3-D Position Sensitive Room-Temperature Semiconductor Detectors. Website: <https://ners.engin.umich.edu/people/yuefeng-zhu/>

## **Nuclear Science and Engineering Research Centers**

**Applied Nuclear Science Instrumentation Laboratory.** The Applied Nuclear Science Instrumentation Laboratory (ANSIL) was established in the new Nuclear Engineering Building in 2017. This facility features approximately 1000 ft<sup>2</sup> of high-cleanliness laboratory space and supports the development of advanced instrumentation for a wide range of projects. Some examples of current research include the development

of novel neutron and antineutrino detectors and detection methodologies for applications in nuclear security, nonproliferation, nuclear power, and fundamental scientific research.

Website: <https://ansg.engin.umich.edu/applied-nuclear-science-instrumentation-laboratory/>

**Center for Laboratory Astrophysics (CLA):** The Center for Laboratory Astrophysics (CLA) is a National Nuclear Security Administration (NNSA) Center of Excellence. We study fundamental high-energy-density plasmas relevant to astrophysical systems, the NNSA mission of science-based stockpile stewardship, and inertial confinement fusion concepts. We create these systems using high-energy laser and pulsed-power facilities and simulate them using the radiation hydrodynamics code CRASH. Our research focus is hydrodynamic instabilities, radiation hydrodynamics, and magnetized flows. In addition, we fabricate and characterize experimental targets and research novel diagnostic techniques.

**Center for Ultrafast Optical Science (CUOS-EECS):** The Center for Ultrafast Optical Science (CUOS) is an interdisciplinary research center in the College of Engineering at the University of Michigan in Ann Arbor. CUOS was sponsored as a Science and Technology Center by the National Science Foundation during 1990- 2001, and as a College of Engineering Center continues its research in ultrafast optics with funding from a variety of government agencies and industry. Its mission is to perform multidisciplinary research in the basic science and technological applications of ultrashort laser pulses, to educate students from a wide variety of backgrounds in the field, and to spur the development of new technologies.

Website: <https://cuos.engin.umich.edu/>

**The Detection for Nuclear Nonproliferation Laboratory:** The Detection for Nuclear Nonproliferation Lab develops new techniques for radiation detection and characterization for nuclear nonproliferation and homeland security applications. In addition, we study the detailed response of liquid and plastic scintillation detectors in the presence of neutron and gamma-ray sources. The laboratory is equipped with many detection systems, including a dual-particle imager for standoff detection of special nuclear material, a portable dual-particle imager, a fast-neutron multiplicity counter for the assay of fissile material, and radiation portal monitors. The lab also hosts a 9 MV electron linear accelerator for active interrogation experiments. The laboratory is also equipped with tens of detectors and dedicated readout electronics, including silicon photomultiplier arrays, fast (GHz) digitizers for pulse acquisition and workstations for data real-time analysis and post-processing.

Website: <http://www-ners.engin.umich.edu/labs/dnng/>

**Experimental and Computational Multiphase Flow (ECMF) Laboratory:** This lab was established in 2013 with the purpose of advancing and understanding thermal-hydraulics and fluid-dynamics phenomena of relevance for nuclear applications. It is used to perform experiments for single-phase and two-phase flows using advanced state-of-the-art high-resolution experimental techniques. The highly-resolved (in time and space) experimental data are used to establish a database for the validation and further development of Computational Fluid Dynamics models.

Website: <http://www.umich.edu/~nuclear/labs/ecmf/>

**Glenn F. Knoll Nuclear Measurements Laboratory:** The Position-Sensing Semiconductor Radiation Detector Laboratory is dedicated to the development of room-temperature semiconductor radiation

detectors. The focuses of research include the design of advanced semiconductor-based gamma and neutron spectrometers, ultra- low noise Application Specific Integrated Circuitries (ASICs), real- time gamma-ray imaging reconstruction algorithms, and real-time nuclear isotope detection techniques. These instruments are being developed for applications in national security, nuclear non-proliferation, homeland security, nuclear power safety, medical imaging, astrophysics, planetary sciences, particle physics, etc. Website: <https://cztlab.engin.umich.edu/>

**High Temperature Corrosion Laboratory (HTCL):** The High Temperature Corrosion Laboratory (HTCL) contains five high pressure, high temperature autoclave systems that provide the capability to conduct corrosion, stress corrosion cracking, and hydrogen embrittlement tests in high temperature aqueous environments and, in particular, simulated light water reactor environments.

Website: <https://htcl.engin.umich.edu>

**Irradiated Materials Testing Complex (IMTC):** The PML hot cells combined with the Irradiated Materials Testing Laboratory provides the capability to conduct high temperature corrosion and stress corrosion cracking of neutron irradiated materials and to characterize the fracture surfaces after failure.

Website: <https://imtl.engin.umich.edu/>

**Materials Preparation Laboratory:** The Materials Preparation Laboratory provides facilities for the preparation and characterization of materials for materials research studies. The lab houses a grinding and polishing table for metallographic sample preparation, a tube furnace for annealing and heat treating, an electropolishing and etching system, a jet-electropolisher for making TEM disc samples, a slow speed cut-off wheel, a slurry drill, and a microscope and camera for imaging sample surfaces. Website:

<https://ners.engin.umich.edu/research/labs/materials/>

**MCASL Center:** The University of Michigan branch of CASL, the Consortium for Advanced Simulation of Light Water Reactors (LWRs) that is centered at Oak Ridge National Laboratory. CASL was established in 2010 as a ten-institution partnership to create a virtual reactor for predictive simulation of LWRs. The partnership includes three universities (Michigan, MIT and NC State), four national labs (Oak Ridge, Los Alamos, Sandia, and Idaho), a reactor manufacturer (Westinghouse), a reactor owner/operator (TVA), and the research arm of the nuclear utility industry (Electric Power Research Institute). The MCASL Center includes faculty, PhD students, and postdoctoral fellows from four engineering departments: NERS, Aerospace, Mechanical Engineering, and Materials Science and Engineering. MCASL faculty are involved in development of advanced computational methods for analysis of coupled nuclear reactor phenomena including neutron transport, thermal/hydraulics, materials performance, and validation of these methods against experimental data.

Website: <https://ners.engin.umich.edu/research/labs/fission-radiation/>

**Metastable Materials Laboratory:** In the Metastable Materials Laboratory, phase transformations and mechanical behavior of nanocrystalline and amorphous materials are studied. The lab is equipped with facilities for x-ray diffraction, calorimetry, mechanical alloying, and annealing in high-purity atmosphere. Website: <https://ners.engin.umich.edu/research/labs/materials/>



**Michigan Center for Materials Characterization [(MC)<sup>2</sup>-MSE]:** (MC)<sup>2</sup> supports a diverse multi-disciplinary user-base of more than 450 users from various colleges and department across the UM campus, more than 100 internal research groups, and 20 non-academic companies. The mission of (MC)<sup>2</sup> is to provide cost effective, efficient, safe, and socially responsible access to advanced characterization equipment and expertise thereby promoting, enabling, and encouraging cutting-edge education, research, and business development. Website: <https://mc2.engin.umich.edu/>

**Michigan Ion Beam Laboratory (MIBL):** The Michigan Ion Beam Laboratory for Surface Modification and Analysis (MIBL) was completed in October of 1986, and extensively renovated and expanded in 2015. The laboratory was established for the purpose of advancing our understanding of ion-solid interactions by providing up-to-date equipment with unique and extensive facilities to support research at the cutting edge of science. Researchers from the University of Michigan as well as industry and other universities are encouraged to participate in this effort. MIBL is houses 3 accelerators, 9 beam lines and 5 end stations in addition to a transmission electron microscope for conducting in situ irradiations in the TEM. MIBL is a fully, digitally controlled laboratory providing unparalleled capabilities and control for radiation damage studies. Website: <https://mibl.engin.umich.edu/>

**Neutron Science Laboratory.** The Neutron Science Laboratory (NSL) is dedicated to advancing the fundamental understanding and applications of neutrons science, particularly the development of radiation detection materials, devices, and systems. This laboratory is also an important educational resource, providing hands-on measurement experience to NERS students. The laboratory is equipped with DD and DT neutron generators, a Cf-252 neutron source, and a variety of standard and advanced radiation detectors and nuclear electronics. The neutron sources are also available for researchers in NERS and elsewhere within the university who require a neutron radiation field for the conduct of their research. Website: <https://ansg.engin.umich.edu/facilities/neutron-science-laboratory/>

**Plasma, Pulsed Power and Microwave Lab:** The purpose of this lab is to investigate the fundamental physics and technologies associated with pulsed-power-driven plasmas and electron beams. Focus areas include experimental and theoretical plasma physics, high-energy-density physics, nuclear fusion (magneto-inertial fusion, inertial confinement fusion, and fusion energy), pulsed-power technology development (including linear transformer drivers), magnetically driven implosions (fast z-pinches), advanced diagnostic instrumentation (plasma imaging techniques, plasma spectroscopy, electric and magnetic field measurements), laboratory astrophysics, and radiation source development (x-rays, neutrons, and high-power microwaves). Numerous state-of-the-art high-power accelerators, lasers, high-power microwave sources, diagnostic instruments, and simulation codes are utilized in this research. Website: <http://www-ners.engin.umich.edu/labs/plasma/>

**Plasma Science and Technology Laboratory:** The Plasma Science and Technology Laboratory's focus is on understanding basic plasma science phenomena and applying plasma science concepts to real world problems. The lab has four major thrust areas: plasma space propulsion, environmental hazards mitigation, plasma processing, and plasma-materials interactions as related to fusion. Particular attention is paid to those applications that protect the environment and those that improve the quality of life in underdeveloped countries. Website: <http://www-ners.engin.umich.edu/lab/pstlab/>

**Radiation Effects and Nanomaterials Lab:** The Radiation Effects and Nanomaterials Laboratory is for the preparation and analysis of materials for the study of radiation effects and nanoscience/technology. The laboratory facilities include: a Regarku Miniflex x-ray diffractometer (XRD), a high temperature furnace, a Gatan precision ion polishing (PIPS) workstation, an ultramicrotomy workstation, a carbon coater, and other standard equipment for TEM sample preparation.

**Radiation Imaging Laboratory:** The Radiation Imaging Laboratory's goal is to develop high- energy gamma ray imaging systems for industrial, space, homeland security, and medical applications. The laboratory explores the fundamental properties of nuclear radiation detectors, develops novel pulse processing electronics, simulates builds and tests unique radiation measurement systems, and explores new ideas in radiation image formation and reconstruction.

Website: <http://www-ners.engin.umich.edu/labs/radmeas/>

**Radiological Health Engineering Laboratory:** The Radiological Health Engineering (RHE) Laboratory includes equipment and space for the development and testing of new instruments and systems for application to specific radiological health problems. Work is concentrated on practical systems and radiation measurements methods deployable within the immediate future. Work is conducted in novel detector and dosimeter design, as well as improvements in measurement methods for medical, industrial, laboratory and nuclear power radiation safety applications.

Website: <https://rhelab.engin.umich.edu/>

**Thermal Hydraulics Laboratory (THL):** This laboratory focuses on investigating fluid flow, heat transfer, and mass transfer phenomena that are relevant to the performance and safety of a variety of nuclear reactor designs, including light water reactors and advanced non-LWR reactors. Studies of both single-phase and two-phase flows are conducted to advance our knowledge and modeling capabilities.

Website: <https://thl.engin.umich.edu>

## UNIVERSITY OF MISSOURI, COLUMBIA

Nuclear Science and Engineering Institute

E2433 Lafferre Hall

Columbia, Missouri 65211

573-882-8201

FAX: 573-884-4801

Administrative Contact: Mark Prelas

573-882-9691

prelasm@missouri.edu

Website: <http://nsei.missouri.edu/>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	15	*	0	0	*
PhD	11	*	4	4	*

Graduate Student Enrollment: # Masters/# Ph.D.

ABET Accreditation: MS and PhD degree in Medical Physics

### Distance Education Program

Offers Nuclear Engineering Courses Online

[http://mudirect.missouri.edu/degprog/specialized/\\_homeland.shtm](http://mudirect.missouri.edu/degprog/specialized/_homeland.shtm)

### Nuclear Science and Engineering Faculty

**Mark A. Prelas**, Professor and Director of Research (573-882-9691) [prelasm@missouri.edu] Ph.D., University of Illinois Urbana Champaign, 1979. Radiation damage; diamond and related materials; direct energy conversion; radiation detection; molecular sensors; directed energy; nonproliferation; risk management. Professional Engineer. Website: <http://prelas.nuclear.missouri.edu/>

**Tushar Ghosh**, Director of Graduate Studies and Professor (573-882-9736) [GhoshT@missouri.edu] Ph.D., Oklahoma State University 1989. High temperature adsorption of fission products, Diffusion of fission products in graphite—experimental and theoretical investigation, adsorption phenomena in biochemical systems, kinetics and reaction mechanisms of catalytic reactions, nuclear waste treatment.

**Sudarshan K. Loyalka**, Curators' Professor, Professor, and Director of Particulate Systems Research Center (573-882-8201) [LoyalkaS@missouri.edu] Ph.D., Stanford University, 1967. Kinetic theory of gases, Diffusion of fission products in graphite, neutron transport, mechanics of aerosols, physics and thermal hydraulics of nuclear reactors, reactor safety analysis.

**Robert V. Thompson**, Professor (573-882-2881); [TompsonR@missouri.edu]; Ph.D., University of Missouri, 1988. Kinetic theory of gases, experimental and theoretical aerosol mechanics, neutron transport theory, nuclear reactor physics and safety, lasers and laser applications, materials.

## **Other Faculty**

**William H. Miller**, Professor and Director of Energy Systems and Resources Program, Emeritus (573-882-9692) [MillerW@missouri.edu] Ph.D., University of Missouri, 1976. Detectors and digital instrumentation, radiation-based analytical techniques, proton recoil neutron spectrometers, energy systems, public information.

## **Nuclear Engineering Research Centers**

**Particulate Systems Research Center:** Aerosol mechanics, dynamics, interactions; Particulate production; nuclear safety, very high temperature reactor fuels.

# MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

Nuclear Engineering  
222 Fulton Hall, 301 W 14th St.  
Rolla, MO 65409  
573-341-4720  
FAX: 573-341-6309  
Administrative Contact: Dawn Davis  
573-341-4720  
dawnd@mst.edu  
Website: <http://nuclear.mst.edu>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	40	34	38	32	35
Masters	20	6	9	3	2
PhD	5	5	3	4	6

Graduate Student Enrollment: 12 Masters/ 20 Ph.D.  
ABET Accreditation: BS Nuclear Engineering

## **Nuclear Science and Engineering Faculty**

**Ayodeji B. Alajo**, Associate Professor and Interim Program Chair (573-341-6609) [alajoa@mst.edu] Ph.D., Texas A&M University, 2010. Nuclear systems design and modeling; Advanced fuel cycles; Nuclear waste minimization; Nuclear forensics. Website: <https://nuclear.mst.edu/facultystaffandfacilities/alajo/>

**Muthanna H. Al-Dahhan**, Professor (573-341-7518) [aldahhanm@mst.edu] Ph.D., Washington University in St. Louis, 1993. Advanced process measurement and monitoring techniques; Radiometric techniques and applications of radioisotopes and nuclear technology in industrial process imaging and visualization; 4th generation nuclear energy and related topics; Multiphase reaction engineering, reactors and processes via advanced measurement, modeling and computational techniques; modeling of transport (momentum, mass, heat) – kinetic interactions; energy efficient and environmentally responsible design, scale-up and performance of multiphase reactors and flow systems; sustainable development via advancing the knowledge and investigating various multiphase processes related to sustainable energy and environment, production of clean energy, bio-energy, fuels, chemicals, and petrochemicals, petroleum processes, biomass and coal conversion and their clean utilization, wastes treatment, animal and farm wastes treatment via anaerobic digestion, environmentally responsible and risk free proliferation nuclear energy.

**Carlos H. Castano**, Associate Professor (573-341-6766) [castanoc@mst.edu] Ph.D., Nuclear Engineering, University of Illinois at Urbana Champaign, 2007. Nano particles with radiation, simulation nuclear systems, Nuclear Materials, Vacuum breakdown.  
Website: <https://nuclear.mst.edu/facultystaffandfacilities/castano/>

**Joseph T. Graham**, Assistant Professor (573-341-7759) [grahamjose@mst.edu] Ph.D., The University of Texas at Austin, 2013. Radiation effects; Radiation-solids interactions; Nuclear Materials; Nuclear Ceramics. Website: <https://nuclear.mst.edu/facultystaffandfacilities/graham/>

**Xin Liu**, Professor (573-341-4693) [xinliu@mst.edu] Ph.D., University of Wisconsin-Madison, 2003. Radiation Detection and Spectroscopy; Radiation Imaging; Nuclear Medicine; Monte Carlo Simulation; Nuclear Well-Logging. Website: <http://web.mst.edu/~xinliu>

**Gary E. Mueller**, Associate Professor (573-341-4348) [gmueller@mst.edu] Ph.D., University of Missouri, Rolla, 1980. Packed Bed Particle Characterization; Analytical Fluid Flow; Sub-Atomic Particle Interaction; Professional Engineer. Website: <https://nuclear.mst.edu/facultystaffandfacilities/mueller/>

**Joshua P. Schlegel**, Assistant Professor (573-341-7703) [schlegelj@mst.edu] Ph.D. Purdue University, 2012. Two-phase flow experiments and modeling, nuclear reactor thermalhydraulics, heat transfer, fluid mechanics. Website: <http://people.mst.edu/faculty/schlegelj/>

**Joseph Smith**, Professor & Laufer Endowed Chair in Energy (573-341-4294) [smithjoseph@mst.edu] Ph.D., Brigham Young University, 1990. Research focuses includes developing resilient hybrid energy systems with fossil, nuclear and renewable energy. Develops and applies multi-physics computational tools to analyze turbulent flow inside Small Modular Nuclear Reactors and to analyze dynamic behavior in large processing facilities including Foundries and Aluminum Smelters. Website: <http://chemeng.mst.edu/facultystaffandfacilities/pagejosephsmith/>

**Shoaib Usman**, Associate Professor (573-341-4745) [usmans@mst.edu] Ph.D., University of Cincinnati, 1997. Thermo-fluids; natural convection and passive safety; radiation detection; nuclear fuel cycle. Website: <https://nuclear.mst.edu/facultystaffandfacilities/usman/>

**Haiming Wen**, Assistant Professor (573-341-6167) [wenha@mst.edu] Ph.D., University of California-Davis, 2012. Nuclear materials. Website: <http://people.mst.edu/faculty/wenha/index.html>

### **Other Faculty**

**Syed Alam**, Assistant Teaching Professor (573-341-4881) [sbagqm@mst.edu] Ph.D., University of Cambridge, 2018. Radiation transport methods for reactor physics analysis; Design of advanced reactor core; Multiphysics for thermal-hydraulics coupling; Uncertainty quantification; Health physics. Website: <https://nuclear.mst.edu/facultystaffandfacilities/alam/>

**Mohammed S. Aljohani**, Adjunct Professor [mjohani@kau.edu.sa] Ph.D., Georgia Tech, 1996. Nuclear desalination; Thermal and membrane desalination; Renewable energy; Nuclear and non-nuclear tomography techniques; Radiation detection and measurement.

**Mariesa Crow**, F. Finley Distinguished Professor (573-341-6305) [crow@mst.edu] Ph.D., U. Illinois, 1989. Electric power engineering; microgrids. Professional Engineer.

**Delbert E. Day**, Curators Professor Emeritus (573-341-4354) [day@mst.edu] Ph.D., Pennsylvania State University, 1961. Vitrification of nuclear waste; microspheres for radioembolization of tumors; radiotherapy; glasses for brachytherapy. Professional Engineer.

**Arvind S. Kumar**, Professor Emeritus (573-341-4747) [kumar@mst.edu] Ph.D., University of California-Berkeley, 1977. Nuclear materials, radiation effects, mechanical properties, nuclear plant life extension. Website: <http://nuclear.mst.edu/facultystaffandfacilities/kumar/>

**Tod Moser**, Adjunct Professor (573-823-9253) [tmoser@ameren.com] MSNE, University of Missouri – Columbia, 1992. Professional Engineer.

### **Nuclear Science and Engineering Research Centers**

**The Nuclear Reactor:** The Missouri S&T Nuclear Reactor is a Nuclear Regulatory Commission (NRC) licensed 200 kilowatt pool-type reactor that is used to support the engineering and science activities on campus. Using the facility, the reactor staff provides hands-on laboratory, research and development, and project opportunities. The reactor uses uranium fuel and is cooled by either natural convection or a forced cooling system in a pool containing approximately 30,000 gallons of water. The open pool design allows access to the reactor core where experiments and samples to be irradiated can be positioned. The facility is equipped with a pneumatics sample irradiation system, a neutron beam port that provides a collimated neutron beam, a thermal column, and an internet accessible hot cell. The reactor is open to the greater campus community and offers an active (operations) licensure program for interested students and others.

**Radiation Measurements and Spectroscopy Laboratory (RMSL):** The Nuclear Engineering RMSL is equipped with NIM standard electronic units, neutron and gamma scintillation detectors, solid-state detectors, coincidence electronics, and multi-channel analyzers connected to PCs for automated data analysis. The laboratory also includes two portable EG&G HPGe detectors, a Canberra Thermoluminescent dosimeter with state-of-the-art electronics and software, and a Lynx digital data analysis system for remote web-based experimental capacity.

**Graduate Center for Materials Research:** The facilities of the Graduate Center for Materials Research, and metallurgical engineering and nuclear engineering departments are available for nuclear materials-related research. The Nuclear Materials Lab allows for use of instruments such as a scanning electron microscope, a 300 keV EM-430 Phillips transmission electron microscope, an atomic absorption spectrometer, and a quadrupole mass spectrometer.

**Internet-Accessible Hot Cell Facility:** A dual-chambered internet-accessible heavily shielded facility with pneumatic access to the 200 kW Research Nuclear Reactor (MSTR) allows authorized distance users to remotely manipulate and analyze neutron irradiated samples. The system consists of two shielded compartments, one for multiple sample storage, and the other dedicated exclusively for radiation

measurements and spectroscopy. The second chamber has multiple detector ports, with graded shielding, and has the capability to support gamma spectroscopy using radiation detectors such as a HPGe detector. Both these chambers are connected through a rapid pneumatic system with access to the MSTR nuclear reactor core. The total transportation time between the core and the hot cell is less than 3.0 second.

**Advanced Radiography and Tomography Lab (ARTLAB):** The Nuclear Engineering ARTLAB is designed to perform radiation imaging for medical or industrial purpose. Students have opportunities of running Monte Carlo simulation codes for radiation imaging systems and experimenting with digital x-ray radiography, x-ray computed tomography (CT), neutron radiography, neutron CT, etc. The technologies developed in the lab can be applied to either medical imaging or non-destructive inspection of various materials or objects including nuclear fuel rods and plates. On-going researches include flat-panel x-ray source for imaging, neutron and x-ray combined CT, and digital image processing.

**Neutron Generator Laboratory:** The neutron generator laboratory has a D-D neutron generator that produces approximately  $10^9$  neutrons/sec. The neutron generator is available for both graduate and undergraduate research and education at Missouri S&T. Examples of research using the neutron generator are reactor kinetics research, the study of two-phase flow, research in nuclear forensics and radiochemistry, particle tracking in complex flows, and the photon-neutron tomography for mechanical testing of structural materials.



## US NAVAL ACADEMY

Mechanical Engineering  
590 Holloway Road  
Annapolis, Maryland 21402  
410-293-6500  
FAX: 410-293-3041  
Administrative Contact: Mark Murray  
410-293-6451  
mmmurray@usna.edu

	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	29	31	23

ABET Accreditation: Nuclear Engineering

### Nuclear Science and Engineering Faculty

**Mark Murray**, Professor and Nuclear Engineering Program Director (410-293-6451) [mmmurray@usna.edu] Ph.D., Duke University, 2000. Reactor plant operations, dosimetry, radiation detection, heat transfer and fluid flow. Professional Engineer.

**Brad Baker**, Assistant Professor (410-293-6511) [bbaker@usna.edu] Ph.D., Naval Postgraduate School, 2013. Nuclear materials; Additive Manufacturing; Joining methods.

**Stuart Blair**, Assistant Professor (410-293-6502) [sblair@usna.edu] Ph.D., Naval; Post Graduate School, 2012. Computational fluid dynamics; Fluid-structure interactions; Nuclear reactor plant design; Thermal-hydraulics.

**Elizabeth Getto**, Assistant Professor (410-293-6506) [getto@usna.edu] Ph.D., University of Michigan, 2016. Nuclear materials; Ion irradiation effects in materials; Reactor structural materials.

**Stephen McHale**, Assistant Professor (410-293-6495) [mchale@usna.edu] Ph.D., Air Force Institute of Technology, 2011. Radiation transport and shielding; Nuclear weapons effects; Neutron imaging and activation analysis.

**Marshall G. Millett**, Assistant Professor [mmillett@usna.edu] Ph.D., University of Maryland, 1997. Radiation transport and detection modeling, detector use in homeland security. Professional Engineer.

## **Other Faculty**

**Travis Chapman**, Senior Instructor (410-293-6530)[tchapman@usna.edu] M.E. Nuclear Engineering, University of Maryland, 2016. Reactor plant operations; waste monitoring; regulatory implementation; thermal-hydraulics.

**Martin E. Nelson**, Professor Emeritus (410-293-6427) [nelson@usna.edu] Ph.D., University of Virginia, 1972. Dosimetry, radiation detection and measurement, radiation effects on microelectronics, radiation transport. Professional Engineer.

## UNIVERSITY OF NEVADA, LAS VEGAS

Department of Mechanical Engineering  
4505 South Maryland Parkway, Box 4027  
Las Vegas, NV 89154-4027  
(702) 895-1331  
FAX: (702) 895-4569  
Administrative Contact: Joan Conway  
(720) 895-3426  
joan.conway@unlv.edu  
Website: me.unlv.edu

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	2	2	0	1	1
PhD	1	1	4	1	1

Graduate Student Enrollment: 4 Masters/ 8 Ph.D.

### **Nuclear Science and Engineering Faculty**

**Alexander Barzilov**, Associate Professor (702-895-4325) [alexander.barzilov@unlv.edu] Ph.D., Institute for Physics and Power Engineering. Nuclear engineering, radiation applications, nondestructive assay methods. Website: <http://www.unlv.edu/people/alexander.barzilov>

**William G. Culbreth**, Associate Professor (702-895-3426) [William.Culbreth@unlv.edu] Ph.D., University of California, Santa Barbara, 1981. Molten Salt Technology for Energy Storage; Spent Nuclear Fuel Storage, Pulsed Reactor Design. Website: <https://www.unlv.edu/me>

**Thomas Hartmann**, Associate Professor (702-895-1934) [thomas.hartmann@unlv.edu] Ph.D., University Heidelberg / Karlsruhe Institute of Technology (Germany). Nuclear waste forms; advanced nuclear fuels; x-ray crystallography; solid phase analysis. Website: <https://www.unlv.edu/me>

## **UNIVERSITY OF NEW BRUNSWICK**

Mechanical Engineering

P.O. Box 4400

Fredericton, NB E3B 5A3

506-447-3105

FAX: 506 -453-5025

Administrative Contact: Esam Hussein

506-447-3105

hussein@unb.ca

Website: <http://www.unb.ca/fredericton/engineering/depts/mechanical/>

Graduate Student Enrollment: 2 Masters/1 Ph.D.

ABET Accreditation BScE

### **Nuclear Science and Engineering Faculty**

**Esam MA Hussein**, Professor & Associate Dean (506-447-3105) [hussein@unb.ca]

PhD, McMaster University, 1983. Nuclear Methods for Nondestructive Testing & Imaging, Inverse Problems and Monte Carlo Methods. Professional Engineer.

Website: <http://www.unb.ca/fredericton/engineering/depts/mechanical/people/hussein.html/>

### **Nuclear Science and Engineering Research Centers**

**Laboratory for Threat Material Detection:** using atomic/nuclear radiation to detect and characterize concealed objects.

## UNIVERSITY OF NEW MEXICO

Department of Nuclear Engineering  
MSC01 1120, 1 University of New Mexico  
Albuquerque, NM 87131-0001  
505-277-5431  
FAX: 505-277-5433  
Administrative Contact: Elaine Finke  
505-277-2692  
efinke01@unm.edu  
Website: ne.unm.edu

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	16	16	13	16	*
Masters	12	10	4	7	*
PhD	5	1	6	6	*

Graduate Student Enrollment: # Masters/ # Ph.D.  
ABET Accreditation: BS in ChE and BS in NE

### Distance Education Program

Offers Nuclear Engineering Courses Online  
ne.unm.edu

### Nuclear Science and Engineering Faculty

**Hyoung Koo Lee**, Professor and Chair (505-277-0686) [leehk@unm.edu] Ph.D., University of California-Berkeley, 1995. Radiation Imaging; Radiation Detection; Nondestructive Evaluation.  
Website: <https://ne.unm.edu/faculty-staff/faculty-profiles/hyoung-k.-lee.html>

**Osman Anderoglu**, Assistant Professor (505-277-0667) [oanderoglu@unm.edu] Ph.D., Texas A&M University, 2010. Advanced Nuclear Materials Development, Characterization and Manufacturing.  
Website: <http://ne.unm.edu/faculty-staff/faculty-profiles/osman-anderoglu.html>

**Cassiano R. E. de Oliveira**, Professor (505-277-5661) [cassiano@unm.edu] Ph.D., University of London, 1987. Computational nuclear science; deterministic and stochastic radiation transport; reactor physics methods; nuclear criticality safety; radiation shielding and dosimetry; high performance computing; advanced numerical discretization methods; data assimilation and optimization methods.  
Website: <http://www-chne.unm.edu/faculty/oliveira/oliveira.htm>

**Mohamed S. El-Genk**, Regents' Professor, Chemical, Nuclear and Mechanical Engineering (505-277-5442) [mgenk@unm.edu] Ph.D. Nuclear reactors neutronics analysis, design, thermal-hydraulics and safety; nuclear fuel and fuel cycle; energy conversion; space nuclear power and propulsion; radiation shielding of space energetic particles; thermal management and energy storage; heat pipes; CFD analysis of advanced

reactors and complex systems; boiling heat transfer and two-phase flow; advanced cooling of electronics; and fluid flow and heat transfer in micro-systems.

**Adam A. Hecht**, Associate Professor (505-277-1654) [hecht@unm.edu] Ph.D., Yale University, 2004. Radiation detection and measurement with work in nuclear nonproliferation; experimental work in array detection techniques to extract further radioactive source information; calculational work expanding Monte Carlo simulations to fission for use in active interrogation radiation detection; deasurement work on fission output for a range of interrogation beams; investigating properties of novel materials for radiation detection and spectroscopy. Website: [www.unm.edu/~hecht](http://www.unm.edu/~hecht)

**Christopher M Perfetti**, Assistant Professor (505-277-1945) [cperfetti@unm.edu] Ph.D., University of Michigan, 2012. Sensitivity and Uncertainty Analysis; Radiation Transport and Computational Methods Development; Monte Carlo Methods; Criticality Safety; Reactor Physics and Advanced Reactor Design; Radioisotope Production; Radiation Shielding; Nuclear Data Evaluation and Integral Experiment Design.

**Anil K. Prinja**, Professor (505-277-4600) [ko] Ph.D., Queen Mary College, University of London, U.K., 1980. Stochastic theory of neutron populations; theory and modeling of high-energy charged particle transport; stochastic uncertainty quantification techniques for radiation transport. Website: [www.chne.unm.edu](http://www.chne.unm.edu)

### **Other Faculty**

**Robert D Busch**, Principal Lecturer (505-277-8027) [busch@unm.edu] Ph.D., University of New Mexico, 1976. Nuclear criticality safety; reactor physics measurements; laboratory educational techniques. Professional Engineer.

**Gary W. Cooper**, Research and Associate Professor Emeritus (505-277-2557) [garywc@unm.edu] Ph.D., University of Illinois, 1976. Neutron diagnostics of fusion plasmas. Website: [www-chne.unm.edu](http://www-chne.unm.edu)

### **Nuclear Science and Engineering Research Centers**

**AGN Reactor**, Small sample reactivity measurements and rossi-alpha measurements.

**Center for Nuclear Nonproliferation Science and Technology**: Interdisciplinary center promoting class and lab coursework and laboratory research.

**Nuclear nonproliferation research laboratory**: For work on radiation detection materials and techniques, with capabilities in multichannel digital data acquisition, high vacuum and controlled gas environments.

## NORTH CAROLINA STATE UNIVERSITY

Department of Nuclear Engineering

2500 Stinson Dr.

Raleigh, NC 27695

919.515.1464

FAX: 919.515.5115

Administrative Contact: Kostadin Ivanov

919.515.1466

knivanov@ncsu.edu

Website: <http://www.ne.ncsu.edu/>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	43	23	39	30	32
Masters	12	12	13	8	16
PhD	3	11	9	10	18

Graduate Student Enrollment: 22 Masters/ 85 Ph.D.

ABET Accreditation: BS

### Distance Education Program

Offers Nuclear Engineering Courses and Degrees Online  
[http://engineeringonline.ncsu.edu/PS/grad\\_degrees.html](http://engineeringonline.ncsu.edu/PS/grad_degrees.html)

### Nuclear Science and Engineering Faculty

**Kostadin Ivanov**, Professor and Head (919-515-1466) [knivanov@ncsu.edu] Ph.D., Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences, 1990. Reactor physics; methods in static and dynamic analysis; nuclear power plant modeling; fuel management; verification and validation of multi-physics simulations and uncertainty quantification. Professional Engineer.

Website: <https://www.ne.ncsu.edu/people/knivanov>

**Dmitriy Y. Anistratov**, Professor (919-513-4353) [anistratov@ncsu.edu] Ph.D., Mathematical and Physical Sciences Institute for Mathematical Modeling, Russian Academy of Sciences, 1993. Computational physics, transport theory, numerical analysis.

Website: <https://www.ne.ncsu.edu/people/dyanistr>

**Maria Avramova**, Associate Professor and Director of CNP (919-513-6354) [mnavramo@ncsu.edu] Ph.D., Pennsylvania State University, 2007. Reactor thermal-hydraulics; core design; transient and safety analysis; multi-physics multi-scale simulations; verification and validation; uncertainty and sensitivity analysis.

Website: <https://www.ne.ncsu.edu/people/mnavramo>

**Yousry Y. Azmy**, Duke Energy Distinguished Professor of Nuclear Engineering, Director of CNEC and NCSU NUC University Lead (919-515-3385) [yyazmy@ncsu.edu] Ph.D., University of Illinois, Urbana-Champaign, 1985. Nuclear computational Science, computational transport theory, multiprocessing.  
Website: <https://www.ne.ncsu.edu/people/yyazmy>

**Alexander William Bataller**, Assistant Professor (919-515-3612) [awbatall@ncsu.edu] Ph.D., University of California, Los Angeles, 2014. Dense plasmas; ultrafast spectroscopy; molten salts.  
Website: <https://www.ne.ncsu.edu/people/awbatall>

**Benjamin W. Beeler**, Assistant Professor (919-515-3737)[bwbeeler@ncsu.edu] Ph.D., Georgia Institute of Technology, 2013. Computational nuclear materials science; Next generation nuclear fuels; Molten salt systems for nuclear applications; radiation damage and defect evolution; Density functional theory; Molecular dynamics.

**Igor A. Bolotnov**, Associate Professor (518-542-8939) [igor\_bolotnov@ncsu.edu] Ph.D., Rensselaer Polytechnic Institute, 2008. Multiscale approaches for nuclear reactor simulations; development of new spectral cascade transfer multiphase flow. Website: <https://www.ne.ncsu.edu/people/iabolotn/>

**Mohamed A. Bourham**, Alumni Distinguished Graduate Professor of Nuclear Engineering (919-515-7662)[bourham@ncsu.edu] Ph.D., Ain Shams University, Cairo Egypt, 1976. Plasma-matter interaction, plasma diagnostics, plasma-driven launch technology, fusion engineering and technology, plasma dynamics, plasma propulsion and space thrusters, industrial and atmospheric plasmas, physics of low temperature and non-ideal plasmas, physics of beams, particle accelerators and electron beam irradiation systems, atmospheric and industrial plasmas, x-ray sources for medical and screening imaging.  
Website: <https://www.ne.ncsu.edu/people/bourham>

**Mihai A. Diaconeasa**, Assistant Professor (919-515-3768) [madiacon@ncsu.edu] Ph.D., University of California, Los Angeles, 2017. Probabilistic risk assessment; dynamic probabilistic risk assessment; reliability analysis; resilient systems design; probabilistic physics of failure modeling; Bayesian inference.  
Website: <https://www.ne.ncsu.edu/people/madiacon>

**Nam Dinh**, Professor (919-515-5421) [ntdinh@ncsu.edu] Ph.D., Moscow Power Engineering Institute, 1991. Mechanistic modeling and analysis of multi-phase thermal-fluid phenomena of importance to nuclear reactor design and safety. Website: <https://www.ne.ncsu.edu/people/nam-dinh>

**Joseph M. Doster**, Alumni Distinguished Undergraduate Professor of Nuclear Engineering and Director of Undergraduate Programs (919-515-3658) [doster@ncsu.edu] Ph.D., North Carolina State University, 1982. Systems dynamics, systems simulation, Computational methods in two-phase flow, Systems simulation in support of advanced control and diagnostic systems, design and optimization of advanced targetry for the cyclotron production of radiopharmaceuticals. Website: <https://www.ne.ncsu.edu/people/doster>



**Jacob Eapen**, Professor (919-515 5952) [jacob.eapen@ncsu.edu] Sc.D., MIT, 2006. Molecular and multiscale simulations, nuclear materials, radiation interactions with materials, computational material science, thermal and fluid transport. Website: <https://www.ne.ncsu.edu/people/jeapen/>

**John G. Gilligan**, Distinguished University Professor of Nuclear Engineering, Executive Associate Dean of Engineering, and Director of the Nuclear Energy University Programs Integration Office for the US DOE (919-513-7144) [john\_gilligan@ncsu.edu] Ph.D., University of Michigan, 1977. High power density plasma modeling and applications; fission and fusion energy systems; engineering education programs and methods. Website: <https://www.ne.ncsu.edu/people/gilligan>

**Ayman I. Hawari**, Distinguished Professor of Nuclear Engineering, Director of Nuclear Reactor Program (919-515-4598) [ayman.hawari@ncsu.edu] Ph.D., University of Michigan, 1995. Neutron thermalization; slow neutron scattering models and atomistic simulations; nondestructive examination with slow neutron and positron beams; neutron imaging; radiation measurements; nuclear materials assay; research reactors and accelerator-based neutron sources. Website: <https://www.ne.ncsu.edu/people/aihawari>

**Robert Hayes**, Associate Professor (919-515-2321) [rbhayes@ncsu.edu] Ph.D., University of Utah, 1999. Nuclear nonproliferation technologies; radiation detection; air monitoring; luminescence and magnetic resonance; Monte Carlo radiation transport modeling. Professional Engineer. Website: <https://www.ne.ncsu.edu/people/rbhayes>

**Jason Hou**, Assistant Professor and Director of RDFMG (919-513-6705) [jason.hou@ncsu.edu] Ph.D., The Pennsylvania State University, 2013. Multi-physics reactor simulation; Advanced reactors; In-core fuel management; Fuel cycle analysis; Uncertainty analysis; Plant simulator. Website: <https://www.ne.ncsu.edu/people/jasonhou/>

**Djamel Kaoumi**, Associate Professor (919-515-2301) [dkaoumi@ncsu.edu] Ph.D., Penn State, 2007. Metallic Materials degradation in harsh environments; Irradiation damage and effects in advanced alloys for structural and cladding applications; mechanical properties and deformation mechanisms of high-temperature; advanced alloys; characterization techniques of predilection. Website: <https://www.ne.ncsu.edu/people/dkaoumi>

**John K. Mattingly**, Professor and Chief Scientist of CNEC (919-515-0224) [john\_mattingly@ncsu.edu] Ph.D., University of Tennessee, Knoxville, 1998. Research focus on developing active neutron interrogation methods that employed time-correlation signatures using fast organic scintillators. The principal objective was to estimate bulk SNM properties like fissile mass and multiplication to enable monitoring and surveillance of SNM production, use, storage, movement, and disposition activities to help foster transparency in NMC&A, safeguards, arms control, and nonproliferation. Website: <https://www.ne.ncsu.edu/people/jkmattin>

**Korukonda L. Murty**, Progress Energy Distinguished Professor of Nuclear Engineering and Director of Graduate Programs (919-515-3657) [murty@ncsu.edu] Ph.D., Cornell University 1970. Nuclear materials,

radiation effects, mechanical properties, creep, fatigue and fracture mechanics, processing and characterization of nanograin structured metals, NDE, NMR.

Website: <https://www.ne.ncsu.edu/people/murty>

**Scott Palmtag**, Research Professor and Chief Technologist of CASL (919-865-6696) [sppalmta@ncsu.edu] Ph.D., Massachusetts Institute of Technology, 1997. Reactor physics; multiphysics applications; computational methods.

**Steven C. Shannon**, Professor (919-515-3292) [scshannon@ncsu.edu] Ph.D., University of Michigan, 1999. Industrial plasma applications; plasma diagnostics; radiation/material interaction; nanofabrication; compact neutron generators for low fluence applications.

Website: <https://www.ne.ncsu.edu/people/scshanno>

**Katharina Stapelmann**, Assistant Professor (919-515-5987) [kstapel@ncsu.edu] Ph.D., Ruhr University Bochum, Germany, 2013. Low-temperature plasma; plasma medicine; interactions of technical plasmas with biological systems; plasma diagnostics.

**Xu Wu**, Assistant Professor (919-515-6570) [xwu27@ncsu.edu] Ph.D., University of Illinois at Urbana-Champaign, 2017. Calibration, Validation, Data Assimilation, Uncertainty and Sensitivity Analysis; Scientific Machine Learning; Computational Statistics and Reduced Order Modeling.

Website: <https://www.ne.ncsu.edu/people/xwu27>

**Ge Yang**, Assistant Professor (919-515-5267) [gyang9@ncsu.edu] Ph.D., Northwestern Polytechnical University. Novel materials for radiation sensor applications; effects of radiation on electronic, photonic and structural materials; Radiation imaging and measurement.

### **Other Faculty**

**Donald J. Dudziak**, Professor Emeritus (505-667-7983) (505-661-3832) [dudziak@ncsu.edu, dudziak@lanl.gov] Ph.D., University of Pittsburgh, 1963. Transport and Reactor Theory. Professional Engineer.

**Robin P. Gardner**, Professor Emeritus and Director of CEAR (919-515-3378) [gardner@ncsu.edu] Ph.D., The Pennsylvania State University, 1961. Industrial Radiation and Radioisotope Measurement Applications including: Radioisotope Tracers; Radiation Gauges; Radiation Analyzers; Monte Carlo Simulation of Previous Three; and Radiation Detection. Professional Engineer. Website:

<https://www.ne.ncsu.edu/people/gardner>

**David Kropaczek**, Adjunct Professor [dkropac@ncsu.edu] Ph.D., North Carolina State University. Fuel cycle and plant optimization, computational reactor physics and thermal-hydraulics, and numerical algorithm development.

**Lisa Marshall**, Director of Outreach-Instructor-Adviser (919-515-5876) [lisa.marshall@ncsu.edu] Graduate Certificate in GIS. Engineering education, geographic information science, energy studies.

**Michael Simpson**, Adjunct Associate Professor (208-520-1068) Ph.D., Princeton University. Nuclear fuel cycle.

**Matthew Stokely**, Adjunct Associate Professor (919-619-3851) Ph.D., North Carolina State University. Advanced characterization methods.

**Avneet Sood**, Adjunct Assistant Professor (505-667-2119) [sooda@lanl.gov] Ph.D., North Carolina State University, 2000. Monte Carlo methods and code development for radiation transport; Application of radiation transport codes to radiation detection problems.

**Paul J. Turinsky**, Professor Emeritus (919-515-5098) [turinsky@ncsu.edu] Ph.D., University of Michigan, 1970. Computational reactor physics; nuclear fuel management and mathematical optimization; validation and verification of software; uncertainty quantification; data assimilation and optimum experimental design; adaptive model refinement; multiphysics simulation.  
Website: <https://www.ne.ncsu.edu/people/turinsky/>

**Kuruville Verghese**, Professor Emeritus. Ph.D., Iowa State University. Reactor Engineering/Fuel Cycles.

**Monroe Wechsler**, Adjunct Professor (919-515-2301) Ph.D., Columbia University. Nuclear materials, radiation effects.

**Bernard W. Wehring**, Research Professor (retired, University of Texas at Austin) (919 515-4599) [bwwehrin@ncsu.edu] Ph.D., Nuclear Engineering, University of Illinois at Urbana Champaign, 1966. Radiation Science; Neutron and Fission Physics. Website: <https://www.ne.ncsu.edu/people/bwwehrin/>

**Gerald Wicks**, Reactor Health Physicist and Lecturer (919-515-4601) [wicks@ncsu.edu] M.S., University of Lowell, 1983.

### **Nuclear Science and Engineering Research Centers**

**Nuclear Reactor Program** operates the 1MW PULSTAR with the following major experimental facilities: Positron Annihilation Spectroscopy, Ultracold neutron source, neutron diffractometer, neutron imaging.  
Director: Ayman I. Hawari

### **Consortium for Advanced Simulation of LWRs Modeling & Simulation Hub**

Chief Technologist: Scott Palmtag

Director of Education Program: J. Michael Doster

Website: [www.casl.gov](http://www.casl.gov)

**Consortium for Engineering Applications of Radioisotopes (CEAR)**

Director: Robin Gardner

Website: [www.cearonline.com](http://www.cearonline.com)

**Consortium for Nonproliferation Enabling Capabilities (CNEC)**

Director: Yousry Azmy

Chief Scientist John Mattingly

Website: [www.cnec.ncsu.edu](http://www.cnec.ncsu.edu)

**Consortium for Nuclear Power (CNP)**

Director: Maria Avramova

Website: <https://www.ne.ncsu.edu/wp-content/uploads/2017/06/CNP-Flyer.pdf>

**Reactor Dynamics and Fuel Modeling Group (RDFMG)**

Director: Jason Hou

Associate Director: Maria Avramova

Website: [www.ne.ncsu.edu/rdfmg](http://www.ne.ncsu.edu/rdfmg)

## OHIO STATE UNIVERSITY

Nuclear Engineering Graduate Program  
201 West 19th Avenue  
Columbus, OH 43210  
Administrative Contact: Joanne Holland  
614-292-3204  
holland.129@osu.edu  
Website: <http://mae.osu.edu/nuclear>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	7	10	11	7	6
PhD	5	4	7	3	4

Graduate Student Enrollment: 3 Masters/ 22 Ph.D.  
ABET Accreditation: B.Sc. in Engineering with Nuclear Minor

### Nuclear Science and Engineering Faculty

**Lei (Raymond) Cao**, Professor and Director of Nuclear Engineering Program (614-247-8701) [Cao.152@osu.edu] Ph.D., The University of Texas at Austin, 2007. Instrumentation and Sensors; In-pile Instrumentation; Radiation Detection; Neutron Radiography/Tomography; PGNA, NDP, Radiation Effects on Electronics. Website: <https://nars.osu.edu/>

**Tunc Aldemir**, Professor (614-292-4627) [aldemir.1@osu.edu] Ph.D., University of Illinois, 1978. Dynamic system reliability; probabilistic risk assessment. Website: <https://mae.osu.edu/people/aldemir.1>

**Marat Khafizov**, Assistant Professor (614-292-2544) [Khafizov.1@osu.edu] Ph.D., University of Rochester, 2008. Radiation effects on physical properties of materials, nuclear fuel and ceramics, thermal transport, in-pile sensors, optical spectroscopy and ultrasonics. Website: <https://mae.osu.edu/people/khafizov.1>

**Vaibhav Sinha**, Assistant Professor of Practice (614-292-3571) [sinha.181@osu.edu] Ph.D., University of Missouri, Rolla, 2013. Radiation Imaging (Gamma, X-ray and Neutron Imaging); Radiation Detection, Measurement and Instrumentation; Radiation Protection and Dosimetry; Radioisotope Technology; Nuclear Power and Thermal Hydraulics; Reactor Physics and Techniques. Website: <https://mae.osu.edu/people/sinha.181>

**Carol S. Smidts**, Professor (614-292-6727) [smidts.1@osu.edu] Ph.D., Universite Libre de Bruxelles, Belgium, 1991. Reliability Engineering; Probabilistic Risk Assessment; Software Reliability; Software Safety; Dynamic Risk Assessment; Human Reliability; Digital Systems Risk and Reliability. Website: <https://mae.osu.edu/people/smidts.1>

**Richard Vasques**, Assistant Professor (510-340-0930) [vasques.4@osu.edu] Ph.D., University of Michigan, 2009. Particle transport; radiative transfer; mathematical and computational modeling of transport phenomena; reactor theory; acceleration schemes; diffusion theory.  
Website: <https://mae.osu.edu/people/vasques.4>

**Dean Wang**, Associate Professor (614-292-1337) [wang.12239@osu.edu] Ph.D., Massachusetts Institute of Technology, 2003. Mathematical and computational methods; Nuclear reactor design, modeling and simulation; Nuclear reactor systems and safety. Website: <https://ncg.engineering.osu.edu>

### **Other Faculty**

**Thomas E. Blue**, Professor Emeritus (614-292-0629) [blue.1@osu.edu] Ph.D., University of Michigan, 1978. Space nuclear systems; advanced nuclear reactor instrumentation, including semiconductor sensors, static and dynamic characterization of radiation-induced degradation of semiconductor power devices; fiber-optics. Website: <https://mae.osu.edu/people/blue.1>

**Steven J. Maheras**, Lecturer (614-486-5350) [Maheras.1@osu.edu] Ph.D., Colorado State University, 1988. Health physics; radioactive waste management; decontamination and decommissioning; transportation risk assessment; radiological and nuclear terrorism; and radiation dose reconstruction.

### **Nuclear Science and Engineering Research Centers**

#### **The Ohio State University Nuclear Reactor Laboratory (OSUNRL)**

The OSUNRL is a major asset of the OSU NE Program. The OSUNRL houses the OSURR a 500-kW pool type reactor, a Co-60 high-dose rate irradiation facility, and a sub-critical assembly.  
Website: <http://reactor.osu.edu/>

#### **Laboratories:**

Academic Center of Excellence (ACE) in Instrumentation, Control and Safety Structure

OSU Director: C. Smidts

OSU Co-Director: T. Aldemir

Website: <https://rrl.osu.edu/>

## ONTARIO TECH UNIVERSITY

FACULTY OF ENERGY SYSTEMS AND NUCLEAR SCIENCE

2000 Simcoe Street North

Oshawa, Ontario, Canada, L1H 7K4

905.721.8668 X5482

FAX: 905.721.3046

Administrative Contact: Akira Tokuhiro

Akira.Tokuhiro@ontariotechu.ca

Administrative Contact: Michelle Cholak

michelle.cholak@ontariotechu.ca

Website: <http://nuclear.ontariotechu.ca>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	50	61	63	70	64
Masters	10	11	15	6	8
PhD	3	1	2	1	3

Graduate Student Enrollment: 60 Masters/ 22 Ph.D.

### **Nuclear Science and Engineering Faculty**

**Akira Tokuhiro**, Dean and Professor of Nuclear Science (905-721-8668 x5511)

[Akira.Tokuhiro@ontariotechu.ca] Ph.D., Purdue University. Small to large nuclear reactor design, thermal-hydraulics, safety and accident analyses. Experimental and computational methods and data analyses. Instrumentation in heat transfer

**Kirk Atkinson**, Associate Professor (905-721-8668 x5501), (kirk.atkinson@ontariotechu.ca) Ph.D in Physics, King's College London, UK. An applied radiation physicist with experience in radiation science, reactor physics, radiation transport, shielding, detector physics, radiation imaging and computational methods.

**George Bereznai**, Professor of Nuclear Engineering. (905-721-8668 x5495)

[George.Bereznai@ontariotechu.ca] Ph.D., McMaster University. Computer Control of Nuclear Power Plants, Real-time simulation, Educational technology.

**Hossam A. Gaber**, Professor of Nuclear Engineering (905-721-8668

x5497)[hossam.gaber@ontariotechu.ca] Ph.D., Okayama University. Plasma Generation and Control for Nuclear Fusion, Safety and Control Systems for Nuclear Power Plants and SMR, Operation Design, Emergency Shutdown/Disaster Management Systems, Fault Diagnosis and Condition Monitoring, Risk Assessment and Management, and Smart Energy Grid Engineering.

**Glenn Harvel**, Professor of Nuclear Engineering (905-721-8668 x5508)[Glenn.Harvel@ontariotechu.ca] Ph.D., McMaster University. Small Nuclear Reactors, Nuclear plant ageing and design, decommissioning, multiphase flow, instrumentation for multiphase flow, neutron radiography.

**Daniel Hoornweg**, Associate Professor and Richard Marceau Chair of Energy Systems (905-721-8668 x5560) [daniel.hoornweg@ontariotechu.ca] Ph.D., University of Toronto. Energy and material flows of cities, urban systems, sustainability, smart cities, renewable energy, waste management, integrated energy and transportation systems.

**Brian Ikeda**, Associate Professor of Nuclear Engineering (905-721-8668 x5523) [Brian.Ikeda@ontariotechu.ca] Ph.D., University of Newcastle upon Tyne. Corrosion of materials in molten fluoride salts, electrochemical and physical behavior of fluorine generating anodes, corrosion of nuclear waste container materials, stress assisted corrosion cracking of metals, radioactive waste management, localized corrosion, elevated temperature corrosion.

**Matthew Kaye**, Associate Professor of Nuclear Engineering (905-721-8668 x5524) [Matthew.Kaye@ontariotechu.ca] Ph.D., Queen's University. Nuclear materials, high temperature materials chemistry, phase diagram development, nuclear fuel behavior, aqueous chemistry of nuclear materials and corrosion.

**Lixuan Lu**, Professor of Nuclear Engineering (905-721-8668 x5526)[Lixuan.Lu@ontariotechu.ca] Ph.D., University of Western Ontario. Nuclear power plant instrumentation and control, distributed control, network control systems, reliability and safety of I&C Systems, risk-informed decision making, nuclear based hydrogen generation.

**Rachid Machrafi**, Associate Professor of Nuclear Science (905-721-8668 x5522) [rachid.machrafi@ontariotechu.ca] Ph.D., Joint Institute for Nuclear Research. Transmutation of nuclear waste, health physics and dosimetry, radiation detection technology, radiation techniques, space radiation, Monte Carlo modelling and education technology.

**Jennifer McKellar**, Assistant Professor of Energy Systems (905-721-8668 x5498) [jennifer.mckellar@ontariotechu.ca] Ph.D., University of Toronto. Techno-economic and environmental assessments of energy systems. Conventional and unconventional fuels. Options for improving the sustainability of energy systems. Tools in support of decision-making.

**Eleodor Nichita**, Associate Professor of Nuclear Engineering (905-721-8668 x5527) [Eleodor.Nichita@ontariotechu.ca] Ph.D., Georgia Institute of Technology. Neutronic design and analysis methods for advanced nuclear reactors, reactor kinetics and control, neutron and radiation transport, mathematical modeling and numerical analysis.

**Igor Pioro**, Professor of Nuclear Engineering (905-721-8668 x5528)[Igor.Pioro@ontariotechu.ca] Ph.D., National Technical University of Ukraine. Thermalhydraulics of nuclear reactors and Generation IV reactor



concepts, boiling and forced convection including supercritical pressures, two-phase thermosyphons, heat exchangers, and heat recovery systems.

**Markus Piro**, Assistant Professor of Nuclear Engineering and Canada Research Chair in Nuclear Fuels and Materials (905-721-8668 x5525) [markus.piro@ontariotechu.ca] Ph.D., Royal Military College of Canada. Nuclear fuel performance and safety, nuclear materials, GenIV reactors (*i.e.*, MSR, SFR, SCWR), small modular reactors, additive manufacturing, experimental and computational thermodynamics, experimental and computational fluid dynamics, multi-physics nuclear code development and simulations.

**Anthony Waker**, Professor of Nuclear Science (905-721-8668 x5520)[Anthony.Waker@ontariotechu.ca] Ph.D. London South Bank University. Radiation detector development, experimental microdosimetry, high LET radiation, X-ray and beta particle impact on cellular and molecular systems.

**Edward Waller**, Professor of Nuclear Engineering (905-721-8668 x5521)[Ed.Waller@ontariotechu.ca] Ph.D., Rensselaer Polytechnic Institute. Applied health physics, radiation detection, dosimetry, biological effects of radiation, risk analysis, non-intrusive investigation, threat detection and security.

### **Other Faculty**

**John Froats**, Nuclear Engineer in Residence (905-721-8668 x5507) [john.froats@ontariotechu.ca] B.Eng. McMaster University, Electrical engineering, nuclear plant design.

**Filippo Genco**, Associate Teaching Professor (905-721-8668 ext. 5444)[Filippo.Genco@ontariotechu.ca] Ph.D. Purdue University, 2013. Plasma Material Interactions; Magnetic Fusion Applications; Radiation damage in materials; Advanced numerical methods; Renewable Energies and Alternative Technologies; Nuclear and electric propulsion; Direct energy conversion systems and applications; NanoFluids & Nanopatterning applications. Website: <https://nuclear.ontariotechu.ca/people/faculty/dr-filippo-genco.php>

**Sharman Perera**, Associate Teaching Professor, Faculty of Energy Systems and Nuclear Science (905-721-8668 x5505) [sharman.perera@ontariotech.ca] M.A.Sc. Ryerson University, Computational Fluid Dynamics, Aerosol Mechanics, Integrated Engineering Design and Undergraduate Laboratory Design

### **Nuclear Science and Engineering Research Centre**

#### **SIMULATION LABORATORY**

The simulation lab contains a state of the art computer and display system for simulation of nuclear power plants, such as the Pickering and Darlington nuclear-electric generating units, and the School has the capability to develop software for advanced reactor designs. Dr. George Bereznai.

### **AEROSOL AND RADIATION RESEARCH LABORATORY**

A state-of-the-art aerosol research laboratory is used to investigate potential hazards from terrorist use of radiological dispersal devices (RDDs). The research is widely applicable to determination of hazards from airborne radioactive contaminants. Dr. Ed Waller.

### **DETECTOR PHYSICS AND EXPERIMENTAL MICRODOSIMETRY LABORATORY**

The radiation detector development and experimental microdosimetry laboratory is set up for the custom design, construction and testing of advanced gas ionization detectors such as tissue equivalent proportional counters and gas electron multipliers and other detection systems for mixed-field radiation protection dosimetry and microdosimetry. Coupled with these detectors are the electronic and computer facilities necessary for the development of novel data acquisition systems and control software. Dr. Anthony Waker.

**CORROSION AND ELECTROCHEMISTRY LABORATORY**The corrosion and Electrochemistry lab is set-up to investigate the electrochemical processes that drive corrosion at elevated temperatures. A particular emphasis is placed on the chemical and electrochemical processes associated with localized corrosion processes such as localized corrosion and stress assisted corrosion cracking. Special facilities are used to examine processes in molten salts that range from low melting point, but noxious fluoride salts to high temperature metal chloride salts. A variety of electrochemical methodologies are available to interrogate localized corrosion processes. Dr. Brian Ikeda.

### **NUCLEAR DESIGN LABORATORY**

The primary mission of the Nuclear Design Laboratory is to study multi-disciplinary interfaces and integrated designs related to nuclear technology including mechanical design, system controls, instrumentation, and nuclear thermalhydraulics. Dr. Glenn Harvel.

### **HIGH PERFORMANCE COMPUTING AND VISUALIZATION LAB**

The High Performance Computing and Visualization Lab is set up for the investigation of computationally and output intensive problems that appear in reactor and radiation physics. It supports research into parallel algorithms and into methods for displaying large amounts of data in a meaningful way using three-dimensional graphic representations. Dr. Eleodor Nichita.

### **NUCLEAR MATERIALS LABORATORY**

The nuclear materials laboratory investigates and characterizes metals, alloys, and aqueous systems that are important in nuclear reactor systems and other energy production facilities. The lab houses an X-ray Diffractometer capable of characterizing samples at both room temperature and elevated temperatures. Custom built vessels allow for exploration of aqueous systems up to 250 °C. The experimental work can provide fundamental thermochemical data that supports applied thermodynamic modelling work also performed in this laboratory. Dr. Matthew Kaye.

### **APPLIED THERMODYNAMICS LABORATORY**

The applied thermodynamics laboratory investigates various thermodynamic properties of nuclear fuels, nuclear materials, and other non-nuclear materials pertinent to energy systems and manufacturing. Examples include oxidation tests of advanced research reactor fuels and Accident Tolerant Fuel (ATF) cladding materials. Experimental measurements play an integral role in providing validation data for various modelling and simulation efforts. Dr. Markus Piro.

### **ADVANCED PLASMA ENGINEERING LABORATORY**

Advanced Plasma Engineering Laboratory (UOIT) specializes in high density, high energy plasma research and thermal engineering research. The research has numerous applications in nuclear fusion, aerospace, waste-to-energy, oil and gas, nanotechnology, biochemical instruments, and manufacturing. The APEL lab emphasizes on innovations in plasma generation, diagnostics, and experimentations, and their applications on multiple disciplines. The plasma generation include inductive and capacitive plasma discharge. Experimental work includes ion optics, propulsion, and energy harvesting. Dr. Hossam Gaber.

### **ENERGY SAFETY AND CONTROL LABORATORY**

Energy Safety and Control Laboratory (ESCL) specializes in advanced safety and control systems and their applications in nuclear, energy and plasma systems. Research includes: Development of probabilistic risk models for accurate NPP safety verification; Improved performance of safety and shutdown systems and recovery operation in NPP; Improved NPP performance with intelligent control systems; and Fault propagation modeling and real time safety verification of NPP. Experimental work on fault diagnosis in control loops, CATHENA simulation code, and uncertainty estimation software tools. Dr. Hossam Gaber

## OREGON STATE UNIVERSITY

School of Nuclear Science and Engineering

116 Radiation Center

Corvallis, OR 97331-5902

(541) 737-2343

FAX: (541) 737-0480

Administrative Contact: Brian Woods

(541) 737-0675

brian.woods@oregonstate.edu

Website: <http://ne.oregonstate.edu/>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	34	37	46	44	44
Masters	26	21	32	19	27
PhD	3	9	4	11	8

Graduate Student Enrollment: 29 Masters/ 37 Ph.D.

ABET Accreditation: BS Nuclear Engineering; BS Radiation Health Physics

CAMPEP Accreditation: Medical Physics Graduate Program

### Distance Education Program

Offers Nuclear Engineering Courses & Degrees Online

<http://ne.oregonstate.edu/>

### Nuclear Science and Engineering Faculty

**Kathryn A. Higley**, School Head and Professor (541-737-2343)[[kathryn.higley@oregonstate.edu](mailto:kathryn.higley@oregonstate.edu)] Ph.D., Colorado State University, 1994. Health physics; human and ecological risk assessment; environmental pathway analysis; environmental radiation monitoring; radionuclide and hazardous chemical transport; radiochemistry; neutron activation analysis; nuclear emergency response planning; environmental regulations. Certified Health Physicist. Website: <https://ne.oregonstate.edu/kathryn-higley>

**Samuel A. Briggs**, Assistant Professor (541-737-7838) [[samuel.briggs@oregonstate.edu](mailto:samuel.briggs@oregonstate.edu)] Ph.D., University of Wisconsin-Madison, 2016. Materials development for next-generation nuclear reactors; microstructural characterization and microscopy of radiation damage in materials; materials degradation in liquid sodium and molten salt environments; in-situ monitoring of materials health in nuclear reactors; combined effects of superimposed environmental stressors. Website: <https://ne.oregonstate.edu/samuel-briggs>

**Tianyi Chen**, Assistant Professor (541-737-8190) [[Tianyi.chen@oregonstate.edu](mailto:Tianyi.chen@oregonstate.edu)] PhD, Texas A&M University, 2015. Nuclear materials including applying the combined techniques of irradiation, microstructure analysis, multiscale mechanical testing, and molecular dynamics simulations to materials research and development. Website: <https://ne.oregonstate.edu/tianyi-chen>

**Abdollah T. Farsoni**, Associate Professor (541-737-9645) [abi.farsoni@oregonstate.edu] Ph.D., Oregon State University, 2006. Radiation Detectors; real-time digital electronics; FPGA design; digital pulse processor; radioxenon detection; nuclear weapon test monitoring; low-cost radiation spectroscopy; direction-sensitive detectors. Website: <http://web.engr.oregonstate.edu/~tavakola/>

**Isabela Gutowska**, Assistant Professor (541-737-7053) [izabela.gutowska@oregonstate.edu] Ph.D., Oregon State University, 2016. Nuclear reactor thermal hydraulics, with emphasis on application of computational fluid dynamics. Experimental and computational thermal hydraulics aspects involving Generation IV (e.g., very high temperature, molten salt) and small modular reactors. Computational fluid dynamics verification, validation, and uncertainty analyses. Website: <https://ne.oregonstate.edu/izabela-gutowska>

**David M. Hamby**, Professor (541-737-8682)[david.hamby@oregonstate.edu] Ph.D., University of North Carolina, 1989. Health physics; beta dosimetry; beta spectroscopy; radiation instrumentation; environmental health physics; environmental transport; fate and transport model analysis; radiation risk; uncertainty analysis. Website: <http://ne.oregonstate.edu/david-m-hamby>

**Jack F. Higginbotham**, Professor, Director of Space Programs (541-737-9949) [jack.higginbotham@oregonstate.edu] Ph.D., Kansas State University, 1987. Space reactor development, nuclear spectroscopy, radiation dosimetry, radiation shielding. Certified Health Physicist. Prof. Higginbotham is currently on a full-time, administrative appointment as Director of Space Programs in the College of Science. Website: <http://ne.oregonstate.edu/jack-f-higginbotham>

**Wade Marcum**, Associate School Head and Associate Professor (541-737-3018) [wade.marcum@oregonstate.edu] Ph.D., Oregon State University, 2010. Nuclear reactor thermal hydraulics; computational fluid dynamics; reactor safety; flow induced vibration; advanced reactor design. Website: <https://ne.oregonstate.edu/wade-marcum>

**Camille J. Palmer**, Associate Professor (541-737-7065) [camille.palmer@Oregonstate.edu] Ph.D., University of Cincinnati, 2003. International nuclear security and nonproliferation, investigating robotic applications for nuclear safeguards, introducing new analytical techniques for nuclear forensics, and nuclear forensic signature development. Website: <https://ne.oregonstate.edu/camille-j-palmer>

**Todd S. Palmer**, Associate Dean for Faculty Advancement and Professor (541-737-7064) [todd.palmer@oregonstate.edu] Ph.D., Nuclear Engineering and Scientific Computing, University of Michigan, 1993. Numerical techniques for particle transport and diffusion; computational fluid dynamics; reactor physics; general numerical methods; nuclear criticality safety; Monte Carlo methods; transport in stochastic mixtures. Website: <http://ne.oregonstate.edu/todd-s-palmer>

**Alena Paulenova**, Associate Professor (541-737-7070) [alena.paulenova@oregonstate.edu] Ph.D. Radiochemistry; chemistry of fuel cycle; advanced separations methods for used fuel reprocessing and fuel waste forms; behavior of actinides and fission products; environmental and biomedical applications. Website: <http://ne.oregonstate.edu/alena-paulenova>

**Steven R. Reese**, Associate Professor and Radiation Center Director (541-737-2344) [steve.reese@oregonstate.edu] Ph.D., Colorado State University, 1997. Regulatory Compliance; Reactor Dosimetry; Neutron Radiography; Neutron Depth Profiling; Prompt Gamma Neutron Activation Analysis. Certified Health Physicist. Website: <http://ne.oregonstate.edu/steven-r-reese>

**Brian G. Woods**, Professor (541-737-2343) [brian.woods@oregonstate.edu] Ph.D., University of Maryland, 2001. Experimental and computational fluid dynamics and heat transfer; nuclear reactor thermal-hydraulics; nuclear reactor safety. Website: <https://ne.oregonstate.edu/brian-g-woods>

**Qiao Wu**, Professor and Faculty Status Committee (541-737-7066) [qiao.wu@oregonstate.edu] Ph.D., Purdue University, 1995. Nuclear reactor thermal-hydraulics, two-phase flow theory and experiments, multiphase flow instrumentation, nuclear reactor safety, scaling analysis of complex systems, neutron radiography for two-phase flow visualization, nuclear system system design, fuel enrichment, system safety analysis code validation. Website: <http://ne.oregonstate.edu/qiao-wu>

**Haori Yang**, Associate Professor and Graduate Committee Chair (541 737-7057) [Haori.Yang@oregonstate.edu] Ph.D., University of Michigan at Ann Arbor, 2009. Non-destructive interrogation techniques; development of innovative radiation sensors; general applications of nuclear engineering. Website: <https://ne.oregonstate.edu/haori-yang>

### **Other Faculty**

**Isabela Gutowska**, Assistant Professor Senior Research (541-737-7053) [izabela.gutowska@oregonstate.edu] Ph.D. Oregon State University, 2016. Working on test facility design, instrumentation and incorporation of system dimensional analysis for the High Temperature Test Facility. Website: <https://ne.oregonstate.edu/izabela-gutowska>

**Andrew C. Klein**, Professor Emeritus (541-737-2343) [andrew.klein@oregonstate.edu] Ph.D., University of Wisconsin, Madison, 1983. Nuclear energy policy; space nuclear systems design; transient analysis of nuclear power systems; radiation shielding; nuclear nonproliferation; safeguards and security; and fusion energy systems design. Professional Engineer. Website <https://ne.oregonstate.edu/andrew-c-klein>

**Mitch K. Meyer**, Professor of Practice (208-533-7155) [mitchell.meyer@inl.gov] Ph.D. Iowa State University. Director of Characterization and Advanced PIE division at INL's Materials and Fuels Complex. Developing advanced methods for measuring and characterizing irradiated fuels and materials. Website: <https://ne.oregonstate.edu/mitchell-meyer>

**Guillaume Mignot**, Assistant Professor Senior Research (541-737-6382) [guillaume.mignot@oregonstate.edu] Ph.D. University of Wisconsin-Madison, 2008. Study nuclear reactor severe accidents, development of advanced instrument and metering techniques for condensation film measurement, operational manager of the Naval Reactor Test Loop (NRTL). Website: <https://ne.oregonstate.edu/guillaume-mignot>

**Jose N. Reyes, Jr.** Professor Emeritus (541-737-2343) [jose.reyes@oregonstate.edu] Ph.D., University of Maryland, 1986. Thermal hydraulics; multi-phase fluid flow; scaling analyses; reactor safety; reactor system design. Professional Engineer. Website: <https://ne.oregonstate.edu/jose-n-reyes>

**Aaron W. Weiss**, Senior Faculty Research Assistant I (541-737-7084) [weissa@oregonstate.edu] M.S. Oregon State University, 2017. Thermal hydraulics experimental research, instrumentation development, operational manager of the Hydro-Mechanical Fuel Test Facility (HMFTF). Website: <https://ne.oregonstate.edu/aaron-weiss>

### **Nuclear Science and Engineering Research Center**

**OSU Radiation Center:** The school is housed in the **OSU Radiation Center**. Research facilities include a 1.1 MW TRIGA Mark II nuclear reactor; Advanced Thermal-Hydraulic Research Laboratory (ATHRL) which includes Advanced Plant Experiment (APEX) facility and the Multi-Application Light Water Reactor (MASLWR) facility; the Advanced Nuclear Systems Engineering Laboratory (ANSEL) which includes a High Temperature Test Facility (HTTF), a 1/4-scale test model of a modular High Temperature Gas-Cooled Reactor (HTGR), and a Fuel Development Hydro-Mechanical test loop; the Advanced Nuclear Instrumentation Development Laboratory; Radiochemical Analytical Laboratory with radio-HPLC- and radio-LC-MS/MS systems; Cobalt-60 Gamma Irradiator; Neutron Radiography facilities; Gamma and Alpha Spectrometry facilities; Radiological Instrument Calibration facilities; Liquid Scintillation Counting Systems; Thermoluminescent Dosimetry Systems.

## PENNSYLVANIA STATE UNIVERSITY

Ken and Mary Alice Lindquist Department of Nuclear Engineering  
138A Reber Building  
University Park, PA 16802  
814-865-0036  
FAX: 814-865-1280  
Administrative Contact: Corby Williams  
814-865-6383  
cjw33@psu.edu  
Website: www.mne.psu.edu

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	68	99	63	69	*
Masters	31	30	21	13	*
PhD	5	8	6	5	*

Graduate Student Enrollment: # Masters/# Ph.D.  
ABET Accreditation: BS

### Distance Education Program

Offers Nuclear Engineering Courses and MEng Degree Online  
<http://www.engr.psu.edu/cde/nuce/index.html>

### Nuclear Science and Engineering Faculty

**Jean Paul Allain**, Professor and Department Head (814-863-8575) [allain@psu.edu] Ph.D., University of Illinois at Urbana-Champaign, 2001. Engineering design for global social impact; ion-driven nanostructures on metals, semiconductors and polymers; advanced nanostructured biointerfaces for regenerative medicine; multi-scale computational surface physics; plasma-surface and materials interactions in fusion devices; in-situ surface characterization techniques; irradiation surface science.

**Fan-Bill Cheung**, Professor of Mechanical and Nuclear Engineering (814-863-4261) [fxc4@psu.edu] Ph.D., University of Notre Dame, 1974. Director of Global Nuclear Power Safety Center; Solidification and Melting; Turbulent Natural Convection; Two-Phase Flow and Heat Transfer; Nuclear Reactor Thermal Hydraulics and Safety; Thermal Processing of Materials; Thermal Behavior of High-Temperature Ablatives; Dense Spray and Atomization.

**Marek Flaska**, Assistant Professor of Nuclear Engineering (814-867-4754) [mxf5309@psu.edu] Ph.D. Applied Physics, Delft University of Technology, 2006. Detection of neutrons, gamma rays and x-rays for nuclear nonproliferation, safeguards, and forensics; radiation imaging; data-acquisition and data-processing electronics; fundamental nuclear physics.



**Amanda Johnsen**, Assistant Professor (814-865-6351) [amj15@psu.edu] Ph.D., University of California, Berkeley, 2008. Production and purification of radioisotopes; neutron activation analysis; chemistry of used nuclear fuel and reprocessing; environmental radiochemistry; radiochemistry education.

**Azaree T. Lintereur**, Assistant Professor (814-867-1783) [atl21@psu.edu] Ph.D., University of Florida, 2013. Radiation detector development, multiplicity and coincidence counting, MCNP, nuclear safeguards.

**Elia Merzari**, Associate Professor (814-863-7469)[ebm5351@psu.edu] Ph.D., Tokyo Institute of Technology, 2008. Nuclear thermal-hydraulics; Computational fluid dynamics; Supercomputing; Multiphysics simulations.

**Arthur T. Motta**, Professor and Graduate Program Chair of Nuclear Engineering (814-865-0036) [atm2@psu.edu] Ph.D., University of California- Berkeley, 1988. Materials behavior in the nuclear reactor environment, especially nuclear fuel cladding.

**Asok Ray**, Distinguished Professor of Mechanical and Nuclear Engineering (814-865-6377) [axr2@psu.edu] Ph.D. Northeastern University. Instrumentation and control; Signal processing and identification; Robotics and automation; Nondestructive evaluation; Fatigue and fracture; Aerospace systems; Power systems.

**Kenan Unlu**, Director of Radiation Science and Engineering Center and Professor of Nuclear Engineering (814-865-6351) [kxu2@psu.edu] Ph.D., University of Michigan, 1989. Development and Applications of Nuclear Analytical Techniques; Neutron Depth Profiling; Cold Neutron Prompt Gamma Activation Analysis; Neutron Radiography, Neutron Activation Analysis; Radiation Detection; Radiochemistry; Nuclear Forensics and Nuclear Security Education and Research.

**William J. Walters**, Assistant Professor of Nuclear Engineering (814-867-4329) [wjw24@psu.edu] PhD, Virginia Tech 2015. Monte Carlo, deterministic, and hybrid methods for radiation transport simulation; Applications in reactor physics, nuclear safeguards, and spent fuel pool monitoring.

**Leigh Winfrey**, Associate Professor (814-865-1339) [lzw290@psu.edu] Ph.D., North Carolina State University, 2010. Plasma physics; High energy density plasmas; Fusion reactor fueling; Plasma materials interactions; Nuclear materials.

### **Other Faculty**

**Jack S. Brenizer, Jr.**, Professor Emeritus of Mechanical and Nuclear Engineering (814-863-6384) [brenizer@enr.psu.edu] Ph.D., Pennsylvania State University, 1981. Radiation detection, neutron radiography, neutron activation analysis, nuclear materials monitoring devices.

**Darryl Farber**, Assistant Professor of Science, Technology, and Society and Affiliate Assistant Professor of International Affairs (814-865-3042) [dfarber@enr.psu.edu] Ph.D., The Pennsylvania State University,

1999. Policy and management of nuclear waste; scenario analysis and planning for engineering systems; nuclear ethics.

**James Turso**, Assistant Director, Penn State Radiation Science and Engineering Center (814-863-2820) [jat127@engr.psu.edu] Ph.D. Advanced reactor/power plant instrumentation, control and simulation. Reactor system identification and parameter estimation. Professional Engineer.

**Justin K. Watson**, Research Associate and Assistant Professor of Nuclear Engineering, Applied Research Laboratory The Pennsylvania State University (814-863-6754) [jkw104@psu.edu] Ph.D., Pennsylvania State University, 2010. Computational fluid mechanics; Nuclear reactor safety analysis; core design; System simulation; Advanced numerical methods for multi-physics simulations; Parallel computation for nuclear reactor safety analysis.

### **Nuclear Science and Engineering Research Centers**

**Detector Development Laboratory (DDL)**: Established in 2017, DDL features a variety of detectors (including a muon detector and a large number of NaI detectors) as well as electronics and computational stations. The group performs both fundamental and applied radiation detection related research and provides graduate and undergraduate students with hands-on learning opportunities.

**FUNNEL - FUSion NEutron Laboratory** - A dual-tube D-T neutron-generation system is available in this laboratory: one tube with a neutron output of  $1e8$  n/sec and the other tube with a neutron output of  $1e10$  n/sec. The neutron-producing tubes have separate control units so they can be operated independently. The lower-neutron-output part of the system will provide a capability to accurately detect the alpha particles resulting from the D-T fusion reaction, thereby allowing for accurate measurements of neutron emission angles.

**LEAF - Laboratory for Experiments to Advance Fission** - A low-backscatter, stand-alone, off-campus, suppressed-room-return building houses a large-area, neutron/gamma-ray multi-detector system to significantly reduce the back-scatter effects that are relevant for time-correlated experiments. The experimental building has dimensions of 25' x 25' x 25' and is internally completely covered, including the floor and ceiling, by 1" of borated polyethylene to minimize the neutron return. Also, because the building is a pre-fabricated, stand-alone structure, only a minimal amount of concrete has been used to minimize the gamma-ray return. This unique laboratory is used for measurements of high-fidelity prompt and delayed gamma-ray/neutron data.

**Radiation Science and Engineering Center**: The Radiation Science and Engineering Center (RSEC) is a unit under the College of Engineering and the Vice President for Research at Penn State. The RSEC is affiliated with the Department of Mechanical and Nuclear Engineering. The mission of the RSEC is, in partnership with faculty, staff, students, alumni, government, and corporate leaders, to safely utilize nuclear

technology to benefit society through education, research, and service. The RSEC promotes research, education, and applications of radiation and nuclear science and engineering to students, faculty, and staff at Penn State, as well as to scientists in universities, governments, and industries worldwide. The RSEC facilities include the Penn State Breazeale Reactor (PSBR), gamma-ray irradiation facilities (in-pool irradiator and dry irradiator), the Neutron Beam Laboratory, the Hot Cell Laboratory, the Radionuclear Applications Laboratory, the Radiochemistry Teaching Laboratory, the Nuclear Security Education Laboratory, the Subcritical Graphite Reactor Facility, and various radiation detection and measurement laboratories. The PSBR is a 1 MW, TRIGA with moveable core in a large pool and with pulsing capabilities. Prof. Kenan Unlu.

# UNIVERSITY OF PITTSBURGH

Nuclear Engineering Program  
Department of Mechanical Engineering and Materials Science  
3700 O'Hara Street  
Pittsburgh, PA 15261  
412-624-9784  
412-624-4846  
Administrative Contact: Thomas Congedo  
412-624-3069  
tvc9@pitt.edu

Website: <http://www.engineering.pitt.edu/MEMS/>

	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	4	2	1	3

Graduate Student Enrollment: 8 Masters

ABET Accreditation: Mechanical Engineering, Materials Science and Engineering

## Distance Education Program

Offers Nuclear Engineering Courses and Degrees Online  
<http://www.engineering.pitt.edu/nuclear/>

## Nuclear Science and Engineering Faculty

**Heng Ban**, R.K. Mellon Professor in Energy and Director of Nuclear Engineering (412-624-0325) [heng.ban@pitt.edu] Ph.D., University of Kentucky, 1994. Thermal properties and measurement techniques for nuclear materials, transient fuel performance, sensor development for in-pile applications. Professional Engineer.

**Daniel Cole**, Associate Professor (412-624-3069) [dgcole@pitt.edu] Ph.D., Virginia Polytechnic Institute and State University, 1998. Dynamic systems; measurement and control. Professional Engineer

**Minking Chyu**, Leighton Orr Chair Professor and Associate Dean for International Initiatives (412-624-9783) [mkchyu@pitt.edu] Ph.D., University of Minnesota, 1986. Heat and mass transfer; turbomachinery.

**Thomas Congedo**, Professor and Associate Director of Nuclear Engineering (412-624-9799) [tvc9@pitt.edu] Ph.D. Nuclear Physics. Nuclear Core Engineering, Criticality Safety, and nuclear technology applications in substance detection and materials modification.

**Jung-Kun Lee**, Assistant Professor (412-648-3395) [jul37@pitt.edu] Ph.D., Seoul National University, 2000. Nanotechnology; radiation effects on Material Properties; Ion-beam Synthesis of functional materials. Website: [http://www.engr.pitt.edu/mems/people/facstaff/lee\\_jungkun.html](http://www.engr.pitt.edu/mems/people/facstaff/lee_jungkun.html)

**Jorg Wiezorek**, Professor (412-624-5430) [wiezorek@pitt.edu] Ph.D., University of Cambridge, Cambridge, UK, 1994. Materials Science & Engineering; Physical Metallurgy & Metal Physics; Phase Transformations; Micro-Characterization & Analysis by Diffraction and Spectroscopy; Transmission Electron Microscopy; Scanning Electron Microscopy; Mechanical Behavior; Microstructure Engineering.

### **Other Faculty**

**David Aumiller**, Adjunct Associate Professor (724-516-9437) [dla12@pitt.edu] Ph.D., The Pennsylvania State University, 1996. Two-phase flow and heat transfer; best-estimate plus uncertainty methods development; reactor safety code development.

**Ken Balkey**, Adjunct Lecturer (412-374-4633) [balkeykr@westinghouse.com] M.S., University of Pittsburgh, 1980. Nuclear codes and standards; risk assessment; mechanical component integrity; nuclear reactor pressure vessel integrity; piping design-by-analysis.

**John Bartocci**, Adjunct Lecturer (412-624-5430) [jtb51@pitt.edu] B.S., Massachusetts Institute of Technology. SRO Certified Instructor.

**Bruce Berquist**, Adjunct Associate Professor (412-476-6053) [berqb@comcast.net] Ph.D., University of Pittsburgh, 1979. Nuclear materials development.

**Heather Detar**, Faculty Lecturer (412-716-1445) [detarhl@westinghouse.com] B.S., The Pennsylvania State University, 2005. PRA Research.

**Gary Elder**, Faculty Lecturer (412-856-5967) [eldergg@westinghouse.com] Ph.D., University of Pittsburgh, 1982. Operating nuclear plants.

**Daniel Gill**, Adjunct Lecturer (412-476-7714) [dfg3@pitt.edu] Ph.D., The Pennsylvania State University, 2009. Numerical particle transport theory; computational physics; numerical analysis.

**David Griesheimer**, Adjunct Assistant Professor (412-624-5430) [dpg20@pitt.edu] Ph.D., University of Michigan, 2004. Computational methods of radiation transport; Monte Carlo methods; multiphysics methods for reactor analysis; high performance and parallel computing.

**Jason Gruber**, Adjunct Assistant Professor (412-624-5430) [jas182@pitt.edu] Ph.D., Carnegie Mellon University, 2007. Computational materials science, multiscale materials modeling, microstructural science, texture and anisotropy, numerical methods and global optimization.

**David Haser**, Faculty Lecturer (412-367-9177) [haserd@firstenergy.com] MBA, Youngstown State University, 2005. SRO License; Safety Culture; Plant Operation Improvements; Nuclear Plant Operations and Safety. Professional Engineer.

**David Helling**, Faculty Lecturer (724-722-5301) [davidh179@gmail.com] B.S., Miami University, 1969. SRO License; Nuclear Power Plant safety and operations; Nuclear Power Plant instrumentation and control; Curriculum integration and online learning.

**Vefa N. Kucukboyaci**, Adjunct Professor (412-374-5652) [kucukbvn@westinghouse.com] Ph.D., Pennsylvania State University, 2001. Multi-Physics Methods and Applications; Lattice Physics methods; Criticality Safety Analysis; Particle transport theory and applications; Thermal-Hydraulics methods; High performance/ parallel computing on supercomputer platforms; LOCA Analysis methods; Radiation shielding applications; Power and research reactor applications.

**Charles M. Laymon**, Assistant Professor (412-647-0730) [cml14@pitt.edu] Ph.D., University of Pennsylvania, 1989. Positron Emission Tomography acquisition systems; image and signal processing; data analysis

**Eric Loewen**, Adjunct Professor (412-624-9799)[eric.loewen@ge.com] Ph.D., University of Wisconsin. Advanced reactors and advanced recycling of spent fuel.

**Neale S. Mason**, Research Associate Professor (412-647-0736) [masons@upmc.edu] Ph.D., Vanderbilt University, 1991. PET radiochemistry; Molecular Imaging.

**Kurshad Muftuoglu**, Adjunct Lecturer (412-480-2067) [kurshad.muftuoglu@ge.com] Ph.D., Pennsylvania State University. Experience includes nuclear reactor safety with emphasis on loss-of-coolant accident; best-estimate methodology development; computational thermal-hydraulics; and system codes development.

**Justin Pounders**, Faculty Lecturer. Ph.D., Georgia Institute of Technology. Dr. Pounders works at the Bettis Atomic Power Laboratory in the area of multiphysics methods development. He is generally interested in computational methods development for reactor physics problems. His most recent research efforts have been in the areas of neutronic homogenization and equivalence methods in plant simulations, transient multiphysics code coupling, and tightly-coupled multiphysics computations.

**Richard Siergiej**, Adjunct Associate Professor. Ph.D. Lehigh University, 1992. Dr. Siergiej is presently employed by the Bettis Atomic Power Laboratory and previously worked at the Westinghouse Science and Technology Center. His interests are computer simulation and modeling, advanced energy conversion technologies, semiconductor physics, fabrication, and materials, and next generation instrumentation and control system.

**Sola Talabi**, Adjunct Professor (412-448-6823)[sola@pit-tech.com] Ph.D, Carnegie Mellon University, 2013. Identification and characterization of additional post-nuclear accident decontamination mechanisms to support Level II PRA safety margin characterization; measurement and analysis to account for additional post-accident aerosol decontamination in SMR systems, and methodology to improve post-accident evacuation time estimates and allow potential emergency planning zone size reduction.  
Website: [www.pit-tech.com](http://www.pit-tech.com)

**David S. Teolis**, Instructor (412-624-9799)[DAT121@pitt.edu] MS Statistics, Colorado State University, 2010. MS Industrial Engineering, University of Pittsburgh, 1984. Analysis of Transportation Systems.

**Michael T. Wenner**, Adjunct Professor (724-940-8295)[wennermt@westinghouse.com] Ph.D., University of Florida, 2010. Technical analyses in the areas of criticality safety for spent fuel pool storage; radiation shielding; source term analyses for various systems; reactor physics modeling; advanced fuel cycle analysis; related software design and development.

# POLYTECHNIQUE MONTRÉAL

Institut de génie Nucléaire  
Nuclear Engineering Institute  
2500, chemin de Polytechnique  
Montreal, Quebec H3T1J4  
(514)-340-4711 x 4803  
FAX: (514)-340-4192  
Administrative Contact: Guy Marleau  
(514)-340-4711 x 4204  
guy.marleau@polymtl.ca  
Website: <http://www.polymtl.ca/nucleaire/en/>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	5	3	2	*	*
PhD	7	3	4	*	*

Graduate Student Enrollment: # Masters/# Ph.D  
ABET Accreditation: Ph.D., M.Sc.

## **Nuclear Science and Engineering Faculty**

**Alain Hébert**, Professor (514-340-4711 x 4519) [alain.hebert@polymtl.ca] Ph.D., Paris-XI, 1980. Reactor Physics; lattice code; neutron diffusion theory. Professional Engineer.

**Jean Koclas**, Professor (514-340-4711 x 4263) [jean.koclas@polymtl.ca] Ph.D., MIT, 1980. Safety; reactor kinetics; reactor physics; control and simulation. Professional Engineer.

**Guy Marleau**, Professor (514-340-4711 x 4204) [guy.marleau@polymtl.ca] Ph.D., McGill University, 1983. Reactor physics, lattice code, neutron transport theory.

**Alberto Teysedou**, Professor (514-340-4711 x 4522) [alberto.teysedou@polymtl.ca] Ph.D. Ecole Polytechnique de Montreal, 1987. Diphasic flow; thermodynamics; supercritical flows.



## PURDUE UNIVERSITY

School of Nuclear Engineering

400 Central Drive

West Lafayette, IN 47907

765-494-5739

FAX: 765-494-9570

Administrative Contact: Kellie Reece

kreece@purdue.edu

Website: <https://engineering.purdue.edu/NE>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	22	20	22	16	20
Masters	13	11	6	12	7
PhD	7	4	4	7	3

Graduate Student Enrollment: 12 Masters/ 37 Ph.D.

ABET Accreditation: B.S. (N.E.)

### Nuclear Engineering Faculty

**Seungjin Kim**, Professor and Capt. James F. McCarthy, Jr. and Cheryl E. McCarthy Head of the School of Nuclear Engineering (765-494-5742) [seungjin@purdue.edu] Ph.D., Purdue University, 1999. Thermal-hydraulics; Reactor Safety; Modeling of two-phase flow and fluid particle interactions; interactions; interfacial area transport modeling; Two-phase flow experiment and instrumentation; Thermal-hydraulics systems analysis code.

**Hany S. Abdel-Khalik**, Associate Professor (765-496-9718) [abdelkhalik@purdue.edu] Ph.D., North Carolina State University, 2004. Validation and Uncertainty Quantification. Big Data Analytics and Data Assimilation. Cyberattack-resilient Control Systems. LWR Computational Reactor Physics.

**Robert Bean**, Assistant Professor (765-496-3573) [bean@purdue.edu] Ph.D., Purdue University, 2003. Application of Advanced Safeguards to the Design of Nuclear Facilities (Specifically Next-Generation Nuclear Reactors, Aqueous Processing Plants, and Pyroprocessing facilities); Radiation Detection and Measurement (Gas detectors, Solid State Detectors, Gamma Spectroscopy, Neutron Detectors).

**Stylianios Chatzidakis**, Assistant Professor (865-216-0638) [schatzid@purdue.edu] Ph.D., Purdue University, 2016. Artificial Intelligence and deep learning; functional sensors; remote sensing; muon tomography; nonproliferation; nuclear fuel cycle; advanced reactor monitoring.

**Chan Choi**, Professor; Professor-in-Charge of Academic Programs (765-494-6789) [choi@purdue.edu] Ph.D., Southern Illinois University, 1973. Fusion Plasma Engineering; Compact Tori Plasma Studies; Inertial Confinement Beam Target Stability; Space Propulsion; Energy Conversion; Nuclear Nonproliferation.

**Allen Garner**, Associate Professor (765-494-0618) [algarner@purdue.edu] Ph.D. University of Michigan - Ann Arbor, 2006. Biomedical applications of pulsed power and plasmas; Plasma Physics; Pulsed Power; High Power Microwaves; Theoretical biophysics.

**Ahmed Hassanein**, Paul L. Wattlelet Distinguished Professor (765-496-9731) [hassanein@purdue.edu] Ph.D., University of Wisconsin, Madison, 1982. Plasma Material Interactions; Magnetic and Inertial Fusion Research; Computational Physics and Hydrodynamics; Extreme Ultraviolet Lithography; Laser and discharge produced plasma; Radiation and Particle Transport in Materials; Biomedical Engineering Applications.

**Mamoru Ishii**, Walter H. Zinn Distinguished Professor (765-494-4587) [ishii@purdue.edu] Ph.D., Georgia Institute of Technology, 1971. Two-phase flow experiments and modeling research; 3-D two -fluid model and interfacial area transport.

**Martin Lopez-De-Bertodano**, Associate Professor, Undergraduate Program Chairman (765-494-9169) [bertodan@purdue.edu] Ph.D., Rensselaer Polytechnic Institute, 1992. Experimental Two-Phase Flow; Computational Fluid Dynamics; Turbulence; Thermal Hydraulics and Reactor Safety; Nuclear Systems Simulation.

**Shripad T Revankar**, Professor, Graduate Programs Chairman (765-496-1782) [shripad@purdue.edu] Ph.D., Karnatak University, 1983. Two-Phase Flow and Heat Transfer; Reactor Safety and Thermal Hydraulics; Next Generation Reactors; High Conductivity Nuclear Fuel; Multiphase Flow in Packed Beds (Trickle Bed Reactors); Multiphase Instrumentation Development; Fuel Cell -Design and Simulation; Regenerative Fuel Cell; Distributed Energy Generation; Hybrid Nuclear Systems; Hydrogen Generation - High Temperature Thermochemical Reactions; Hydrogen Storage. Website: <http://cobweb.ecn.purdue.edu/~shripad/>

**Tatyana Sizyuk**, Assistant Professor (765-494-4262) [tsizyuk@purdue.edu] Ph.D., University of Rzeszow, Poland, 2014. Models and methods in computational physics; Laser Produced Plasmas - models development and validation, applications and research; Plasma-material interactions in fusion reactor and industrial applications; Advanced nanolithography; Advanced numerical methods; Algorithms for parallel computing on multiprocessor system.

**Rusi Taleyarkhan**, Professor of Nuclear Engineering (765-313-1876) [rusi@purdue.edu] Ph.D.(1982), M.B.A.(1980), Rensselaer Polytechnic Institute. Nuclear power engineering, safety, thermal-hydraulics; homeland security; combating nuclear terrorism via novel sensor development; Nano-to-macro scale applications of nuclear technology; acoustic inertial confinement fusion; radiation-matter interactions coupled with thermal hydraulics; metastable fluid technologies for nanoscale energetic burst generation; advanced nuclear particle detection technologies based on metastable fluid states; novel explosives and propellant systems for less-than-lethal and barrier penetration devices.

**Lefteri Tsoukalas**, Professor (765-496-9696) [tsoukala@purdue.edu] Ph.D., University of Illinois, 1989. Neurofuzzy methodologies for complex power systems modeling, diagnostics and control; Intelligent instrumentation systems and sensors; Man-machine interface; Autonomous systems and robotics.

**Yi Xie**, Assistant Professor (765-496-5742) [xie90@purdue.edu] Ph.D., The Ohio State University, 2016. Material degradation and corrosion in reactor and UNF dry storage; electrochemical techniques; advanced manufacturing in nuclear applications, microreactor, and small modular reactor; nuclear fuel design, fabrication, and characterization; in-core sensor development.

**Yunlin Xu**, Assistant Professor (765-496-9033) [yulin@purdue.edu] Ph.D., Purdue University, 2004. Nuclear reactor simulation method study; Nuclear reactor simulation code development; Multi-physics coupling; Nuclear reactor safety analysis; Nuclear reactor design and optimization; Nuclear reactor fuel cycle study; Methods for solving large scale linear and nonlinear systems.

**Janelle P. Wharry**, Assistant Professor (765-494-0782) [jwharry@purdue.edu] Ph.D., University of Michigan, 2012. Materials for nuclear power applications; Irradiation effects on microstructure-property relationships; Micromechanics and small-scale mechanical testing of materials; Materials characterization. Website: <https://engineering.purdue.edu/NuclearMaterials>

### **Other Faculty**

**Valeryi Sizyuk**, Research Associate Professor (765-494-4217) [vsizyuk@purdue.edu] Ph.D., Belarus State University, Minsk Belarus, 1997. Reactor Fusion; Plasma. Prof. V. Sizyuk has extensive background in computational physics, plasma physics and hydrodynamics, computing technologies and their application in high volume manufacture.

## RENSSELAER POLYTECHNIC INSTITUTE

Nuclear Engineering  
110 8th Street  
Troy, New York 12180-3590  
518-276-6351  
FAX: 518-276-6025  
Administrative Contact: Yaron Danon  
518-276-4008  
danony@rpi.edu  
Website: <http://www.rpi.edu/dept/ne>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	18	33	33	22	32
Masters	2	7	8	4	2
PhD	4	3	5	7	6

Graduate Student Enrollment: 2 Masters/ 24 Ph.D.  
ABET Accreditation: Nuclear Engineering (BS)

### Nuclear Science and Engineering Faculty

**Yaron Danon**, Professor, Director, Gaertner Linear Accelerator and Nuclear Engineering Program Director (518-276-4008) [danony@rpi.edu] Ph.D., Rensselaer Polytechnic Institute, 1993. Accelerator technology and radiation applications; Nuclear data and instrumentation.  
Website: <http://www.rpi.edu/~danony>

**Wei Ji**, Associate Professor (518-276-6602) [jiw2@rpi.edu] Ph.D., University of Michigan, 2008. Nuclear reactor physics; Monte Carlo method development for radiation transport computation; Multiphysics computation for reactor safety analysis; Radiation effects on electronics for terrestrial and space applications. Website: <http://www.rpi.edu/~jiw2>

**Hyun Gook Kang**, Associate Professor (518-276-8251) [kangh6@rpi.edu] Ph.D., KAIST, 1999. Probabilistic Risk Assessment; Emergency Operation Procedure; Safety System Design.

**Jie Lian**, Associate Professor (518-276-6081) [lianj@rpi.edu] Ph.D., University of Michigan, 2003. Nanoscale characterization and nanofabrication; Radiation damage and Radiation effects; Materials behavior under extreme environment; Advanced nuclear waste form and effective nuclear waste management; Accident tolerant fuels; Validation of fuel modelling and simulation.

**Li (Emily) Liu**, Associate Professor (518-276-8592) [liue@rpi.edu] Ph.D., Massachusetts Institute of Technology, 2005. Physics of water in confined geometry, Instrumentation and methodology development

for X-ray and neutron scattering; Structure and dynamics of nano to meso-scale materials and biological systems; Radiation damage of materials and devices. Website: <http://www.rpi.edu/~liue/>

**Bimal K Malaviya**, Professor; Curriculum Coordinator (518-276-8578) [malavb@rpi.edu] Ph.D., Harvard University, 1964. Radioactive waste management; fission and fusion reactor physics and technology; biomedical applications; human factor engineering.

**Michael Z. Podowski**, Professor; Director of Center for Multiphase Research (518-276-4000) [podowm@rpi.edu] Ph.D., Warsaw University of Technology, 1972. Reactor dynamics and safety; Applied mathematics; System stability; Two-phase flow and heat transfer. Website: <http://www.rpi.edu/~podowm>

**Shanbin Shi**, Assistant Professor (518-276-8406) [shis3@rpi.edu] Ph.D., Purdue University, 2015. Thermal-hydraulics in advanced high-temperature nuclear reactors; Two-phase flow experiments and modeling research; Small modular reactor development; Reactor safety analysis.

**George Xu**, Professor (518-276-4014) [xug2@rpi.edu] Ph.D., Texas A&M University, 1994. Radiation protection dosimetry; Biomedical applications of radiation for cancer imaging and treatment; Radiation protection, radiotherapy and diagnostic imaging; advanced human models for Monte Carlo simulations of ionizing radiation. Website: <http://www.rpi.edu/~xug2>

### **Other Faculty**

**Robert C. Block**, Professor Emeritus (518-276-6404) [blockr@rpi.edu] Ph.D., Duke University, 1956. Nuclear structure and data; Accelerator technology; Neutron reactions; Industrial applications of radiation; Radiation effects in microelectronics; Nondestructive testing.

**Donald A. Drew**, Chair, Mathematical Sciences; Eliza Ricketts Foundation Professorship of Mathematics; Professor of Mechanical, Aerospace, and Nuclear Engineering (518-276-6903) [drewd@rpi.edu], Ph.D., Rensselaer Polytechnic Institute, 1970. Multiphase flows.

**Mark J. Embrechts**, Associate Professor (518-276-4009) [embrem@rpi.edu] Ph.D., Virginia Polytechnic Institute, 1981. Application of neural networks and fuzzy logic for manufacturing and process control; image recognition and classification with the aid of neural networks; neural networks, fractals, chaos, and wavelets for time-series analysis; data mining and computational intelligence.

**Richard T Lahey, Jr.**, Professor Emeritus (518-276-6351) [lahey@rpi.edu] Ph.D., Stanford University, 1971. Multiphase flow and boiling heat transfer; Nuclear reactor thermal-hydraulics and safety analysis; Sonofusion technology.

**Don Steiner**, Professor Emeritus (518-276-4016) [profsteiner@nycap.rr.com] Ph.D., Massachusetts Institute of Technology, 1967. Fusion systems analysis; plasma engineering; blanket design and overall fusion reactor design.

**Glenn Winters**, Adjunct Professor (518-584-8796) [winteg@rpi.edu] MBA, Union College, 1983. Reactor Physics.

### **Nuclear Science and Engineering Research Centers**

The **Gaertner Linear Accelerator (LINAC) Center** has been engaged in active research continuously for over 45 years, and is centered around a multi-million dollar, high power, >60 MeV, L-band traveling wave, electron linear accelerator. The primary research thrust of the center is obtaining nuclear data for use in a variety of applications, ranging from the design of nuclear reactors and analysis of criticality to radiation damage and new nuclear medicine technologies. A newly constructed facility adds new research capabilities in the area of nuclear criticality safety, with a new detection system designed to measure the probability of neutron capture in different materials.

The **Walthusen Critical Reactor Facility** is a low watt, fully functioning reactor for operational training and core physics studies and is available for student use in conjunction with modern nuclear radiation detection and characterization systems.

The **Center for Multiphase Research (CMR)** brings together faculty from the Schools of Engineering and Science. There are opportunities for both graduate and undergraduate students to participate in research at the CMR. Current areas of research include: Designing and performing two-phase flow experiments, including fundamentals of two-phase flow physics and system-type experiments. Examples include: two-phase flow turbulence, interfacial forces, bubble size distribution, phase separation, boiling heat, pressure drop in two-phase channels and loops, phase distribution in various channel geometries, gas distribution and heat transfer from ablating surfaces exposed to spreading liquid flows, multi-channel effects, flooding, two-phase flow transients and oscillations. Development of physically-based constitutive models of two-phase flow, and of component models of two-phase flow systems. Examples: mechanistic models of interfacial forces, a mechanistic model of void distribution in subcooled boiling, a widely used model of wall heat flux partitioning in subcooled boiling, a mechanistic model of critical heat flux (CHF). Application of Computational Multiphase Fluid Dynamics (CMFD) and other computational methods to simulate two-phase flow systems, including steady-state operation, transients/instabilities and 3-dimensional effects. Development of graphical tools, such as graphical user interface (GUI) for computer simulations.

The **Multiscale Science & Engineering Center (MSEC)** was established in October 2006 to create a collaborative environment of faculty to develop and transition Multiscale technologies to industry and government. Rensselaer is among the first universities to recognize that a systematic multiscale theory combined with intensive technology transfer effort would propel the Institute's initiatives in numerous fields. One MSEC project is the VIP-Man Virtual Patient, with which researchers study multiscale human computing applications on radiation modeling in geometry modeling, radiation transport, treatment optimization, and X-ray CT imaging.

The **Center for Engineering-Based Patient Modeling (CEPM)** brings together engineers, biomedical scientists and clinicians who conceive and carry out synergistic projects that solve important clinical problems using physics-based and design-driven computational and experimental methods.

## UNIVERSITY OF SOUTH CAROLINA

Mechanical and Nuclear Engineering

300 Main Street

Columbia, SC 29208

803-777-4185

803-777-0106

Administrative Contact: Travis W. Knight

803-777-1465

twknight@sc.edu

Website: <http://www.me.sc.edu/nuclear/index.html>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	6	4	7	6	6
PhD	2	1	0	0	1

Graduate Student Enrollment: 16 Masters/ 9 Ph.D.

### Distance Education Program

Offers Nuclear Engineering Courses and Degrees Online

<http://www.me.sc.edu/apogee/>

### Nuclear Science and Engineering Faculty

**Travis W. Knight**, Professor and Director (803-777-1465) [twknight@sc.edu]

Ph.D., University of Florida, 2000. Advanced nuclear fuels and materials; nuclear safeguards; nuclear fuel cycle analysis; alternative uses of nuclear power; risk and safety analysis; space nuclear power and propulsion. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/knight\\_travis.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/knight_travis.php)

**Abdel-Moez E. Bayoumi**, Professor & Director (803-777-1845) [bayoumi@cec.sc.edu]

Ph.D., NCSU. Predictive Maintenance; Condition-Based Maintenance (CBM); Design, Manufacturing; Health Monitoring System. Professional Engineer. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/bayoumi\\_abdel.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/bayoumi_abdel.php)

**Theodore M. Besmann**, Professor and Endowed Chair in the General Atomics Center (803-777-9853)

[besmann@cec.sc.edu] Ph.D., Pennsylvania State University, 1976. Nuclear fuels, materials, high temperature behavior, thermodynamics, ceramic composites, energy policy. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/besmann\\_theodore.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/besmann_theodore.php)

**Dan G. Cacuci**, Endowed Chair Professor and Director, SmartState Center of Economic Excellence in Nuclear Science and Energy (803-777-5316) [cacuci@cec.sc.edu] Ph.D., Columbia University in New York, 1978. Predictive science, sensitivity and uncertainty quantification, model validation, reactor physics and

safety. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/cacuci\\_dan.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/cacuci_dan.php)

**Fanglin (Frank) Chen**, Professor (803-777-4875) [chenfa@cec.sc.edu] Ph.D., Georgia Institute of Technology, 2001. Advanced ceramic materials for nuclear related applications; Porous and dense membranes for gas transport and separation; Tritium separation and sequestration. Faculty website: [http://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/chen\\_frank.php](http://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/chen_frank.php)

**Tanvir Farouk**, Associate Professor (803-777-3380)[tfarouk@sc.edu] Ph.D., Drexel University, 2009. Plasma, Used Nuclear Fuels, Thermal Hydraulics, Nuclear Fuels Drying and Storage, Multi-physics Modeling, Emission Spectroscopy.

**Xinyu Huang**, Assistant Professor (803-777-6834) [huangxin@cec.sc.edu] Ph.D., Virginia Tech, 2001. Composite materials; mechanical and environmental testing of cladding and structural materials. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/facultystaff/huang\\_xinyu.php](https://sc.edu/study/colleges_schools/engineering_and_computing/facultystaff/huang_xinyu.php)

**Jamil Khan**, Professor and Chair (803-777-1578) [khan@cec.sc.edu] Ph.D., Clemson, 1988. Heat transfer; fluid dynamics; heat exchanger design, power conversion. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/khan\\_jamil.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/khan_jamil.php)

**Michael Sutton**, Professor (803-777-7158) [sutton@sc.edu] Ph.D., University of Illinois, Champaign-Urbana, 1981. Fracture; fatigue; vision-based measurements; experimental solid mechanics; biomechanics; composite and metallic material characterization. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/sutton\\_michael.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/sutton_michael.php)

**Yi Wang**, Associate Professor (803-777-2252)[yiwang@cec.sc.edu] Ph.D., Carnegie Mellon University, 2005. Computational and data-enabled science and engineering for mechanical and nuclear systems (multiphysics simulation, real-time and massive data analytics, and systems engineering) Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/yi\\_wang.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/yi_wang.php)

**Lingyu Yu**, Associate Professor (803-777-4902) [yu3@cec.sc.edu] Ph.D., University of South Carolina, 2006. Structural Health Monitoring and Diagnosis. ultrasonic nondestructive evaluation (NDE), sensing and instrumentation. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/yu\\_lingyu.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/yu_lingyu.php)

### **Other Faculty**

**Madalina Badea**, Research Assistant Professor (803-777-4185) [badea@mailbox.sc.edu] Ph.D., Karlsruhe Institute of Technology, 2011. Predictive modeling; Sensitivity analysis and Uncertainty Quantification. Faculty Website: [https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/badea\\_madalina.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/badea_madalina.php)



**Luther L Hamm**, Adjunct Professor (803-725-2520) [luther.hamm@srnl.gov] Ph.D., USC, 1982. Subsurface contaminant transport within the environment.

**Valmore (Val) J. Loiselle**, Adjunct Professor (803-736-5588) [loiselle@cec.sc.edu] MSME w/ Minor NE, RPI, 1973. Retired.

**Elwyn Roberts**, Visiting Professor (803-777-2252) [robertse@cec.sc.edu] Ph.D., University of Sheffield, 1960. Materials performance in nuclear reactors; product design; manufacturing and concurrent engineering. Faculty Website:  
[https://sc.edu/study/colleges\\_schools/engineering\\_and\\_computing/faculty-staff/roberts\\_elwyn.php](https://sc.edu/study/colleges_schools/engineering_and_computing/faculty-staff/roberts_elwyn.php)

**James Tulenko**, Adjunct Professor. (352-219-3865) [tulenko@gmail.com] Masters in Nuclear Engineering, MIT. Nuclear Fuel Performance.

### **Nuclear Science and Engineering Research Centers**

**USC Nuclear Materials Laboratory:** The USC Nuclear Materials Laboratory is equipped and licensed for working with uranium and thorium based fuels as well as non-radioactive materials routinely studied including high temperature alloys and ODS steels. The key facilities of this laboratory include high temperature furnaces for processing and testing of high temperature ceramics and metals, high vacuum systems, inert atmosphere glovebox, radiological hood, a customized fluidized-bed chemical vapor deposition coater for studies of coated particle fuels, a very high-temperature mechanical testing machine including a creep/tensile test stand, TEM sample holder for in-situ straining experiments, differential scanning calorimeter, thermogravimetric analyzer and equipment for characterization such as density, particle size, surface area, and porosity measurement and a full suite of metallographic sample preparation (grinder/polisher, electropolisher).

**Thermal Hydraulics Laboratory:** Thermal hydraulic test loops and laboratories are dedicated to studies of enhanced heat transfer, fluid flow, pressure drop and other phenomena associated with nuclear fuel rods and assemblies.

**High Performance Computing:** High performance computing facilities are used to analyze and model nuclear reactors, advanced fuel cycles, and advanced nuclear fuels and materials. Modeling and simulation codes and tools are employed for neutronic, thermal hydraulic, computational fluid dynamics (CFD), thermochemical, safety and risk, shielding, and finite element analyses. Sample code packages include MCNP6.2, SCALE6.2, FACT-SAGE7.0, ABAQUS, Comsol Multiphysics, etc.

### **Used Fuel Drying and Disposition Laboratory**

The laboratory is equipped with capabilities to test and evaluate full length LWR fuel assemblies. A 16 foot tall vacuum chamber is equipped with sensors and instruments for pressure, temperature, relative humidity, optical emission spectroscopy, and thermal imaging. Heater rods are used to simulate decay

heat of fuel assemblies. A vacuum and gas recirculation network connected to the chamber is capable of simulating vacuum drying and forced circulation drying of nuclear fuel assemblies. A smaller chamber is similarly equipped for testing at a smaller scale. The equipment is used for drying, corrosion, environmental, and mechanical testing of spent fuel and related materials and components. The chamber and equipment are also used as a testbed for sensors developed for structural health monitoring of storage canisters.

## SOUTH CAROLINA STATE UNIVERSITY

Civil & Mechanical Engineering Technology and Nuclear Engineering  
300 College Street; NE  
Orangeburg, South Carolina 29117  
803-516-4758  
FAX: 803-516-4526  
Administrative Contact: April Hutton-Moorer  
803-516-4923  
ahutton@scsu.edu

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	13	6	6	7	5

ABET Accreditation: Nuclear Engineering

### Nuclear Science and Engineering Faculty

**Musa B Danjaji**, Professor & Academic Program Coordinator (803-516-4591) [mbdanjaji@scsu.edu] Ph.D., University of Illinois at Urbana-Champaign, 1993. Environmental Radioactivity; Radiation Effects in Material; Radiation Protection; Alternative Energy Studies.

**Zheng Chang**, Associate Professor (803-536-7924) [zchang99@gmail.com] Ph.D., Tokyo Institute of Technology, 1993. Radiochemistry; Nuclear Engineering; Environmental Radioactivity; Nuclear Detection Technology.

**Kenneth C Okafor**, Associate Professor (803-516-4758) [kokafor@scsu.edu] Ph.D., The Ohio State University, 1988. Alternative Energy Studies.

**Zaijing Sun**, Assistant Professor (803-536-7924) [zsun@scsu.edu] Ph.D., Idaho State University, 2012. Nuclear Activation Analysis; Computer Simulations of Nuclear Processes; Achaemetry; Big Data in Nuclear Decommissioning and Nuclear Waste Management; Medical Isotope Production.  
Website: <http://arsl.scsu.edu> or <http://tdminer.scsu.edu>

### Other Faculty

**Kara N. Beharry**, Instructor (803-516-4923) [kbeharry@scsu.edu] M.S., University of Florida – Gainesville, 2009. Radiation Protection.

## UNIVERSITY OF TENNESSEE, KNOXVILLE

Nuclear Engineering  
1412 Circle Drive  
Knoxville, TN 37996-1410  
865-974-2525  
FAX: 865-974-0668  
Administrative Contact: Lydia Sharp  
865-974-2525  
lsharp@utk.edu  
Website: <http://www.ne.utk.edu>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	40	30	43	41	38
Masters	29	35	17	24	23
PhD	9	16	15	24	19

Graduate Student Enrollment: 23 Masters/ 123 Ph.D.

ABET Accreditation: B.S. (N.E.)

### Nuclear Science and Engineering Faculty

**J. Wesley Hines**, Professor and Department Head (865-974-6561) [jhines2@utk.edu] Ph.D., Ohio State. Research interests: Diagnostics and surveillance, artificial intelligence methods, expert systems and neural networks. Website: <http://www.engr.utk.edu/nuclear/Projects/JWH-Grants10-09.pdf>

**Nicholas R. Brown**, Associate Professor (865-974-2525)[nbrown49@utk.edu] Ph.D., Purdue University, 2011. Nuclear reactor safety and simulation of reactor and system transients, advanced nuclear fuel and cladding materials, including nuclear fuel safety, assessment and simulation of sustainable nuclear fuel cycles.

**Jamie B. Coble**, Assistant Department Head for Undergraduate Studies and Service, Associate Professor and Southern Company Faculty Fellow (865-974-5048) [jcoble1@utk.edu] Ph.D., University of Tennessee-Knoxville. Research interests: Process monitoring, equipment condition assessment, fault detection, diagnostics, and prognostics.

**David C. Donovan**, Assistant Professor (865-974-0594) [ddonovan@utk.edu] Ph.D. University Of Wisconsin – Madison. Research interests: Nuclear Fusion Technology, Boundary Plasma Physics, Plasma Diagnostics, Plasma-Material Interactions, Fusion Neutron Generators

**Howard L. Hall**, Professor (865-974-2525) [hhall6@utk.edu] Ph.D., University of California, Berkeley. Research Interests: Nuclear security applications, including proliferation detection, counterproliferation,

detection of and response to radiological/nuclear threats, nuclear forensics, radiochemistry, and applications of nuclear-based methods to other security needs (such as explosives detection).  
Website: [http://hall-research.engr.utk.edu/Welcome\\_to\\_Professor\\_Halls\\_Research\\_Group.html](http://hall-research.engr.utk.edu/Welcome_to_Professor_Halls_Research_Group.html)

**Jason P. Hayward**, Associate Department Head for Graduate Studies and Research, Professor and UCOR Fellow (865-974-2536) [jhayward@utk.edu] Ph.D., University of Michigan. Research interests: Radiation detection and measurement, nuclear security and safeguards, nuclear instrumentation, medical and health physics. Website: <http://www.engr.utk.edu/nuclear/Projects/JPHGrantsContracts-12-09.pdf>

**Lawrence H. Heilbronn**, John D. Tickle Assistant Professor (865-974-2525) [lheilbro@utk.edu] Ph.D., Michigan State. Research interests: High-energy neutron production from heavy-ion interactions.

**Yutai Kato**, Assistant Professor (865 576-5996) [ykato1@utk.edu] Ph.D., University of Tokyo, Japan. Research Interests: Materials science and engineering for fusion and fission energy systems; development and characterization of ceramics, graphite, composites and other advanced materials for high temperature and severe environment applications.

**Maik K. Lang**, Associate Professor and Pietro F. Pasqua Fellow (865-974-2525) [mlang2@utk.edu] Ph.D., University of Heidelberg, Germany. Research interests: Radiation damage and high-pressure studies, materials science.

**Eric D. Lukosi**, Associate Professor (865-974-5048) [elukosi@utk.edu] Ph.D., University of Missouri, Columbia. Research interests: Neutron detection and spectrometry, dosimetry, nuclear batteries, applied plasma physics, nuclear physics and cross section evaluations.

**G. Ivan Maldonado**, Professor (865-974-7562) [imaldona@utk.edu] Ph.D., North Carolina State University. Research interests: Incore fuel management, fuel cycle analysis, advanced reactors.

**Ronald E. Pevey**, Associate Professor (865-974-7573) [rpevey@utk.edu] Ph.D., University of Tennessee. Research interests: Reactor physics, thermal hydraulics, computer methods development, shielding, nuclear criticality safety. Professional Engineer.

**Arthur E. Ruggles**, Professor (865-974-2525) [aruggles@utk.edu] Ph.D., RPI. Research interests: Reactor thermalhydraulics, liquid metal flow and heat transfer, cavitation and fluid transients, accelerator target design and microchannel flow.

**Steven S. Skutnik**, Joint Faculty Associate Professor (865-974-2525) [sskutnik@utk.edu] Ph.D., North Carolina State University. Research interests: Nuclear security applications, including proliferation detection and counter-proliferation; advanced nuclear fuel cycles and waste management; modeling and simulation.

**Vladimir Sobes**, Assistant Professor (865-974-7568)[sobesv@utk.edu] Ph.D., Massachusetts Institute of technology, 2013. Nuclear data, methods and codes development for data applications, nuclear criticality safety analysis, artificial intelligence for advanced design.

**Brian D. Wirth**, Governor's Chair Professor (865-974-2552) [bdwirth@utk.edu] Ph.D., University of California. Research Interests: computational modeling and measurements of radiation effects in materials, molecular dynamics simulation, nano-materials.

**Richard T. Wood**, Professor (865-974-8841) [rwood11@utk.edu] Ph.D., University of Tennessee. Research Interests: Digital instrumentation and control (I&C) technology, nuclear power plant I&C systems, safety system regulation, space nuclear power and propulsion, systems engineering, autonomy and control, surveillance and diagnostics, and simulation. Current research activities focus on common-cause failure for embedded digital devices and development of I&C architectures for advanced reactors.

**Steven J. Zinkle**, Governor's Chair Professor (865-974-2525) [szinkle@utk.edu] Ph.D., University of Wisconsin, Madison. Research interests: Physical metallurgy of structural materials; the effects of ion and neutron irradiation on the microstructure, physical properties, and mechanical properties of metals and ceramics; transmission electron microscopy; and fusion and space fission reactor materials studies.

### **Other Faculty**

**Joseph M. Bowling**, Adjunct Assistant Professor (865-541-1155) [jbowling@utk.edu] Ph.D., University of Tennessee – Knoxville. Research Interests: Medical Physics, health physics, radiological engineering.

**Ondrej Chvala**, Research Assistant Professor (865-974-5048) [ochvala@utk.edu] Ph.D., Charles University, Prague, Czech Republic. Research Interests: High performance computing applications to nuclear engineering, reactor core physics, and molten salt based nuclear systems.

**David Cook**, Associate Professor (865-574-5690) [cookdh@ornl.gov] Ph.D., University of Tennessee, 1984. Research Interests: Reactor safety analysis, research reactor operations and safety, two-phase flow, isotope separations, and radiological source term modeling.

**Jun Ding**, Research Associate Professor (865-974-2525)[jding5@utk.edu] Ph.D., University of Tennessee-Knoxville, 2004. Design, simulation and monitoring of advanced reactors using digital twins, instrumentation and control for autonomous nuclear systems, training machine learning for advanced reactor diagnosis technology.

**H. L. Dodds**, IBM Professor (865-974-2525) [utne@utk.edu] Ph.D., UT. Research interests: Reactor core analysis, transient modeling and simulation, reactor safety analysis, advanced reactors, nuclear criticality safety, energy policy. Professional Engineer.  
Website: <http://web.utk.edu/~hdj/>

**Barry D. Ganapol**, Research Professor (865-974-2525) [bganapol@utk.edu] Ph.D., University of California, Berkeley. Research interests: Deterministic and analytical transport theory.

**Jess Gehin**, Adjunct Associate Professor (865-576-5093) [gehinjc@ornl.gov] Ph.D., Massachusetts Institute of Technology, 1992. Research Interests: Nuclear system design and analysis, reactor transient analysis, advanced simulation of light water reactors, and fuel cycle analysis.

**Andrei Gribok**, Research Associate Professor (865-974-2525) [agribok@utk.edu] Ph.D., Moscow Inst of Biological Physics. Research interests: Artificial intelligence techniques, surveillance and diagnosis, Inverse and ill-posed problems, Regularization theory.

**Martin L. Grossbeck**, Research Professor (865-974-2525) [mgrossbe@utk.edu] Ph.D., University of Illinois. Research interests: Radiation effects in materials, burnable absorbers, research reactors, and ultra-high vacuum technology.

**Samantha Hedrick**, Adjunct Assistant Professor (573-220-8392) [samantha.hedrick@provisionproton.com] Ph.D., Washington University School of Medicine Research interests: Medical Physics treatment planning, quality assurance and clinical development

**Michael Howard**, Adjunct Professor, (423.493.1691) [Michael.Howard@hcahealthcare.com] Ph.D., University of Tennessee-Knoxville. Research interests: Medical Physics, Radiation Safety.

**Richard H. Howard**, Adjunct Assistant Professor (865-974-7568)[rhowar16@utk.edu] Ph.D., University of Tennessee, Knoxville, 2019. Radioisotope, nuclear fuels, and materials.

**Alan S. Icenhour**, Adjunct Professor (865-576-5315) [aicenhou@utk.edu] Ph.D., University of Tennessee-Knoxville. Research Interests: Radiochemical processing, nuclear fuels, isotope and radioisotope production, reactor and nuclear facility operations, radioactive waste management, and nuclear security.

**Thomas Kerlin**, Research Professor (86-597-42525) [jkerlin@utk.edu] Ph.D., University of Tennessee. Research interests: Diagnostics and surveillance, modeling and simulation, instrumentation and control.

**Richard “Chip” H. Lagdon**, Professor of Practice (703-429-6534)[rlagdon@utk.edu] MEA, George Washington University, 1987.

**Michael J. Leisenfelt**, Research Assistant Professor (865-974-2525)[mlesenf@utk.edu] Ph.D., University of Florida, 2016. Advanced imaging technologies including: high speed active interrogation for security nonproliferation, industrial non-destructive testing/inspection/evaluation, medical imaging, Compton scatter radiographic methods, dual/multi energy methods, ray-tracing physics based computed tomography, radiation detection, system integration, and high performance CPU/GPU data processing.

**Charles L. Melcher**, Research professor (865-974-0254) [cmelcher@utk.edu] Ph.D., Washington University of St. Louis. Research interests: Radiation detection, gamma-ray spectroscopy, new materials for radiation

sensors, crystal growth, implementation of emerging scintillator technology in medical imaging and nuclear security

**John T. Mihalcz**, Research Professor (865-974-2525) [maccat15@comcast.net] Ph.D., University of Tennessee, Knoxville. Research interests: radiation measurements for nuclear safeguards and nuclear criticality safety, reactor physics

**Jack Miller**, Research Professor (865-974-2525) [jmill122@utk.edu] Ph.D., University of California. Research interests: Space radiation protection and radiological engineering.

**Laurence F. Miller**, Professor Emeritus (865-974-5048) [lfmiller@utk.edu] Ph.D., Texas A&M. Research interests: Particle and radiation transport, diagnostics and surveillance, waste management, health physics, modeling and simulation, instrumentation and control. Professional Engineer.

**Hanna Moussa**, Research Assistant Professor (865-974-2525) [hmoussa@utk.edu] Ph.D., University of Tennessee-Knoxville. Research Interests: Radiation safety, Monte Carlo simulation of radiation transport.

**Fred R. Mynatt**, Research Professor (865-974-2525) [fmynatt@utk.edu] Ph.D., University of Tennessee-Knoxville. Research interests: Radiation transport, isotope production and nuclear regulations.

**Giovanni Pastore**, Research Associate Professor (865-974-7568)[Giovanni.Pasore@inl.gov] Ph.D., Polytechnic University of Milan, 2012. Nuclear Materials, Fuels and Performance Modeling.

**Louis Qualls**, Adjunct Professor (865-974-7568)[lou.qualls@comcast.net] Ph.D., University of Tennessee. Molten salt reactors, thermal nuclear propulsion, advanced reactor systems.

**Stephen S. Raman**, Adjunct Assistant Professor (865-574-5138)[sraiman@utk.edu] Ph.D., University of Michigan, Ann Arbor, 2016. Nuclear materials, corrosion, radiation effects.

**Chester R. Ramsey**, Adjunct Assistant Professor (865-974-2525) [cramsey@utk.edu] Ph.D., University of Tennessee-Knoxville. Research Interests: Medical Physics, health physics, radiological engineering.

**Jason D. Readle**, Adjunct Assistant Professor (865-974-7568)[jreadle@utk.edu] Ph.D., University of Illinois, Urbana-Champaign, 2010. Nuclear security, lasers, electronics.

**Andrew Stephan**, Research Assistant Professor (865-974-2525) Ph.D., University of Tennessee. Research interests: Radiation detection and homeland security.

**Ashley C. Stowe**, Assistant Professor (8659742525) [astowe1@utk.edu] M.S., Florida State University. Research interests: Radiation detection and instrument development.



**Lawrence W. Townsend**, Chancellor's Professor and Robert M. Condra Professor Emeritus (865-974-7569) [ltownsen@utk.edu] Ph.D., Idaho. Research interests: Radiation physics, transport, shielding and risk assessment; Nuclear and Radiological engineering; Theoretical nuclear physics

**Belle R. Upadhyaya**, Professor Emeritus (865-974-7576) [bupadhya@utk.edu] Ph.D., University of California, San Diego. Research interests: Dynamics, instrumentation and control, monitoring and diagnostics, advanced signal processing, next generation reactors, autonomous control of space reactors, nondestructive examination, reliability and maintainability engineering. Professional Engineer.  
Website: <http://web.utk.edu/~bru/>

**Timothy Valentine**, Research Associate Professor (865-974-2525) [tvalenti@utk.edu] Ph.D., University of Tennessee. Research interests: Nuclear system safety and energy policy.

**Martin R. Williamson**, Research Assistant Professor (865-974-2525) [mwillia3@utk.edu] Ph.D., University of Tennessee. Research interests: nuclear nonproliferation and arms control, fissile material detection and characterization, nuclear criticality safety. Professional Engineer.

## TEXAS A&M UNIVERSITY

Nuclear Engineering  
337 Zachry Engineering Center, 3133 TAMU  
College Station, TX 77843-3133  
979-845-4161  
FAX: 979-845-6443  
Administrative Contact: Laurie McArthur  
979-845-4161  
lmcArthur@tamu.edu  
Website: <http://engineering.tamu.edu/nuclear>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	56	46	48	81	90
Masters	26	24	23	17	19
PhD	14	14	17	16	17

Graduate Student Enrollment: 58 Masters/ 95 Ph.D.  
ABET Accreditation: Nuclear Engineering, Radiological Health Engineering

### Nuclear Science and Engineering Faculty

**Michael A. Nastasi**, Department Head (979- 862-2636) [mikenastasi.@tamu.edu] Ph.D., Cornell University, 1986. Materials for Extreme Nuclear Environments; Irradiation Induced Phase Transformations; Ion Irradiation and Plasma Modification Materials; Synthesis and Properties of High Strength Nanolayered Composites

**Marvin L. Adams**, Professor; Associate Director, Center for Large-scale Scientific Simulations; Director, National Laboratories Mission Support (979-845-4198) [mladams@tamu.edu] Ph.D., University of Michigan, 1986. Computational Method Development; Nuclear Reactor Analysis and Design. Professional Engineer.

**Karim E. Ahmed**, Assistant Professor (979-847-6192) [karim.ahmed@tamu.edu] Ph.D., Purdue University, 2015. Multiscale modeling and simulations of materials, irradiation effects, co-evolution of microstructure and properties of materials.

**Sunil S. Chirayath**, Associate Professor, Director, Center for Nuclear Security Science and Policy Initiatives (NSSPI) (979-862-2616) [sunil@tamu.edu] Ph.D., University of Madras, India, 2005. Nuclear Security and Nonproliferation; Monte Carlo Radiation Transport; Criticality Safety.  
Website: <https://nsspi.tamu.edu/people/sunil-sunny-chirayath/>

**Shaheen A. Dewji**, Assistant Professor; Faculty Fellow, Center for Nuclear Security Science and Policy Initiatives (NSSPI) (979-458-8165) [sdewji@tamu.edu] Ph.D., Georgia Institute of Technology, 2014.

Nuclear engineering; health physics; dosimetry; nuclear medicine; radiation detection; gamma spectroscopy; nuclear safeguards; nuclear materials control and accountancy; nuclear non-proliferation; emergency response. Radiological Engineering, Detection & Dosimetry Laboratory.  
Website: <https://red2.engr.tamu.edu>

**John Ford**, Associate Professor; ABET Coordinator (979-845-6271) [ford@tamu.edu] Ph.D., University of Tennessee at Knoxville, 1992. Health Physics; Radiation Biology; Medical Physics.

**Yassin A. Hassan**, Professor (979-845-7090) [y-hassan@tamu.edu] Ph.D., University of Illinois, 1980. Nuclear Power Engineering: Thermal Hydraulics; Computational Fluid Dynamics. Professional Engineer.

**Mark Kimber**, Assistant Professor (979-458-3952) [mark.kimber@tamu.edu] Ph.D., Purdue University, 2008. Experimental and Computational Thermal Hydraulics, Uncertainty Quantification in Isothermal and Non-isothermal Turbulent Flows and Two-Phase Heat Transport.

**Karen Vierow Kirkland**, Professor and Associate Department Head (979-458-0600) [vierow@tamu.edu] Ph.D., University of Tokyo, 1999. Nuclear Power Engineering: Thermal Hydraulics; Reactor Safety.

**Sean M. McDeavitt**, Professor; Director, Nuclear Science and Engineering Center (NESC) (979-845-7551) [mcdeavitt@tamu.edu] Ph.D., Purdue University, 1992. Processing and Behavior of Nuclear Fuels, Materials, and Waste Forms; Radiation Science Applications; and Nuclear System Design and Demonstration. Laboratory: Fuel Cycle and Materials Laboratory (FCML)  
<https://engineering.tamu.edu/nuclear/research/facilities/fuel-cycle-materials-laboratory-fcml.html>

**Jim E. Morel**, Professor; Director, Center for Large-Scale Scientific Simulations (979-845-6072) [morel@tamu.edu] Ph.D., University of New Mexico, 1979. Computational Methods Development for radiation Transport, Radiation-Hydrodynamics, and Uncertainty Quantification.

**Kenneth L. Peddicord**, Professor (979-845-5802) [k-peddicord@tamu.edu] Ph.D., University of Illinois, 1972. Nuclear Materials and Fuel Cycles. Professional Engineer.

**Shikha Prasad**, Assistant Professor (979-458-8162) [shikhap@tamu.edu] Ph.D, University of Michigan, 2012. Neutron detection; nuclear security; quantum computing. Professional Engineer.  
Website: <https://engineering.tamu.edu/nuclear/profiles/prasad-shikha.html>

**Jean Ragusa**, Professor and Associate Director, Institute for Scientific Computation (979-862-2033) [jean.ragusa@tamu.edu] Ph.D., Institut National Polytechnique de Grenoble, France, 2001. Computational Methods for Radiation Transport and Multiphysics Applications; Reactor Analysis and Design; Uncertainty Quantification and Data Science Applied to Nuclear Engineering.  
Website: <http://multiphysics.engr.tamu.edu>

**Lin Shao**, Professor and Undergraduate Program Advisor (979-845-4107) [lshao@tamu.edu] Ph.D., University of Houston, 2001. Nuclear Materials and Fuel Cycles.

**Pavel V. Tsvetkov**, Associate Professor and Graduate Program Advisor (979-845-7078) [tsvetkov@tamu.edu] Ph.D., Texas A&M University, 2002. Advanced Energy Systems Laboratory: Design and Demonstration of Advanced Nuclear Systems, Waste Minimization, Optimization, Systems Engineering, Data Science, Artificial Intelligence, Energy Sustainability and Environment, Direct Energy Conversion, Autonomous Control, Novel Instrumentation, Nuclear Security and Nonproliferation, Cybersecurity.

### **Other Faculty**

**Leslie A. Braby**, Senior Lecturer Emeritus; Research Professor (979-862-1798) [labraby@tamu.edu] Ph.D., Oregon State University, 1972. Health Physics; Radiation Biology; Medical Physics.

**Milan Hanus**, Senior Lecturer [mhanus@tamu.edu] Ph.D., University of West Bohemia, Pilsen, Czech Republic, 2015. Computational Transport Theory; High Performance Scientific Computing; Nuclear Reactor Theory

**Pasquale Fulvio**, Research Associate Professor (979-458-8164)[pfulvio@tamu.edu] Ph.D., Kent State University, 2009. Preparation and characterization of nanomaterials and composites for energy storage and conversion, for radiation shielding and detection, for heterogeneous catalysis, and for separations.

**Cable Kurwitz**, Senior Lecturer (979-845-6126) [kurwitz@tamu.edu] Ph.D., Texas A&M University, 2009. Nuclear Power Engineering: Space Power; Thermal Hydraulics. Professional Engineer.

**Craig Marianno**, Assistant Professor; Deputy Director, NSSPI (979-845 -6093) [marianno@tamu.edu] Ph.D., Oregon State University, 2000. Nuclear Security and Nonproliferation; Health Physics, Radioecology; Radiation Detection System Development; Emergency Response and Consequence Management.

**William H. Marlow**, Professor Emeritus (979-845-2271) [w-marlow@tamu.edu] Ph.D., University of Texas at Austin, 1973. Nuclear Materials and Fuel Cycles.

**Warren Miller**, Professor of Practice, TEES Eminent Professor [wmiller@tamu.edu] Ph.D., Northwestern University, 1973. Nuclear Security; Computational Methods.

**Paul Nelson**, Professor Emeritus; Associate Director for International Programs, NSSPI (979-845-4132) [p-nelson@tamu.edu] Ph.D., University of New Mexico, 1969. Nuclear Security and Nonproliferation.

**Duy-Thien Nguyen**, Research Assistant Professor (979-845-4161) [thien.duy.ng@tamu.edu] Ph.D., Ristumeikan University, Japan, 2010. Thermal Hydraulics; Experimental and Computational Fluid Dynamics.

**Natela Ostrovskaya**, Senior Lecturer (979-862-4409) [natela@ne.tamu.edu] Ph.D., Texas A&M University, 2005. Health Physics; Radiation Biology; Medical Physics.

**Theodore Parish**, Professor Emeritus, Ph.D. University of Texas, 1973. Reactor Physics.

**Richard Schultz**, Professor of Practice (979-845-4161) [rschultz@tamu.edu] Ph. D., Idaho State University, 2010. Nuclear Power Engineering.

**Galina Tsvetkova**, Lecturer (979-845-4162) [tsvetkovag@tamu.edu] Ph.D., Texas A&M University, 2003. Nuclear Power Engineering-Reactor Analysis & Design; Small Nuclear Power & Co-Generation Applications.

**Rodolfo Vaghetto**, Research Assistant Professor (979-845-4109) [r.vaghetto@tamu.edu] Ph.D., Texas A&M University, 2013. Experimental and computational aspects involving high temperature gas-cooled reactors; Computational thermal-hydraulics applied to existing Light Water Reactors (LWR) and Generation IV Reactors.

**Richard M. Waer**, Professor of Practice (979-845-4161) [rwaer@tamu.edu] B.S., University of Arizona, 1989.

### **Nuclear Science and Engineering Research Centers**

**Center for Large-scale Scientific Simulations (CLASS)**: Dr. Jim Morel, Director. CLASS' objectives are to advance the state of the art in large-scale scientific simulations, and to lead the development of educational programs whose participants will be exceptionally well qualified for careers in scientific simulation. <http://class.tamu.edu>

**Center for Nuclear Security Science and Policy Initiatives (NSSPI)**: Dr. Sunil Chirayath, Director. The mission of NSSPI is to work collaboratively with national laboratories and other partners to develop and apply science and technology to detect, prevent, and reverse the proliferation of nuclear and radiological weapons and guard against nuclear terrorism; educate the next generation of leaders in the field of nuclear security sciences; and to study the policy implications of deploying new technologies. <http://nsspi.tamu.edu>.

**Nuclear Engineering and Science Center (NESC)**: Dr. Sean M. McDevitt, Director. The NESC is a multi-division center comprising reactor facilities, research laboratories, and the Nuclear Power Institute (NPI). The center contains two research reactors. The first is a 1 MW TRIGA reactor with multiple irradiation options that is used for student training, research, and isotope production. The second is a 5 W AGN-201M reactor that is useful for student training and low-power research activities. The NESC also has multiple research laboratories with hot cells, gloveboxes, materials processing equipment, and radiochemistry capabilities. <http://nsc.tamu.edu>

**Nuclear Power Institute (NPI)**: NPI is a state-supported division within the NESC with the mission to develop “the necessary workforce” in the state of Texas. The Institute supports education enhancement programs with K-12 students, community colleges, teachers and education professionals in Texas. <http://www.nuclearpowerinstitute.org>

# UNIVERSITY OF TEXAS at AUSTIN

Nuclear and Radiation Engineering Program

Mechanical Engineering

1 University Station C2200

Austin, Texas 78712-0292

512-913-7609

FAX: 512-471-4589

Administrative Contact: Nichole Powell

[nicole.powell@austin.utexas.edu](mailto:nicole.powell@austin.utexas.edu)

Website: [www.nuclear.engr.utexas.edu](http://www.nuclear.engr.utexas.edu)

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	6	10	6	6	7
PhD	3	4	6	3	2

Graduate Student Enrollment: 22 Masters/ 28 Ph.D.

ABET Accreditation: BS in Mechanical Engineering

## Distance Education Program

Nuclear Engineering Courses for MS and PhD Degrees

<http://nuclear.engr.utexas.edu/distance-learning>

## Nuclear Science and Engineering Faculty

**Sheldon Landsberger**, Professor; Robert B. Trull Chair in Engineering and Area Coordinator (512-796-0287) [[s.landsberger@mail.utexas.edu](mailto:s.landsberger@mail.utexas.edu)] Ph.D., University of Toronto, 1982. Nuclear analytical measurements and their applications in nuclear forensics; natural radioactivity; environmental monitoring of radioactivity, trace and heavy metals; nuclear instrumentation.

Website: <http://www.me.utexas.edu/faculty/faculty-directory/landsberger>

**William Charlton**, John J. McKetta Energy Professor and Director, Nuclear Engineering Teaching Laboratory (865-406-1502)[[wcharlton@austin.utexas.edu](mailto:wcharlton@austin.utexas.edu)] Ph.D., Texas A&M University, 1999. Nuclear security; nuclear nonproliferation; nuclear detection; nuclear forensics; nuclear policy; reactor physics.

Website: <http://www.me.utexas.edu/faculty/faculty-directory/charlton>

**Kevin Clarno**, Associate Professor (865-406-1502)[[clarno@utexas.edu](mailto:clarno@utexas.edu)] Ph.D., Texas A&M University, 2002. Multiphysics coupling methods, neutronics; fuel performance; design, optimization, and analysis of advanced commercial and test reactor concepts.

**Derek Haas**, Assistant Professor (512-468-3871) [[derekhaas@utexas.edu](mailto:derekhaas@utexas.edu)] Ph.D., University of Texas at Austin, 2008. Radiation detection for nuclear arms control and non-proliferation; fundamental physics of radioactive decay processes; fission yields; detection techniques.

Website: <http://www.me.utexas.edu/faculty/faculty-directory/haas>

**Dale Klein**, Professor and Associate Vice Chancellor for Research for the UT System (512-499-4689) [dklein@utsystem.edu] Ph.D., University of Missouri-Columbia, 1977. Nuclear power sustainability, nuclear regulations; nuclear nonproliferation.  
Website: <http://www.me.utexas.edu/faculty/faculty-directory/klein>

### **Other Faculty**

**Joe Artnak**, Research Associate (512-577-6998 [ut@att.net] Ph.D., University of Texas, 2012. Prompt gamma activation analysis; hydrogen embrittlement, susceptibility, and detection in metals; boron quantification in semiconductors for neutron detection and voltaic systems; radioxenon and radioargon production. Website: <http://www.nuclear.engr.utexas.edu/netl/netl-people>

**Robert Blake Anderson**, Postdoctoral Fellow (432-770-6028) [blakeanderson@utexas.edu] Ph.D., The University of Texas at Austin, 2020. Mobile robotic systems; autonomous radiation surveying; radioactive source localization; optimization of robotic measurements; robot task planning.  
Website: <https://robotics.me.utexas.edu/blake-anderson>

**Desiderio Kovar, Professor**, Materials Science and Engineering, (512-471-5185) [dekovar@austin.utexas.edu] Ph.D. Carnegie Mellon University, 1995, Microstructure/property relationships in ceramics; metals, composites; additive manufacturing.  
Website: <https://www.me.utexas.edu/faculty/faculty-directory/kovar>

**Joseph Lapka**, Research Fellow (530-219-9185) [joseph.lapka@austin.utexas.edu] Ph.D., Oregon State University, 2013; Nuclear fuel reprocessing; actinide and lanthanide chemistry, aqueous and organic solution chemistry. Website: <http://www.nuclear.engr.utexas.edu/faculty-and-staff>

**Benjamin Leibowicz**, Assistant Professor, Operations Research and Industrial Engineering, (512-475-9550) [bleibowicz@utexas.edu] Ph.D. Stanford University, 2012, Energy systems; energy and climate policy analysis; integrated assessment modeling; sustainable cities; technological change and innovation.  
Website: <https://www.me.utexas.edu/faculty/faculty-directory/leibowicz>

**Don Nolting**, Facilities Manager Biomedical Imaging Center and Research Associate, Nuclear Engineering Teaching Laboratory (615-491-3032) [don.nolting@utexas.edu] Ph.D., University of Iowa, 2005. Inorganic and organometallic chemistry; MR, PET, SPECT, and Optical imaging contrast agent design, synthesis, and purification; radiochemical syntheses using F-18, Cu-64, Tc-99m, and In-111 isotopes.  
Website: <https://biomedimaging.utexas.edu/about-us>

**Mitch Pryor** (512-471-5182) [mpryor@utexas.edu] Ph.D., The University of Texas, Austin, 2002. Robotics in hazardous areas with special nuclear materials; design; controls, decision making  
Website: <http://robotics.me.utexas.edu/mitch-pryor>

## **Nuclear Science and Engineering Research Centers**

**Nuclear Engineering Teaching Laboratory (NETL):** Constructed in 1986 at the J.J. Pickle Research Campus, a separate research center of the University of Texas, featuring a 1 Megawatt TRIGA reactor. Areas of study include health physics, radiation engineering, research reactor beam port experiments, radioactive waste management, reactor and computational nuclear engineering and environmental pathways, and nuclear forensics. NETL also houses a 14 MeV neutron generator, 2 Pu(Be) sources, three Compton suppression germanium systems, three gamma-gamma coincidence systems, beta-gamma coincidence system, and radiochemistry and neutron activation analysis laboratories.

**Nuclear and Applied Robotics Laboratory:** Advanced research in efforts to deploy robotics in hazardous, uncertain environments to perform manufacturing and special nuclear material handling.



## UNIVERSITY OF UTAH

Nuclear Engineering Program  
Civil and Environmental Engineering  
110 Central Campus Drive, Suite 2000  
Salt Lake City, UT 84112

801-581-6931

FAX: 801-585-5477

Administrative Contact: Courtney Phillips

801-581-6931

courtney.phillips@utah.edu

Website: [www.nuclear.utah.edu](http://www.nuclear.utah.edu)

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	3	8	3	3	*
PhD	0	2	3	4	*

Graduate Student Enrollment: # Masters/# Ph.D.

ABET Accreditation: Civil Engineering

### **Nuclear Science and Engineering Faculty**

**Michael Barber**, Director, Professor and Chair (801-581-6931)[[barber@civil.utah.edu](mailto:barber@civil.utah.edu)] Ph.D., University of Texas at Austin, 1991. Water Resources Engineering; Water Quality; and Climate Change Impact on Water Resources; Field Investigations and Numerical Modeling Studies. Website: [www.nuclear.utah.edu/director](http://www.nuclear.utah.edu/director)

**Edward Cazalas**, Assistant Professor (801-581-7397) [[edward.cazalas@utah.edu](mailto:edward.cazalas@utah.edu)] Ph.D., Pennsylvania State University, 2015. Radiation detection; radiation effects; instrumentation and electronics.

**Tara Mastren**, Assistant Professor (801-581-7277) [[tara.mastren@utah.edu](mailto:tara.mastren@utah.edu)] Ph.D., Washington University in St. Louis, 2014. Radiochemistry; Nuclear Medicine; Lanthanide and Actinide Separations; Neutron Activation Analysis. Website: <https://themastrenlab.sitey.me/>

**Luther McDonald IV**, Associate Professor (801-581-7768) [[luther.mcdonald@utah.edu](mailto:luther.mcdonald@utah.edu)] Ph.D., Washington State University, 2012. Radiochemistry; Nuclear Forensics; Nuclear Materials. Website: [www.mcdonald-radiochemistry-research.com](http://www.mcdonald-radiochemistry-research.com)

**Michael F. Simpson**, Professor (801-581-4013) [[michael.simpson@utah.edu](mailto:michael.simpson@utah.edu)] Ph.D., Princeton University, 1996. Nuclear fuel cycle technology; molten salt chemistry; nuclear safeguards; electrochemical analysis and separations. Website: [https://faculty.utah.edu/u0907827-MICHAEL\\_F\\_SIMPSON/research/index.html](https://faculty.utah.edu/u0907827-MICHAEL_F_SIMPSON/research/index.html)

**Glenn Sjoden**, Professor (801-581-8874) [[glenn.sjoden@utah.edu](mailto:glenn.sjoden@utah.edu)] Ph.D., Pennsylvania State University, 1997. Non-proliferation, reactor research, and power engineering. Professional Engineer.

## UTAH STATE UNIVERSITY

Mechanical and Aerospace Engineering

4130 Old Main Hill

Logan, Utah 84322

435-797-0329

FAX: 435-797-2417

Administrative Contact: Ryan Berke

435-797-8184

Ryan.berke@usu.edu

Website: [www.mae.usu.edu](http://www.mae.usu.edu)

[nuclear.usu.edu](http://nuclear.usu.edu)

Graduate Student Enrollment: 57 Masters/33 Ph.D.

ABET Accreditation: Mechanical Engineering

### Nuclear Science and Engineering Faculty

**Zhongquan “Charlie” Zheng**, Professor and Department Head. (435-797-2878) [zzheng@usu.edu]. Ph.D. Old Dominion University, 1993. Vortex dynamics, CFD, heat transfer, turbulent flow, aeroacoustics, and biofluid dynamics.

**Ryan Berke**, Assistant Professor and Director of USU’s Thermal Hydraulics and Materials Properties (TMP) Center. (435-797-8184) [ryan.berke@usu.edu] Ph.D. The Ohio State University, 2013. Experimental solid mechanics for extreme temperature environments, digital image correlation at high magnifications and long working distances. Websites: [www.berkelab.com](http://www.berkelab.com), [nuclear.usu.edu](http://nuclear.usu.edu) .

**Som Dutta**, Assistant Professor. (435-797-0329) [som.dutta@usu.edu]. Ph.D. University of Illinois, Urbana-Champaign 2016. Computational fluid dynamics, particle flow.

**Thomas Fronk**, Associate Professor and Associate Dean of the College of Engineering. (435-797-0116) [Thomas.fronk@usu.edu]. Ph.D. Virginia Tech, 1991. Composite structures, numerical solutions, finite elements, vibrations.

**Juhyeong Lee**, Assistant Professor. (435-797-0329) [juhyeong.lee@usu.edu] Ph.D. Mississippi State University, 2017. Damage mechanisms due to thermal-electrical-mechanical coupling, effects of lightning strikes on composites.

**Geordie Richards**, Assistant Professor. (435-797-6364) [geordie.richards@usu.edu]. Ph.D. University of Toronto, 2012. Uncertainty quantification, nonlinear partial differential equations, dispersive equations, fluid mechanics. Website: [www.geordierichards.com](http://www.geordierichards.com)

**Nick Roberts**, Associate Professor. (435-797-9455) [nick.roberts@usu.edu]. Ph.D. Vanderbilt University, 2010. Direct energy conversion and storage, materials, nanotechnology, thermal transport. Website: <http://ntel.go.usu.edu>

**Barton Smith**, Professor. (435-797-8147) [barton.smith@usu.edu]. Ph.D. Georgia Tech, 1999. Experimental fluid mechanics, validation benchmark simulations for CFD, particle image velocimetry uncertainty, flow control applied to materials processing. Website: [http://efd1.neng.usu.edu/EFDL/EFDL\\_Home.html](http://efd1.neng.usu.edu/EFDL/EFDL_Home.html)

**Tadd Truscott**, Associate Professor. (435-797-8246) [taddtruscott@gmail.com]. Ph.D. Massachusetts Institute of Technology, 20xx. Experimental fluid dynamics, water-entry phenomena, high speed imaging, advanced imaging techniques. Website: [www.splashlab.org](http://www.splashlab.org)

**Elizabeth Vargis**, Assistant Professor. (435-797-0618) [elizabeth.vargis@usu.edu]. Ph.D. Vanderbilt University, 2012. Health physics, tissue engineering, effects of radiation on cardiac and skeletal muscle. Website: [www.vargislab.com](http://www.vargislab.com)

**Hailei Wang**, Assistant Professor. (435-797-2098)[hailei.wang@usu.edu]. Ph.D. Oregon State University, 2006. Thermal fluid sciences, advanced energy systems, integration of waste heat and renewable energy, and high-performance micro-channel heat exchangers. Website: <http://mae.usu.edu/faculty/hailei-wang/index>

## VIRGINIA COMMONWEALTH UNIVERSITY

Mechanical and Nuclear Engineering

401 West Main Street

Richmond, Virginia 23284-3015

(804) 828-9117

FAX: (804) 827-7030

Administrative Contact: Supathorn Phongikaroon

(804) 827-7030

sphongikaroon@vcu.edu

Website: <http://mechanical-and-nuclear.egr.vcu.edu/>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	16	23	12	14	*
Masters	15	18	11	4	*
PhD	2	6	8	7	*

Graduate Student Enrollment: # Masters/# Ph.D.

ABET Accreditation: B.S. in Mechanical Engineering,  
B.S. in Mechanical Engineering with a Nuclear Concentration

### Nuclear Science and Engineering Faculty

**Supathorn Phongikaroon**, Associate Professor and Director of Nuclear Programs (804-827-2278) [sphongikaroon@vcu.edu] Ph.D., University of Maryland, 2001. Electrochemical and chemical separation for used nuclear fuel reprocessing, molten salt systems, pyroprocessing technology, laser-induced breakdown spectroscopy. Professional Engineer.

**Lane Carasik**, Assistant Professor (804-828-9117) [lbcarasik@vcu.edu] Ph.D., Texas A&M University, 2017. Thermal-hydraulics; advanced reactor design and simulation.

**Braden Goddard**, Assistant Professor (804-827-7029) [bgoddard@vcu.edu] Ph.D., Texas A&M University, 2013. Nuclear security and counter terrorism, nonproliferation and international safeguards, radiation detection and measurements, environmental measurements and assay.

**James Miller**, Professor of Practice (804-827-4000) [jgmiller@vcu.edu] M.S., Pennsylvania State University, 1975. Reactor Theory, nuclear safety, modeling and simulation of nuclear systems. Professional Engineer.

**Gennady Miloshevsky**, Associate Professor (804-828-9117 [gennady@vcu.edu] Ph.D., Heat and Mass Transfer Institute of the National Academy of Sciences of Belarus, 1998. Computational physics; shielding of space radiation; fission SNM sources; plasma physics and atomic spectra; CFD; two-fluid liquid metal-plasma flows; warm dense matter.

**Jessika Rojas**, Assistant Professor (804-828-7126) [jvrojas@vcu.edu] Ph.D., Missouri University of Science & Technology, 2014. Nuclear materials, radiation induced synthesis of nanomaterials, medical applications of radiation.

**Gary Tepper**, Professor and Department Chair (804-827-4079) [gctepper@vcu.edu] Ph.D, University of California, San Diego, 1993. Radiation detection and measurement, sensor design, nanoscale materials.

**Zeyun Wu**, Assistant Professor (804-827-0237) [zwu@vcu.edu] Ph.D., Texas A&M University, 2010. Reactor Physics; Reactor core design and analysis; Computational methods for neutron transport; Uncertainty and sensitivity analysis. Website: <https://egr.vcu.edu/directory/zeyunwu/>

### **Other Faculty**

**Sama Bilbao y León**, Associate Professor *\*Leave of Absence* (804-828-2570) [sbilbao@vcu.edu] Ph.D., University of Wisconsin, Madison, 1999. Experimental and computational thermal-hydraulics, two-phase flow and heat transfer for nuclear applications, energy and environmental policy, systems and decision analysis, outreach and communications.

**Gene Grecheck**, Instructor (804-827-4000) M.S. Rensselaer Polytechnic Institute. Energy policy, nuclear power operations and strategic development.

### **Nuclear Science and Engineering Research Centers**

**Specialized nuclear engineering laboratories** include a the VCU Radiation Detection and Measurement Laboratory, the VCU Radiochemistry Laboratory, the VCU Laser Spectroscopy Laboratory, the Advanced Nuclear Modeling and Simulation Laboratory, the NanoNuclear and Radiation Effects Laboratory, the Nuclear Security and Nonproliferation Laboratory, the Microsensor and Radiation Detector Laboratory, the VCU Nuclear Simulator, and the VCU Inertial Electrostatic Confinement Fusion Reactor. Other relevant research centers within the VCU School of Engineering include the Institute for Engineering and Medicine, the VCU Nanomaterials Core Characterization Center, the VCU da Vinci Center for Innovation and the Wright Virginia Microelectronics Center.

# VIRGINIA POLYTECHNIC INSTITUTE AND STATE UNIVERSITY

Nuclear Engineering Program  
Mechanical Engineering Department  
445 Goodwin Hall (0238)  
635 Prices Fork Road  
Blacksburg, Virginia 24061  
703-538-3790

Greater Washington DC Area (GWDCA) Campus  
Northern Virginia center  
7054 Haycock Road  
Arlington, VA 22043

Director: Alireza Haghghat  
Program Coordinator: Alison Jones  
arjones@vt.edu  
Website: <http://nuclear.ncr.vt.edu>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
Masters	1	3	2	5	2
PhD	2	0	0	2	3

Graduate Student Enrollment: 8 Masters/11 Ph.D.

**Distance Education Program**  
Offers Nuclear Engineering Courses Online

## **Nuclear Science and Engineering Faculty**

**Alireza Haghghat**, Program Director, Professor (703-538-3795) [haghghat@vt.edu] Ph.D., University of Washington, 1986. Research in Advanced particle transport methods (deterministic and statistical Monte Carlo) and their applications in reactor physics analysis and design, radiation shielding, nuclear security and safeguards, and medical imaging; multi-physics analysis for advanced reactor design and simulation; perturbation methods; virtual reality visualization; parallel computing (Located at the GWDCA campus).

**Juliana Pacheco Duarte**, Assistant Professor (540-231-7388) [pachecodurate@vt.edu] Ph.D., University of Wisconsin-Madison, 2018. Research in Nuclear Safety Analysis; Thermal-Hydraulic Systems; Experimental and Computational Two-phase flow; Boiling and Condensation phenomena; Subchannel Analysis; Advanced Light Water Reactor; Small Modular Reactors; Inverse Heat Transfer Problems.

**Celine Hin**, Assistant Professor (540-231-1924) [celhin@vt.edu] Ph.D., Institut National Polytechnique of Grenoble, 2005. Kinetic Monte Carlo simulation; thermoelectric material design; nuclear materials simulation of radiation effects and development of nuclear fuel and cladding material.

**Mark Pierson**, Associate Professor of Practice (540-231-9112) [mark.pierson@vt.edu] Ph.D., Virginia Polytechnic Institute and State University, 2005. Radioisotope betavoltaic batteries; nuclear fuel cycle; nuclear safeguards and nonproliferation; radiation detection and measurement; radiation transport; nuclear power plant operations and safety.

**Yang Liu**, Assistant Professor (540-231-8068) [liu130@vt.edu] Ph.D., Purdue University, 2008. Multi-scale modeling of multiphase flow; interfacial area transport equation and particle interaction mechanism; constitutive closures of 3-D two-fluid models; two-phase flow CFD with dynamic interfacial model; two-phase instrumentation for interfacial measurement; two-phase flow instabilities; experimental methods.

**Jinsuo Zhang**, Professor (540-231-1988)[zjinsuo@vt.edu] Ph.D., Zhejiang University, 2001, Nuclear materials compatibility (materials corrosion/degradation); Nuclear fuel materials (metallic fuel, fuel-cladding chemical interactions, fuel-coolant interactions); Nuclear fuel cycle technology (pyroprocessing); Electrochemical separation; Nuclear safeguards and nonproliferation; Advanced coolant materials (molten salt, liquid metal).

### **Other Faculty**

**David Clark**, Professor and Head of Materials Science and Engineering Department (540-231-6640) [dclark@mse.vt.edu] Ph.D., University of Florida, 1976. Nuclear waste materials; environmental degradation of glass and ceramics; microwave sintering of fuel pellets.

**Diana Farkas**, Professor of Materials Science and Engineering (540-231-4742) [diana@vt.edu] Ph.D., University of Delaware, 1980. High performance computer simulation techniques for application to nuclear materials and for designing materials with improved radiation resistance including nanofoam materials; Molecular dynamics and many body interatomic potentials to simulate materials response at the atomic scale in multimillion atom virtual samples.

**Tomonari Furukawa**, Professor of Mechanical Engineering (540-231-9311) [tomonari@vt.edu] Ph.D., University of Tokyo, 1996. Research in research is focused on Multiphysics system analysis and design; Computational and experimental mechanics; Structural health monitoring; Material characterization; Sensor networks; Image analysis; Bayesian estimation and control; Autonomous systems; Cooperative robotics; and, Inverse analysis and optimization.

**Patrick Huber**, Professor, Physics (540-231-8727 ), [pahyber@vt.edu] Ph.D., Technische Universität München, Theoretical Physics, Numerical methods to accurately and efficiently predict physics sensitivities of yet to be built experiments; theoretical analysis of neutrino physics.

**Johnathan Link**, Professor of Physics & Director of Center for Neutrino Physics (540-231-5321) [jonathan.link@vt.edu] Ph.D., University of California at Davis. Leading the development of the CHANDLER antineutrino detection system for application to power reactor safeguards.

**Roop Mahajan**, Professor of Mechanical Engineering (571-858-3355) [mahajanr@vt.edu] Ph.D., Cornell University, 1977, Advanced Electronic Cooling; Two-Phase Flows; Porous Media; Synthesis and application of graphene and its derivatives and composites; Biomedical Devices; Emerging and Black Swan Technologies; Cross-cutting technologies for sustainable communities; Next generation engineering curriculum.

**Camillo Mariani**, Associate Professor of Physics (540-231-4449)[camillo@vt.edu] Ph.D., University of Rome “La Sapienza”, Experimental particle physics and in particular neutrino physics; various accelerator neutrino experiments; long baseline (DUNE at Fermilab and SURF) and short baseline (MicroBooNE and SBND at Fermilab), in non-proliferation experiment (SOLID and CHANDLER) and in electron scattering experiments at JLAB in Virginia; study of neutrino interactions in matter from a theoretical and experimental point of view.

**Ranga Pitchumani**, George R. Goodson Professor of Mechanical Engineering (571-858-3251) [pitchu@vt.edu], Ph.D., Carnegie-Mellon University, 1992. Research in Energy Systems; Energy/Water Nexus; Electric Grid Integration of Renewable Energy; Materials Processing and Manufacturing; Uncertainty Quantification and Large Scale Optimization; and, Micro and Nanoscale Technologies.

**Patrick Roberts**, Associate Professor of School of Public and International Affairs (202-599-0562) [robertsp@vt.edu], Ph.D., Government, University of Virginia, 2006. Research in Emergency management in government; Development of disaster and security organizations and their capacity; Organizational autonomy; and, Current global security threats.

**Sonja Schmid**, Assistant Professor of Science and Technology in Society (703-538-8482) [sschmid@vt.edu] Ph.D., Cornell University, 2005. Nuclear security and safeguards; S&T policy; emergency response; energy policy in international perspective.

**Danesh Tafti**. Professor and Interim Head, Mechanical Engineering Department (540-231-9975) [dtafti@exchange.vt.edu]. Ph.D., Pennsylvania State University, 1989. Develop and apply large-scale high performance simulation tools to a wide range of physical phenomena in the fluid-thermal sciences; applications include internal and external cooling of turbine vanes and blades, heat transfer enhancement surfaces in compact heat exchangers, fluidized beds, cardio-vascular flows, cooling of reactor reflector regions and in-core self-powered neutron detectors, aerodynamics of flapping flight for Micro-Air Vehicle (MAV) applications, CO2 capture, microfluidics, and flows in solid rocket motors.

**James Turso**, Adjunct Associate Professor (tursoja@gmail.com), Advisory Electrical Engineer (EE5), Newport News Shipbuilding, Washington, D.C. Research in reactor control and dynamics, and nuclear instrumentation.



**Michael von Spakovsky**, Robert E. Hord Jr. Professor of Mechanical Engineering (540-231-6684) [vonspako@vt.edu] Ph.D., Georgia Institute of Technology, 1986. Research is in areas of theoretical and applied non-equilibrium and equilibrium thermodynamics with two principal focuses: i) intrinsic quantum thermodynamics (IQT) and its mathematical framework steepest-entropy-ascent quantum thermodynamics (SEA-QT) and ii) SEA non-equilibrium thermodynamics (SEA-NT).

### **Nuclear Science and Engineering Research Centers**

**Center for Nuclear Materials and Nuclear Fuel Cycle (NMFC):** Director, Jinsuo Zhang [zjinsuo@vt.edu] (540-231-1988). Research activities including liquid metal and molten salt coolant chemistry and control, material corrosion by liquid metal, high temperature water and molten salt and corrosion control, electrochemical separation for spent fuel treatment, metallic nuclear fuel and fuel/cladding chemical interactions. The center current have a molten chloride salt loop, two high-temperature loops, electrochemical cells for high/room temperature corrosion studies, six electrochemical potentiostat for molten salt chemistry studies, three glovebox systems for providing inert conditions for experiments with chemistry control.

**Heat Transfer and Safety (HEATS) Lab:** Director, Juliana Pacheco Duarte [pachecoduarte@vt.edu] (540-231-7388). HEATS Lab focuses on two-phase flow heat transfer studies to improve the safety, security, and economic features of the next generation of nuclear reactors. Research activities include experimental and computational thermal-hydraulics modeling.

**MARS - Center for Multiphysics for Advanced Reactor Simulation:** Director, Alireza Haghighat [haghighat@vt.edu] (703-538-3795) The vision of MARS is to establish itself as the Center for the development of detailed Multiphysics algorithms and simulation tools capable of design and safety analysis of advanced and innovative reactors in real-time. This will be accomplished by combining a team of highly-skilled professors (both domestic and international) with different backgrounds (such as reactor physics, reactor thermal-hydraulics, material science, and chemistry), and private organizations. (<https://gemi.ictas.vt.edu/research/s3npower.html>)

**Multiphase Flow and Thermal-hydraulics Laboratory (MFTL):** Director, Yang Liu [liu130@vt.edu] (540-231-8068) Research activities include two-phase flow visualization and measurement, advanced conductivity probe, fast X-ray flow imaging system, particle image velocimetry, measurement uncertainty quantification, bubble, drop and film dynamics, multi-group two-fluid model, interfacial area transport equation, computational fluid dynamics, interface resolved simulation, two-phase flow induced vibration, passive safety system design, reactor safety analysis. (<https://sites.google.com/a/vt.edu/vtmftl/>)

**Radiation Measurement, Simulation and Visualization Laboratory (RMSVL):** Director, Mark Pierson [mark.pierson@vt.edu] (540-231-9112). Research activities in radiation detection and materials, radiation dosimetry, light-weight radiation shielding materials, radiation detection arrays, medical physics, nuclear safeguards, benchmarking of particle transport codes and radiation transport visualization. In addition, it provides modeling, simulation and visualization of the results.

**Virginia Tech Transport Theory Group (VT<sup>3</sup>G):** Leader, Alireza Haghghat [haghghat@vt.edu] (703-53-3795) VT<sup>3</sup>G is engaged in development of hybrid 3-D, multi-scale, parallel particle transport algorithms and codes, and their application to nuclear energy, nuclear security and non-proliferation and radiation therapy and diagnosis; development virtual reality systems for particle transport simulation. (<http://nse1.ncr.vt.edu/vt3g.html>)

## UNIVERSITY OF WISCONSIN, MADISON

Nuclear Engineering and Engineering Physics Program

1500 Engineering Drive

151 Engr. Research Building

Madison, WI 53706

608-263-1646

FAX: 608-263-7451

Administrative Contact: Tim Jensen

608-265-5092

timjensen@wisc.edu

Website: <http://www.engr.wisc.edu/ep/>

	7/14-6/15	7/15-6/16	7/16-6/17	7/17-6/18	7/18-6/19
B.S.	32	33	28	19	22
Masters	33	23	29	19	22
PhD	10	9	10	8	15

Graduate Student Enrollment: 10 Masters/ 59 Ph.D.

ABET Accreditation: Nuclear Engineering

### Nuclear Science and Engineering Faculty

**Paul P. H. Wilson**, Professor and Department Head (608-263-0807) [paul.wilson@wisc.edu] Ph.D., University of Wisconsin, Madison, 1999. Nuclear fuel cycles; transmutation/depletion/activation; proliferation analysis; energy policy; Monte Carlo methods; reactor core design & analysis. Website: [https://directory.engr.wisc.edu/ep/Faculty/Wilson\\_Paul/](https://directory.engr.wisc.edu/ep/Faculty/Wilson_Paul/)

**Mark Anderson**, Assistant Professor (608-263-2802) [manderson@engr.wisc.edu] Ph.D., University of Wisconsin, Madison, 1998. Fundamental physics and applications relating to advanced energy utilization; energy extraction and energy production with focus on experimental thermal hydraulics for advanced nuclear; solar and waste heat recovery energy sources. Also Mechanical Engineering, Wisconsin Energy Institute. Website: [https://directory.engr.wisc.edu/me/Faculty/Anderson\\_Mark/](https://directory.engr.wisc.edu/me/Faculty/Anderson_Mark/)

**James P. Blanchard**, Professor (608-265-2001) [blanchard@engr.wisc.edu] Ph.D., University of California, Los Angeles, 1988. Nuclear microbatteries; radiation damage; fusion technology; laser-induced stresses; surface property characterization; reactor vessel embrittlement. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Riccardo Bonazza**, Professor (608-265-2337) [bonazza@engr.wisc.edu] Ph.D., California Institute of Technology, 1992. Experimental fluid mechanics and heat transfer; impulsive unsteady phenomena; shock tube applications; laser and X-ray imaging & measuring techniques.

**Jennifer Choy**, Assistant Professor (608-263-6974)[[Jennifer.choy@wisc.edu](mailto:Jennifer.choy@wisc.edu)] Ph.D., Harvard University, 2013. Quantum engineering; atomic and optical physics; nanophotonics; development and characterization of solid-state defects; quantum sensing using atoms and defects in solids; inertial navigation and timekeeping. Website: [https://directory.engr.wisc.edu/ep/Faculty/Choy\\_Jennifer/](https://directory.engr.wisc.edu/ep/Faculty/Choy_Jennifer/)

**Adrien Couet**, Assistant Professor (608-265-7955) [[couet@wisc.edu](mailto:couet@wisc.edu)] Ph.D., Penn State University, 2014. Corrosion; Nuclear Materials; Fuels; Radiation Damage; Electrochemistry.

**Stephanie Diem**, Assistant Professor (608-263-1414)[[sjdiem@wisc.edu](mailto:sjdiem@wisc.edu)] Ph.D., Princeton University. Experimental plasma physics; Magnetically confined plasmas; Microwave heating and current drive; Electron Bernstein wave emission, heating and current drive; Understanding and controlling edge instabilities in plasmas. Website: [https://directory.engr.wisc.edu/ep/Faculty/Diem\\_Stephanie/](https://directory.engr.wisc.edu/ep/Faculty/Diem_Stephanie/)

**Benedikt Geiger**, Assistant Professor (608-262-3386)[[benedict.geiger@wisc.edu](mailto:benedict.geiger@wisc.edu)] Ph.D., Ludwig-Maximilians University, 2013. The experimental investigation of turbulent particle and heat transport in present day devices with the aim to develop new turbulence-optimized stellarator experiments. Website: [https://directory.engr.wisc.edu/ep/Faculty/Geiger\\_Benedikt/](https://directory.engr.wisc.edu/ep/Faculty/Geiger_Benedikt/)

**Chris C. Hegna**, Professor (608-263-0810) [[cchegna@wisc.edu](mailto:cchegna@wisc.edu)] Ph.D., Columbia, 1989. Theoretical plasma physics; fusion science; magnetic confinement of plasmas; magnetohydrodynamics. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Douglas L. Henderson**, Professor (608-263-0808) [[henderson@engr.wisc.edu](mailto:henderson@engr.wisc.edu)] Ph.D., University of Wisconsin, Madison, 1987. Reactor physics; radiation transport; fusion reactor technology; nuclear waste. Website: [https://directory.engr.wisc.edu/ep/Faculty/Henderson\\_Douglas/](https://directory.engr.wisc.edu/ep/Faculty/Henderson_Douglas/)

**Oliver Schmitz**, Professor (608-263-1547) ([oschmitz@wisc.edu](mailto:oschmitz@wisc.edu)) Ph.D., Physics, Heinrich-Heine-Universität, Düsseldorf., 2006. Plasma wall interaction, plasma edge transport, atomic physics for plasma diagnostics, high density plasmas, and neutral particle dynamics. Website: <http://www.engr.wisc.edu/ep/faculty>

**Carl R Sovinec**, Professor (608-263-5525) [[csovinec@wisc.edu](mailto:csovinec@wisc.edu)] Ph.D., University of Wisconsin, Madison, 1996. Computational plasma physics; computational fluid dynamics; magnetohydrodynamics; numerical methods for partial differential equations. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Kumar Sridharan**, Professor (608-263-4789)[[kumar.sridharan@wisc.edu](mailto:kumar.sridharan@wisc.edu)] Ph.D., University of Wisconsin-Madison, 1989. Nuclear reactor materials research and development; Irradiation effects in materials; Corrosion of materials; High temperature materials; Physical metallurgy and mechanical behavior of materials; Ion implantation and plasma-assisted thin film deposition of materials; Surface modifications and coatings including nanoscale processes and materials; Emerging and commercial surface engineering technologies; Wear and nanotribology of materials; Processing-structure-properties-performance relationships in materials; Conventional and advanced materials characterization and analysis techniques; Materials applications, challenges, and solutions for a broad spectrum of industrial applications; Failure analysis. Website: [https://directory.engr.wisc.edu/ep/Faculty/Sridharan\\_Kumar/](https://directory.engr.wisc.edu/ep/Faculty/Sridharan_Kumar/)

**Robert J. Witt**, Associate Professor (608-263-2760) [witt@engr.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1987. Computational methods in fluid and solid mechanics.  
Website: <http://www.engr.wisc.edu/ep/faculty/>

**Yongfeng Zhang**, Assistant Professor (608-890-3779)[yzhang2446@wisc.edu] Ph.D., Rensselaer Polytechnical Institute, 2009. Multiscale modeling and simulation of materials aging and degradation in extreme conditions: Irradiation effect, Mechanical degradation, Collision and stress corrosion cracking.  
Website: [https://directory.engr.wisc.edu/ep/Faculty/Zhang\\_Yongfeng/](https://directory.engr.wisc.edu/ep/Faculty/Zhang_Yongfeng/)

### **Other Faculty**

**Matt S. Allen**, Associate Professor (608-890-1619) [msallen@engr.wisc.edu] Ph.D., Georgia Institute of Technology, 2005. Dynamics, vibrations and controls; micro/nano systems; uncertainty and stochastic systems; linear/nonlinear system identification; model reduction/substructuring.  
Website: <http://www.engr.wisc.edu/ep/faculty>

**Vicki M. Bier**, Professor (608-262-2064) [bier@engr.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1981. Technological hazards, risk analysis, decision analysis, operations research. Industrial and Systems Engineering. Website: <http://www.engr.wisc.edu/ep/faculty>

**Curt A. Bronkhorst**, Professor (608-890-2586) [cbronkhorst@wisc.edu] Ph.D., Massachusetts Institute of Technology. Theoretical/computational mechanics of materials; computational plasticity; multi-scale material modeling; damage mechanics; single crystal plasticity; dynamic material behavior; structural phase transformation

**Michael L Corradini**, Professor Emeritus (608-263-1648) [corradini@engr.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1978. Multi-phase fluid mechanics and heat transfer; fission and fusion reactors; nuclear reactor safety; severe accident phenomena; power plant operation and design; energy policy; nuclear fuel cycle. Professional Engineer.

**Wendy C. Crone**, Professor (608-262-8384) [crone@engr.wisc.edu] Ph.D., University of Minnesota, 1998. Experimental mechanics of materials; characterization of materials such as shape memory alloys, hydrogels, and biomaterials; therapeutic medical devices.  
Website: <http://www.engr.wisc.edu/ep/faculty/>

**Ray J. Fonck**, Professor Emeritus (608-263-7799) [fonck@engr.wisc.edu] Ph.D., Princeton, 1978. Plasma & fusion science and technology; plasma turbulence; burning plasmas; tokamaks; alternative fusion schemes; atomic physics and applied optics; high temperature plasma diagnostics.  
Website: <http://www.engr.wisc.edu/ep/faculty/>

**Jennifer Franck**, Assistant Professor (608-263-2562)[[jafranck@wisc.edu](mailto:jafranck@wisc.edu)] Ph.D., California Institute of Technology, 2009. Computational fluid dynamics; unsteady fluid mechanics; turbulent flows; wind and tidal energy; aerodynamics; flow control; propulsion; fluid-structure interaction. Website: [https://directory.engr.wisc.edu/ep/Faculty/Franck\\_Jennifer/](https://directory.engr.wisc.edu/ep/Faculty/Franck_Jennifer/)

**Noah Hershkowitz**, Professor Emeritus (608-263-4970) [[hershkowitz@engr.wisc.edu](mailto:hershkowitz@engr.wisc.edu)] Ph.D., Johns Hopkins, 1966. Plasma etching; plasma-aided manufacturing; basic plasma physics; ICRF effects; laboratory space plasma physics. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Gerald L. Kulcinski**, Professor Emeritus (608-263-1601) [[kulcinski@engr.wisc.edu](mailto:kulcinski@engr.wisc.edu)] Ph.D., University of Wisconsin, Madison, 1965. Magnetic/inertial fusion reactor systems studies; radiation damage and nuclear materials; lunar mining of helium-3. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Franklin K Miller**, Associate Professor (608-263-2479) [[fkmillier@wisc.edu](mailto:fkmillier@wisc.edu)] Ph.D., Massachusetts Institute of Technology, 2005. Cryogenics; thermodynamics of Superfluid 3He-4He mixtures; Sub-Kelvin cooling for space science; energy systems. Also Mechanical Engineering. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Dane D Morgan**, Professor (608-265-5879) [[ddmorgan@wisc.edu](mailto:ddmorgan@wisc.edu)] Ph.D., University of California-Berkeley, 1998. Computational materials science for materials design; ab initio electronic structure methods and multiscale techniques for large time / length scales and thermokinetics. Also Materials Science and Engineering. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Gregory A. Moses**, Professor Emeritus (608-265-6567) [[moses@engr.wisc.edu](mailto:moses@engr.wisc.edu)] Ph.D., University of Michigan, 1976. Fusion reactor design; technology enhanced learning; radiation hydrodynamics; computational engineering; nuclear reactor physics. Website: <http://www.engr.wisc.edu/ep/faculty/>

**John M Pfothauer**, Professor (608-263-4082) [[pfot@engr.wisc.edu](mailto:pfot@engr.wisc.edu)] Ph.D., University of Oregon, 1984. Cryogenics; low temperature refrigeration; applied superconductivity. Also Mechanical Engineering. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Pavana Prabhakar**, Assistant Professor (608-265-7834)[[pavana.prabhakar@wisc.edu](mailto:pavana.prabhakar@wisc.edu)] Ph.D., University of Michigan, 2013. Damage and failure mechanics of structural composite materials; life prediction of materials in extreme multi-physics environment; Advanced manufacturing of materials - additive manufacturing of hybrid materials; Multiscale material modeling of hierarchical materials; Process modeling - additive manufacturing and composite fabrication. Website: [https://directory.engr.wisc.edu/cee/Faculty/Prabhakar\\_Pavana/](https://directory.engr.wisc.edu/cee/Faculty/Prabhakar_Pavana/)

**Leslie M. Smith**, Professor (608-263-5498) [[lsmith@math.wisc.edu](mailto:lsmith@math.wisc.edu)] Ph.D., Massachusetts Institute of Technology, 1988. Statistical physics, turbulence and turbulence modeling for engineering and geophysical applications; applied mathematics, stability theory and fluid dynamics; field theoretical techniques, the dynamic renormalization group and universality in complex systems. Also Mathematics. Website: <http://www.engr.wisc.edu/ep/faculty>

**Izabela Szlufarska**, Professor (608-265-5878) [izabela@engr.wisc.edu] Ph.D., University of Tennessee, 2004. Atomistic simulations: Massively parallel molecular dynamics and ab initio-based simulations. -- Nanocrystalline materials: Computational design of materials with superior mechanical properties; Grain boundary nanoengineering; Nanoindentation. -- Fundamentals of friction & adhesion at the nanoscale -- Coupling between surface/interface chemistry and mechanical properties: Materials for MEMS applications in extreme environments. -- Nano-bio-mechanics: Viscoelastic response of mechanical biosensors. -- Materials for nuclear applications: Radiation damage resistance, multi-scale modeling of defect and impurity kinetics. Website: [https://directory.engr.wisc.edu/mse/Faculty/Szlufarska\\_Izabela/](https://directory.engr.wisc.edu/mse/Faculty/Szlufarska_Izabela/)

**Mario F. Trujillo**, Associate Professor. (608-262-0944) [mtrujillo@wisc.edu] Ph.D., University of Illinois, 2001. Thermodynamics, fluid dynamics computational fluid dynamics. Also Engine Research Center, Mechanical Engineering. Website: <http://www.engr.wisc.edu/ep/faculty/>

**Fabian Waleffe**, Professor (608-263-3269) [waleffe@math.wisc.edu] Ph.D., Massachusetts Institute of Technology, 1989. Math; fluid dynamics; bifurcations and turbulence; scientific computing. Also Mathematics. Website: <http://www.engr.wisc.edu/ep/faculty/>

## **RESEARCH TRAINING AND FISSION REACTORS IN NORTH AMERICA**

### **UNIVERSITY OF CALIFORNIA, DAVIS**

(UCD/MNRC) TRIGA 2000 kW - Dr. Wade J. Richards, Director  
Davis McClellan Nuclear Radiation Center  
5335 Price Avenue, Bldg. 258, McClellan, Ca 95652  
(916) 614-6200/FAX: (915) 614-6250  
wjrichards@ucdavis.edu

### **UNIVERSITY OF CALIFORNIA, IRVINE**

TRIGA-MkI, 250 kW - Dr. George E. Miller, Director  
Department of Chemistry, Irvine, CA 92697-2025  
(949) 824-4664/FAX: (949) 824-8571  
gemiller@uci.edu

### **COLORADO SCHOOL OF MINES**

TRIGA 1000 kW in Partnership with the U.S. Geological Survey  
Dr. Jeff King, CSM 303-384-2133, kingjc@mines.edu  
Tim DeBey, USGS 303-236-4726, tdebey@usgs.gov  
Denver Federal Center, Denver, CO 80225-0046

### **UNIVERSITY OF FLORIDA**

UFTR 100 kW  
Dept. of Nuclear and Radiological Engineering  
202 NSC, P.O. Box 118300  
Gainesville, FL 32611-8300  
(352) 392-1408 ext. 317/FAX: (352) 392-3380; vernet@ufl.edu

### **IDAHO STATE UNIVERSITY**

AGN-201P-103, 0.005 kW – Dr. John S. Bennion, Director  
Lillibridge Engineering Laboratory, Pocatello, ID 83209-8060  
(208) 282-3351/FAX: (208) 282-4538; jrbennion@isu.edu

### **KANSAS STATE UNIVERSITY**

TRIGA-MkII, 250 kW – Dr. Jeff Geuther, Director  
Nuclear Engineering Department, Ward Hall, Manhattan, KS 66506-2503  
785-532-6657; geuther@ksu.edu

### **UNIVERSITY OF MARYLAND**

TRIGA 250 kW – Dr. Mohamad Al-Sheikhly, Director  
Nuclear Engineering Program, Department of Materials & Nuclear Engineering, College Park, MD 20742  
(301) 405-7448/mohamad@eng.umd.edu



**MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

MITR, 5000 kW - Prof. David E. Moncton  
Nuclear Reactor Laboratory, 138 Albany Street, Cambridge, MA 02139  
(617) 253-4202/FAX: (617) 253-7300; jbernard@mit.edu

**UNIVERSITY OF MASSACHUSETTS, LOWELL**

1 MW Pool type reactor - Mr. Leo Bobek, Director  
Radiation Laboratory, 1 University Avenue, Lowell, MA 01854  
(978) 934-3366/FAX: (978) 934-4067  
leo\_bobek@uml.edu

**UNIVERSITY OF MISSOURI, COLUMBIA**

MURR, 10,000 kW – Ralph Butler, Interim Director  
Research Reactor Center, Columbia, MO 65211  
(573) 882-4211/FAX: (573) 882-6360  
butlerra@missouri.edu; <http://www.missouri.edu/~murrwww/>

**MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY**

UMRR 200 kW – Dr. Arvind Kumar, Director  
Department of Mining & Nuclear Engineering, 222 Fulton Hall, 301 W 14<sup>th</sup> St.  
Rolla, MO 65409-0170  
(William E. Bonzer, Manager) (573) 341-4236 / FAX: (573) 341-4237; webonzer@mst.edu

**ECOLE POLYTECHNIQUE DE MONTREAL**

SLOWPOKE 20 kW - Cornelia Chilian, Director of SLOWPOKE laboratory  
(514) 340-4711, ext. 4754  
cornelia.chilian@polymtl.ca

**UNIVERSITY OF NEW MEXICO**

AGN-201M-112, 0.005 kW – Dr. Robert Busch, Reactor Supervisor  
Chemical and Nuclear Engineering Department, FEC209, Albuquerque, NM 87131-1341  
(505) 277-5431/FAX: (505) 277-5433; busch@unm.edu

**NORTH CAROLINA STATE UNIVERSITY**

PULSTAR 1000 kW – Dr. Ayman I. Hawari, Director  
Department of Nuclear Engineering, Campus Box 7909, Raleigh, NC 27695  
(919) 515-4598/FAX: (919) 513-1276; ayman.hawari@ncsu.edu

**OHIO STATE UNIVERSITY**

OSURR, 500 kW – Dr. Thomas E. Blue, Director  
E420 Scott Laboratory, 201 West 19th Avenue, Columbus, OH 43210-1142  
(614) 292-7979/FAX: (614) 688-5493; blue.1@osu.edu

Point of Contact for the OSU Nuclear Reactor Lab: Andrew Kauffman, Assoc. Director  
1298 Kinnear Rd, Columbus, OH 43212-1154  
(614) 688-8220; Kauffman.9@osu.edu

**OREGON STATE UNIVERSITY**

TRIGA MkF 1100 kW – Dr. Stephen Reese, Director  
A100 Radiation Center, Corvallis, OR 97331-5903  
(541) 737-2341/FAX: (541) 737-0480  
binneys@rc.orst.edu

**THE PENNSYLVANIA STATE UNIVERSITY**

TRIGA, 1000 kW – Prof. Kenan Unlu  
Breazeale Nuclear Reactor, Radiation Science and Engineering Center  
University Park, PA 16802-2301; (814)  
865-6351/FAX: (814) 863-4840; k-unlu@psu.edu

**PURDUE UNIVERSITY**

Nuclear Reactor, 1.0 kW – Robert S. Bean, Director  
School of Nuclear Engineering, 400 Central Drive West Lafayette, IN 47907  
(765) 496-3573; bean@purdue.edu

**REED COLLEGE**

Triga-MkI, 250 kW – Mr. Stephen Frantz, Director  
Reed Reactor Facility, Portland, OR 97202-8199  
(503) 777-7222/FAX: (503) 777-7274  
reactor@reed.edu

**RENSSELAER POLYTECHNIC INSTITUTE**

Critical Facility, 0.1 kW – Dr. Glenn Winters, Director  
Nuclear Engineering and Engineering Physics Program, 110 Eighth Street, Troy, NY 12180-3590

**RHODE ISLAND NUCLEAR SCIENCE CENTER**

RINSC, 2000 kW – Mr. Terry Tehan, Director  
16 Reactor Road, Narragansett, RI 02882-1197  
(401) 789-9391/FAX: (401) 782-4201  
ttehan@gso.uri.edu

**ROYAL MILITARY COLLEGE OF CANADA**

SLOWPOKE-2 Facility  
Kathy S. Nielsen, Director  
613-541-6000, ext. 6385; nielsen-k@rmc.ca

**TEXAS A&M UNIVERSITY**

AGN-201, 0.005 kW Dr. William Charlton, Reactor Supervisor  
Department of Nuclear Engineering, 3133 TAMU, College Station, TX 77843-3133  
wcharlton@tamu.edu  
One-megawatt TRIGA (Testing, Research, Isotopes, General Atomics) reactor  
Dr. Daniel Reece, 979.845.7551  
Department of Nuclear Engineering, 3133 TAMU, College Station, TX 77843-3133  
reece@tamu.edu

**UNIVERSITY OF TEXAS AT AUSTIN**

TRIGA-MkII, 1100 kW – Paul Michael Whaley, Associate Director  
Nuclear Engineering Teaching Lab, J.J. Pickle Research Campus #159, Austin, TX 78712  
(512) 471-5373/FAX: (512) 471-4589  
<http://www.me.utexas.edu/~net1>

**UNIVERSITY OF UTAH**

TRIGA-MkI, 100 kW - Dr. Tatjana Jevremovic, EnergySolutions Presidential  
Endowed Chair Professor in Nuclear Engineering and Director, University of Utah Nuclear Engineering  
Program, Salt Lake City, UT 84112  
(801) 587-9696  
Tatjana.Jevremovic@utah.edu

**WASHINGTON STATE UNIVERSITY**

Modified TRIGA, 1000 kW – Dr. Gerald E. Tripard, Director  
Nuclear Radiation Center, Pullman, WA 99164-1300  
(509) 335-0172/FAX: (509) 335-4433  
gtripard@wsu.edu

**UNIVERSITY OF WISCONSIN, MADISON**

TRIGA MkF 1000 kW – Mr. Robert J. Agasie, Director  
Department of Engineering Physics, 141 Mechanical Engineering Building,  
1513 University Avenue, Madison, WI 53706  
(608) 262-3392/FAX: (608) 262-8590  
agasie@engr.wisc.edu

## FACULTY INDEX

First Name	Middle Initial	Last Name	Home Institution
Shiva		Abbaszadeh	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Hany	S.	Abdel-Khalik	PURDUE UNIVERSITY
Said	I.	Abdel-Khalik	GEORGIA INSTITUTE OF TECHNOLOGY
John	R.	Abelson	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Rebecca		Abergel	UNIVERSITY OF CALIFORNIA-BERKELEY
Marvin	L.	Adams	TEXAS A&M UNIVERSITY
Sukesh		Aghara	UNIVERSITY OF MASSACHUSETTS, LOWELL
Karim	E	Ahmed	TEXAS A&M UNIVERSITY
Assel		Aitkaliyeva	UNIVERSITY OF FLORIDA
Ziya	A.	Akcasu	UNIVERSITY OF MICHIGAN
Ayodeji	B	Alajo	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Syed		Alam	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Miltiadis		Alamaniotis	PURDUE UNIVERSITY
Muthanna	H	Al-Dahhan	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Tunc		Aldemir	OHIO STATE UNIVERSITY
Amir		Ali	IDAHO STATE UNIVERSITY
Mohammed	S.	Aljohani	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Jean Paul		Allain	PENNSYLVANIA STATE UNIVERSITY
Jont		Allen	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Matt	S	Allen	UNIVERSITY OF WISCONSIN, MADISON
Todd	R	Allen	UNIVERSITY OF MICHIGAN
Mohamad		Al-Sheikhly	UNIVERSITY OF MARYLAND
Osman		Anderoglu	UNIVERSITY OF NEW MEXICO
Mark		Anderson	UNIVERSITY OF WISCONSIN, MADISON
Daniel		Andruczyk	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Dmitriy	Y	Anistratov	NORTH CAROLINA STATE UNIVERSITY
David		Arcilesi	UNIVERSITY OF IDAHO
Michael		Aref	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Joe		Artnak	UNIVERSITY OF TEXAS, AUSTIN
Yugo		Ashida	UNIVERSITY OF MICHIGAN
David	Arcilesi	Arcilesi	UNIVERSITY OF IDAHO
Michael		Atzmon	UNIVERSITY OF MICHIGAN
Steve		Aumeier	IDAHO STATE UNIVERSITY
David		Aumiller	UNIVERSITY OF PITTSBURGH
John		Auxier	UNIVERSITY OF TENNESSEE, KNOXVILLE
Maria		Avramova	NORTH CAROLINA STATE UNIVERSITY
Roy	A	Axford	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Fatih		Aydogan	UNIVERSITY OF IDAHO
Yousry	Y	Azmy	NORTH CAROLINA STATE UNIVERSITY
James		Baciak	UNIVERSITY OF FLORIDA

Madalina		Badea	UNIVERSITY OF SOUTH CAROLINA
Emilio		Baglietto	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Amir		Bahadori	KANSAS STATE UNIVERSITY
Brad		Baker	US NAVAL ACADEMY
Ken		Balkey	UNIVERSITY OF PITTSBURGH
Ronald	G.	Ballinger	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Heng		Ban	UNIVERSITY OF PITTSBURGH
Michael		Barber	UNIVERSITY OF UTAH
John		Bartocci	UNIVERSITY OF PITTSBURGH
Alexander		Barzilov	UNIVERSITY OF NEVADA, LAS VEGAS
Alexander	William	Bataller	NORTH CAROLINA STATE UNIVERSITY
Abdel-Moez	E.	Bayoumi	UNIVERSITY OF SOUTH CAROLINA
Robert		Bean	PURDUE UNIVERSITY
Benjamin	W	Beeler	NORTH CAROLINA STATE UNIVERSITY
Kara	N	Beharry	SOUTH CAROLINA STATE UNIVERSITY
John	A.	Bernard, Jr.	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Matthew		Bernards	UNIVERSITY OF IDAHO
Lee	A.	Bernstein	UNIVERSITY OF CALIFORNIA-BERKELEY
Bruce		Berquist	UNIVERSITY OF PITTSBURGH
Theodore	M.	Besmann	UNIVERSITY OF SOUTH CAROLINA
Stephen	R.	Biegalski	GEORGIA INSTITUTE OF TECHNOLOGY
Alex	F.	Bielajew	UNIVERSITY OF MICHIGAN
Vicki	M	Bier	UNIVERSITY OF WISCONSIN, MADISON
Sama		Bilbao y Leon	VIRGINIA COMMONWEALTH UNIVERSITY
Jeffrey	Louis	Binder	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Joseph		Bisognano	UNIVERSITY OF WISCONSIN, MADISON
Stuart		Blair	US NAVAL ACADEMY
James	P	Blanchard	UNIVERSITY OF WISCONSIN, MADISON
Edward	D	Blandford	UNIVERSITY OF NEW MEXICO
Robert	C	Block	RENSELAER POLYTECHNIC INSTITUTE
Thomas	E	Blue	OHIO STATE UNIVERSITY
Leo		Bobek	UNIVERSITY OF MASSACHUSETTS, LOWELL
Wesley	E.	Bolch	UNIVERSITY OF FLORIDA
Igor	A	Bolotnov	NORTH CAROLINA STATE UNIVERSITY
Riccardo		Bonazza	UNIVERSITY OF WISCONSIN, MADISON
Ray	S	Booth	UNIVERSITY OF TENNESSEE, KNOXVILLE
Robert		Borrelli	UNIVERSITY OF IDAHO
Robert		Borrelli	UNIVERSITY OF IDAHO
Bob		Boston	IDAHO STATE UNIVERSITY
Mohamed	A.	Bourham	NORTH CAROLINA STATE UNIVERSITY
Joseph	M.	Bowling	UNIVERSITY OF TENNESSEE, KNOXVILLE
David	R	Boyle	TEXAS A&M UNIVERSITY
Leslie	A	Braby	TEXAS A&M UNIVERSITY
Shannon	M.	Bragg-Sittion	NORTH CAROLINA STATE UNIVERSITY
Jennifer	C.	Braley	COLORADO SCHOOL OF MINES

Jack	S.	Brenizer, Jr.	PENNSYLVANIA STATE UNIVERSITY
Richard		Brey	IDAHO STATE UNIVERSITY
Kristy		Brock	UNIVERSITY OF MICHIGAN
Curt	A	Bronkhorst	UNIVERSITY OF WISCONSIN, MADISON
Caleb		Brooks	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Forrest		Brown	UNIVERSITY OF MICHIGAN
Gilbert	J	Brown	UNIVERSITY OF MASSACHUSETTS, LOWELL
Nicholas	R	Brown	UNIVERSITY OF TENNESSEE, KNOXVILLE
Matteo		Bucci	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Frederick	W.	Buckman	UNIVERSITY OF MICHIGAN
Adriaan		Buijs	McMASTER UNIVERSITY
Jacopo		Buongiorno	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Adam	J	Burak	UNIVERSITY OF MICHIGAN
Milos		Burger	UNIVERSITY OF MICHIGAN
Eric	A.	Burgett	IDAHO STATE UNIVERSITY
Michael		Burke	UNIVERSITY OF PITTSBURGH
Jeremy		Busby	UNIVERSITY OF MICHIGAN
Robert	D	Busch	UNIVERSITY OF NEW MEXICO
Dan	G.	Cacuci	UNIVERSITY OF SOUTH CAROLINA
Lei	R	Cao	OHIO STATE UNIVERSITY
Paola		Cappellaro	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Peter	F	Caracappa	RENSELAER POLYTECHNIC INSTITUTE
Lane		Carasik	VIRGINIA COMMONWEALTH UNIVERSITY
Carlos	H	Castano	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Gary	L.	Catchen	PENNSYLVANIA STATE UNIVERSITY
Peter		Catto	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Edward		Cazalas	UNIVERSITY OF UTAH
Zheng		Chang	SOUTH CAROLINA STATE UNIVERSITY
Travis	A.	Chapman	US NAVAL ACADEMY
Indrajit		Charit	UNIVERSITY OF IDAHO
William	S.	Charlton	UNIVERSITY OF TEXAS, AUSTIN
Stylianios		Chatzidakis	PURDUE UNIVERSITY
Fanglin (Frank)		Chen	UNIVERSITY OF SOUTH CAROLINA
Sow-Hsin		Chen	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Fan-Bill		Cheung	PENNSYLVANIA STATE UNIVERSITY
Sunil	S.	Chirayath	TEXAS A&M UNIVERSITY
Dong-Ok		Choe	UNIVERSITY OF UTAH
Chan		Choi	PURDUE UNIVERSITY
Samrat		Choudhury	UNIVERSITY OF IDAHO
Partha		Chowdhury	UNIVERSITY OF MASSACHUSETTS, LOWELL
Jennifer		Choy	UNIVERSITY OF WISCONSIN, MADISON
Richard		Christensen	UNIVERSITY OF IDAHO
Ondrej		Chvala	UNIVERSITY OF TENNESSEE, KNOXVILLE
Minking		Chyu	UNIVERSITY OF PITTSBURGH
David		Clark	VIRGINIA POLYTECHNIC INSTITUTE

Shaun	D.	Clarke	UNIVERSITY OF MICHIGAN
Jamie	B.	Coble	UNIVERSITY OF TENNESSEE, KNOXVILLE
Daniel		Cole	UNIVERSITY OF PITTSBURGH
Benjamin		Collins	UNIVERSITY OF MICHIGAN
Thomas		Congedo	UNIVERSITY OF PITTSBURGH
Gary	W	Cooper	UNIVERSITY OF NEW MEXICO
Lawrence		Corr	UNIVERSITY OF PITTSBURGH
Michael	L	Corradini	UNIVERSITY OF WISCONSIN, MADISON
Adrien		Couet	UNIVERSITY OF WISCONSIN, MADISON
John		Crepeau	UNIVERSITY OF IDAHO
Wendy	C	Crone	UNIVERSITY OF WISCONSIN, MADISON
Mariesa		Crow	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
William	G	Culbreth	UNIVERSITY OF NEVADA, LAS VEGAS
Davide		Curreli	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Areg		Danagoulian	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Musa	B	Danjaji	SOUTH CAROLINA STATE UNIVERSITY
Yaron		Danon	RENSELAER POLYTECHNIC INSTITUTE
Delbert	E.	Day	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Gianluigi		De Geronimo	UNIVERSITY OF MICHIGAN
Cassiano	R. E.	de Oliveira	UNIVERSITY OF NEW MEXICO
Paul	T.	Debevec	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Mark		Deinert	UNIVERSITY OF TEXAS, AUSTIN
Paul	L.	DeLuca	UNIVERSITY OF WISCONSIN, MADISON
Chaitanya	S.	Deo	GEORGIA INSTITUTE OF TECHNOLOGY
Heather		Detar	UNIVERSITY OF PITTSBURGH
Shaheen	A	Dewji	TEXAS A&M UNIVERSITY
Angela		Di Fulvio	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Mihai	A.	Diaconeasa	NORTH CAROLINA STATE UNIVERSITY
Stephanie		Diem	UNIVERSITY OF WISCONSIN, MADISON
Jun		Ding	UNIVERSITY OF TENNESSEE, KNOXVILLE
H.	L.	Dodds	UNIVERSITY OF TENNESSEE, KNOXVILLE
Thomas	J.	Dolan	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Joseph	M	Doster	NORTH CAROLINA STATE UNIVERSITY
David	C.	Dovan	UNIVERSITY OF TENNESSEE, KNOXVILLE
Thomas		Downar	UNIVERSITY OF MICHIGAN
Donald	A	Drew	RENSELAER POLYTECHNIC INSTITUTE
Michael	J.	Driscoll	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Donghai		Du	UNIVERSITY OF MICHIGAN
James	J.	Duderstadt	UNIVERSITY OF MICHIGAN
Donald	J	Dudziak	NORTH CAROLINA STATE UNIVERSITY
Edward		Dugan	UNIVERSITY OF FLORIDA
William	L	Dunn	KANSAS STATE UNIVERSITY
Mary Lou		Dunzik-Gougar	IDAHO STATE UNIVERSITY
Jacob		Eapen	NORTH CAROLINA STATE UNIVERSITY
James		Egan	UNIVERSITY OF MASSACHUSETTS, LOWELL

Eric	S.	Elder	GEORGIA INSTITUTE OF TECHNOLOGY
Gary		Elder	UNIVERSITY OF PITTSBURGH
Mohamed	s.	El-Genk	UNIVERSITY OF NEW MEXICO
Laila	A	El-Guebaly	UNIVERSITY OF WISCONSIN, MADISON
Mark	J	Embrechts	RENSELAER POLYTECHNIC INSTITUTE
Andreas		Enqvist	UNIVERSITY OF FLORIDA
Anna		Erickson	GEORGIA INSTITUTE OF TECHNOLOGY
Vinny		Esposito	UNIVERSITY OF PITTSBURGH
Rodney	C.	Ewing	UNIVERSITY OF MICHIGAN
Ofodike	A.	Ezekoye	UNIVERSITY OF TEXAS, AUSTIN
Diana		Farkas	VIRGINIA POLYTECHNIC INSTITUTE
Tanvir		Farouk	UNIVERSITY OF SOUTH CAROLINA
Abi	T	Farsoni	OREGON STATE UNIVERSITY
Kevin	G	Field	UNIVERSITY OF MICHIGAN
Linda		Figuroa	COLORADO SCHOOL OF MINES
Gennady		Fiksel	UNIVERSITY OF MICHIGAN
Ronald	F.	Fleming	UNIVERSITY OF MICHIGAN
Michael		Flynn	UNIVERSITY OF MICHIGAN
Kendra	M	Foltz-Biegalski	UNIVERSITY OF TEXAS, AUSTIN
Ray	J	Fonck	UNIVERSITY OF WISCONSIN, MADISON
Mario		Fontana	UNIVERSITY OF TENNESSEE, KNOXVILLE
John		Ford	TEXAS A&M UNIVERSITY
Benoit		Forget	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Charles	W.	Forsberg	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
John	E.	Foster	UNIVERSITY OF MICHIGAN
Larry		Foulke	UNIVERSITY OF PITTSBURGH
Timothy	H.	Fox	GEORGIA INSTITUTE OF TECHNOLOGY
Jennifer		Franck	UNIVERSITY OF WISCONSIN, MADISON
Massimiliano		Fratoni	UNIVERSITY OF CALIFORNIA-BERKELEY
Jeffrey	P.	Freidberg	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Clayton	S.	French, Jr.	UNIVERSITY OF MASSACHUSETTS, LOWELL
Barry	D	Ganapol	UNIVERSITY OF TENNESSEE, KNOXVILLE
Todd	C	Gansauge	IDAHO STATE UNIVERSITY
Fei		Gao	UNIVERSITY OF MICHIGAN
Masab	H.	Garada	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Robin	P	Gardner	NORTH CAROLINA STATE UNIVERSITY
Srinivas		Garimella	GEORGIA INSTITUTE OF TECHNOLOGY
Allen		Garner	PURDUE UNIVERSITY
Benedikt		Geiger	UNIVERSITY OF WISCONSIN, MADISON
Filippo		Genco	UNIVERSITY OF ONTARIO INSTITUTE OF TECHNOLOGY
Elizabeth		Getto	US NAVAL ACADEMY
S.	Mostafa	Ghiaasiaan	GEORGIA INSTITUTE OF TECHNOLOGY
Tushar	K	Ghosh	UNIVERSITY OF MISSOURI, COLUMBIA
Ronald	M.	Gilgenbach	UNIVERSITY OF MICHIGAN
Daniel		Gill	UNIVERSITY OF PITTSBURGH



David	R.	Gilland	UNIVERSITY OF FLORIDA
John	G.	Gilligan	NORTH CAROLINA STATE UNIVERSITY
Michael	W.	Golay	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Bethany	L.	Goldblum	UNIVERSITY OF TENNESSEE, KNOXVILLE
Katherine		Goluoglu	UNIVERSITY OF FLORIDA
Sedat		Goluoglu	UNIVERSITY OF FLORIDA
Mitchell		Goodsitt	UNIVERSITY OF MICHIGAN
Maximilian	B.	Gorensek	UNIVERSITY OF SOUTH CAROLINA
Joseph	T	Graham	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Joshua	R	Gray	UNIVERSITY OF SOUTH CAROLINA
Ehud		Greenspan	UNIVERSITY OF CALIFORNIA-BERKELEY
Uwe		Greife	COLORADO SCHOOL OF MINES
Andrei		Gribok	UNIVERSITY OF TENNESSEE, KNOXVILLE
David		Griesheimer	UNIVERSITY OF PITTSBURGH
Peter	G.	Groer	UNIVERSITY OF TENNESSEE, KNOXVILLE
Martin	L.	Grossbeck	UNIVERSITY OF TENNESSEE, KNOXVILLE
Jason		Gruber	UNIVERSITY OF PITTSBURGH
Fred		Gunnerson	UNIVERSITY OF IDAHO
Derek		Haas	UNIVERSITY OF TEXAS, AUSTIN
Alireza		Haghighat	VIRGINIA POLYTECHNIC INSTITUTE
Howard	L.	Hall	UNIVERSITY OF TENNESSEE, KNOXVILLE
David	M.	Hamby	OREGON STATE UNIVERSITY
Luther	L	Hamm	UNIVERSITY OF SOUTH CAROLINA
Mark		Hammig	UNIVERSITY OF MICHIGAN
Michael		Haney	UNIVERSITY OF IDAHO
Michael		Haney	UNIVERSITY OF IDAHO
Ira		Harkness	UNIVERSITY OF FLORIDA
Jason	T	Harris	IDAHO STATE UNIVERSITY
Thomas		Hartmann	UNIVERSITY OF NEVADA, LAS VEGAS
Zachary		Hartwig	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
David		Haser	UNIVERSITY OF PITTSBURGH
Yassin	A.	Hassan	TEXAS A&M UNIVERSITY
Ahmed		Hassanein	PURDUE UNIVERSITY
Ayman	I.	Hawari	NORTH CAROLINA STATE UNIVERSITY
Robert	B	Hayes	NORTH CAROLINA STATE UNIVERSITY
Jason	P.	Hayward	UNIVERSITY OF TENNESSEE, KNOXVILLE
Zhong		He	UNIVERSITY OF MICHIGAN
Alain		Hébert	POLYTECHNIQUE MONTRÉAL
Adam	A	Hecht	UNIVERSITY OF NEW MEXICO
Chris	C	Hegna	UNIVERSITY OF WISCONSIN, MADISON
Chris	J	Hegna	UNIVERSITY OF WISCONSIN, MADISON
Lawrence	H.	Heilbronn	UNIVERSITY OF TENNESSEE, KNOXVILLE
David		Helling	UNIVERSITY OF PITTSBURGH
Douglass	L	Henderson	UNIVERSITY OF WISCONSIN, MADISON
Robert		Hendricks	VIRGINIA POLYTECHNIC INSTITUTE

Hermilo		Hernandez-Noyola	UNIVERSITY OF UTAH
J. Stephen		Herring	IDAHO STATE UNIVERSITY
Noah		Hershkowitz	UNIVERSITY OF WISCONSIN, MADISON
Nolan	E.	Hertel	GEORGIA INSTITUTE OF TECHNOLOGY
Brent	J.	Heuser	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Takashi		Hibiki	PURDUE UNIVERSITY
Jack	F.	Higginbotham	OREGON STATE UNIVERSITY
Kathryn	A.	Higley	OREGON STATE UNIVERSITY
Celine		Hin	VIRGINIA POLYTECHNIC INSTITUTE
J. Wesley		Hines	UNIVERSITY OF TENNESSEE, KNOXVILLE
David		Hintenlang	UNIVERSITY OF FLORIDA
Robert		Hiramoto	UNIVERSITY OF IDAHO
Linn	W.	Hobbs	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
James	P.	Holloway	UNIVERSITY OF MICHIGAN
Peter		Hosemann	UNIVERSITY OF CALIFORNIA-BERKELEY
Jason		Hou	NORTH CAROLINA STATE UNIVERSITY
Richard	H.	Howard	UNIVERSITY OF TENNESSEE, KNOXVILLE
John	R.	Howell	UNIVERSITY OF TEXAS, AUSTIN
Tom	C.-C.	Hu	GEORGIA INSTITUTE OF TECHNOLOGY
Xinyu		Huang	UNIVERSITY OF SOUTH CAROLINA
Kathryn	D.	Huff	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Melissa		Hunter	UNIVERSITY OF PITTSBURGH
John	E	Hurtado	TEXAS A&M UNIVERSITY
Esam	MA	Hussein	UNIVERSITY OF NEW BRUNSWICK
Ian	H.	Hutchinson	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Alan	S.	Icenhour	UNIVERSITY OF TENNESSEE, KNOXVILLE
George	R	Imel	IDAHO STATE UNIVERSITY
Mamoru		Ishii	PURDUE UNIVERSITY
Kostadin		Ivanov	NORTH CAROLINA STATE UNIVERSITY
Laurence	J.	Jacobs	GEORGIA INSTITUTE OF TECHNOLOGY
Richard	T	Jacobsen	IDAHO STATE UNIVERSITY
Alan	Pradip	Jasanoff	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Mark		Jensen	COLORADO SCHOOL OF MINES
Sheldon	M.	Jeter	GEORGIA INSTITUTE OF TECHNOLOGY
Tatjana		Jevremovic	UNIVERSITY OF UTAH
Wei		Ji	RENSELAER POLYTECHNIC INSTITUTE
Zhijie		Jiao	UNIVERSITY OF MICHIGAN
Barclay	G.	Jones	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Nicholas	M	Jordan	UNIVERSITY OF MICHIGAN
Igor		Jovanovic	UNIVERSITY OF MICHIGAN
Brian	E.	Jurczyk	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Bernd		Kahn	GEORGIA INSTITUTE OF TECHNOLOGY
Michael	D.	Kaminski	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Terry		Kammash	UNIVERSITY OF MICHIGAN

Daniel	M.	Kammen	UNIVERSITY OF CALIFORNIA-BERKELEY
Raghunath		Kanakala	UNIVERSITY OF IDAHO
Hyun Gook		Kang	RENSSELAER POLYTECHNIC INSTITUTE
Djamel		Kaomi	NORTH CAROLINA STATE UNIVERSITY
Ratib		Karam	GEORGIA INSTITUTE OF TECHNOLOGY
William	E	Kastenber	UNIVERSITY OF CALIFORNIA-BERKELEY
Aaron	J	Katz	UTAH STATE UNIVERSITY
Kimberlee	J.	Kearfott	UNIVERSITY OF MICHIGAN
Ernie	J L	Kee	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Gunter		Kegel	UNIVERSITY OF MASSACHUSETTS, LOWELL
R. Scott		Kemp	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Thomas	W.	Kerlin	UNIVERSITY OF TENNESSEE, KNOXVILLE
Marat		Khafizov	OHIO STATE UNIVERSITY
Jamil		Khan	UNIVERSITY OF SOUTH CAROLINA
Brian	C	Kiedrowski	UNIVERSITY OF MICHIGAN
Kyekyoon		Kim	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Seungjin		Kim	PURDUE UNIVERSITY
Mark		Kimber	UNIVERSITY OF PITTSBURGH
Jeffrey	C	King	COLORADO SCHOOL OF MINES
Andrew	C.	Klein	OREGON STATE UNIVERSITY
Dale		Klein	UNIVERSITY OF TEXAS, AUSTIN
Travis	W	Knight	UNIVERSITY OF SOUTH CAROLINA
Brendan		Kochunas	UNIVERSITY OF MICHIGAN
Jean		Koclas	POLYTECHNIQUE MONTRÉAL
Alan		Kornhauser	VIRGINIA POLYTECHNIC INSTITUTE
Tomasz		Kozlowski	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Karl	M.	Krushelnick	UNIVERSITY OF MICHIGAN
Vefa	N	Kucukboyaci	UNIVERSITY OF PITTSBURGH
Gerald	L	Kulcinski	UNIVERSITY OF WISCONSIN, MADISON
Arvind	S	Kumar	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Jay	F.	Kunze	IDAHO STATE UNIVERSITY
Carolyn	C	Kuranz	UNIVERSITY OF MICHIGAN
Cable		Kurwitz	TEXAS A&M UNIVERSITY
Mark		Kushner	UNIVERSITY OF MICHIGAN
Daniel		LaBrier	IDAHO STATE UNIVERSITY
Richard "Chip"	H	Lagdon	UNIVERSITY OF TENNESSEE, KNOXVILLE
Richard	T	Lahey, Jr.	RENSSELAER POLYTECHNIC INSTITUTE
Dale		Lancaster	UNIVERSITY OF MICHIGAN
Sheldon		Landsberger	UNIVERSITY OF TEXAS, AUSTIN
Jeffrey		Lane	UNIVERSITY OF PITTSBURGH
Maik	K.	Lang	UNIVERSITY OF TENNESSEE, KNOXVILLE
Richard	C.	Lanza	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Edward	W	Larsen	UNIVERSITY OF MICHIGAN
Susan		Larson	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Y.Y.		Lau	UNIVERSITY OF MICHIGAN

Charles	M	Laymon	UNIVERSITY OF PITTSBURGH
Hyoung		Lee	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
John	C.	Lee	UNIVERSITY OF MICHIGAN
Jung-Kun		Lee	UNIVERSITY OF PITTSBURGH
Youho		Lee	UNIVERSITY OF NEW MEXICO
Michael	J	Leisenfelt	UNIVERSITY OF TENNESSEE, KNOXVILLE
Richard	K.	Lester	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Ka-Ngo		Leung	UNIVERSITY OF CALIFORNIA-BERKELEY
Ju		Li	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Mingda		Li	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Jie		Lian	RENSELAER POLYTECHNIC INSTITUTE
Haitao		Liao	UNIVERSITY OF TENNESSEE, KNOXVILLE
Richard	A.	Lillie	UNIVERSITY OF TENNESSEE, KNOXVILLE
Azaree	T	Linteur	PENNSYLVANIA STATE UNIVERSITY
Li (Emily)		Liu	RENSELAER POLYTECHNIC INSTITUTE
Ling		Liu	UTAH STATE UNIVERSITY
Xin		Liu	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Yang		Liu	VIRGINIA POLYTECHNIC INSTITUTE
Yuxuan		Liu	UNIVERSITY OF MICHIGAN
Eric		Loewen	UNIVERSITY OF PITTSBURGH
Valmore (Val)	J.	Loiselle	UNIVERSITY OF SOUTH CAROLINA
Gianluca		Longoni	UNIVERSITY OF PITTSBURGH
Martin		Lopez-De-Bertodano	PURDUE UNIVERSITY
Nuno	F.G.	Loureiro	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Sudarshan	K	Loyalka	UNIVERSITY OF MISSOURI, COLUMBIA
Chenyang		Lu	UNIVERSITY OF MICHIGAN
Albert	T.	Lucas	UNIVERSITY OF TENNESSEE, KNOXVILLE
D. Scott		Lucas	IDAHO STATE UNIVERSITY
Eric	D.	Lukosi	UNIVERSITY OF TENNESSEE, KNOXVILLE
JOHN	C	LUXAT	McMASTER UNIVERSITY
Yang		Ma	UNIVERSITY OF MICHIGAN
Digby		Macdonald	UNIVERSITY OF CALIFORNIA-BERKELEY
T. Rock		Mackie	UNIVERSITY OF WISCONSIN, MADISON
Steven	J.	Maheras	OHIO STATE UNIVERSITY
Rajesh		Maingi	UNIVERSITY OF TENNESSEE, KNOXVILLE
Andrea		Maioli	UNIVERSITY OF PITTSBURGH
Bimal	K	Malaviya	RENSELAER POLYTECHNIC INSTITUTE
G.	Ivan	Maldonado	UNIVERSITY OF TENNESSEE, KNOXVILLE
Michele	V	Manuel	UNIVERSITY OF FLORIDA
Wade		Marcum	OREGON STATE UNIVERSITY
Craig		Marianno	TEXAS A&M UNIVERSITY
Guy		Marleau	POLYTECHNIQUE MONTRÉAL
William	H.	Marlow	TEXAS A&M UNIVERSITY
Charles	P.	Marsh	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN

William	R.	Martin	UNIVERSITY OF MICHIGAN
Neale	S	Mason	UNIVERSITY OF PITTSBURGH
Tara		Mastren	UNIVERSITY OF UTAH
Martha		Matuszak	UNIVERSITY OF MICHIGAN
Ryan	D.	McBride	UNIVERSITY OF MICHIGAN
Sean	M.	McDeavitt	TEXAS A&M UNIVERSITY
Christopher		McDevitt	UNIVERSITY OF FLORIDA
Luther	W	McDonald IV	UNIVERSITY OF UTAH
David	L.	McDowell	GEORGIA INSTITUTE OF TECHNOLOGY
Donald		McEligot	UNIVERSITY OF IDAHO
Douglas	S	McGregor	KANSAS STATE UNIVERSITY
Stephen		McHale	US NAVAL ACADEMY
Michael		McKellar	UNIVERSITY OF IDAHO
Milton		McLain	TEXAS A&M UNIVERSITY
Walter		McNeil	KANSAS STATE UNIVERSITY
David	C	Medich	UNIVERSITY OF MASSACHUSETTS, LOWELL
Thomas	A	Mehlhorn	UNIVERSITY OF MICHIGAN
Charles	L.	Melcher	UNIVERSITY OF TENNESSEE, KNOXVILLE
Ling-Jian		Meng	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
John	D	Metzger	UNIVERSITY OF PITTSBURGH
John	T.	Mihalcz	UNIVERSITY OF TENNESSEE, KNOXVILLE
George	H.	Miley	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
David	W.	Miller	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Franklin	K	Miller	UNIVERSITY OF WISCONSIN, MADISON
Jack		Miller	UNIVERSITY OF TENNESSEE, KNOXVILLE
James	G.	Miller	VIRGINIA COMMONWEALTH UNIVERSITY
Laurence	F.	Miller	UNIVERSITY OF TENNESSEE, KNOXVILLE
Warren		Miller	TEXAS A&M UNIVERSITY
William	H	Miller	UNIVERSITY OF MISSOURI, COLUMBIA
Marshall	G	Millett	US NAVAL ACADEMY
Gennady		Miloshevsky	VIRGINIA COMMONWEALTH UNIVERSITY
Zahra		Mohaghegh	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Namdoo		Moon	UNIVERSITY OF MICHIGAN
Jeffrey	H.	Morehouse	UNIVERSITY OF SOUTH CAROLINA
Jim	E.	Morel	TEXAS A&M UNIVERSITY
Dane	D	Morgan	UNIVERSITY OF WISCONSIN, MADISON
Edward	C	Morse	UNIVERSITY OF CALIFORNIA-BERKELEY
Tod		Moser	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Gregory	A	Moses	UNIVERSITY OF WISCONSIN, MADISON
Arthur	T.	Motta	PENNSYLVANIA STATE UNIVERSITY
Hanna		Moussa	UNIVERSITY OF TENNESSEE, KNOXVILLE
Gary	E.	Mueller	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Kurshad		Muftuoglu	UNIVERSITY OF PITTSBURGH
Mark	M	Murray	US NAVAL ACADEMY
Korukonda	L	Murty	NORTH CAROLINA STATE UNIVERSITY

Fred	R.	Mynatt	UNIVERSITY OF TENNESSEE, KNOXVILLE
Shinya		Nagasaki	McMASTER UNIVERSITY
Martin	E	Nelson	US NAVAL ACADEMY
Paul		Nelson	TEXAS A&M UNIVERSITY
Richard	F.	Nelson	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Martin	J.	Neumann	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Duy-Thien		Nguyen	TEXAS A&M UNIVERSITY
Wilfred		Ngwa	UNIVERSITY OF MASSACHUSETTS, LOWELL
Eric	B	Norman	UNIVERSITY OF CALIFORNIA-BERKELEY
David	R	Novog	McMASTER UNIVERSITY
Jonathon	A.	Nye	GEORGIA INSTITUTE OF TECHNOLOGY
Kenneth	C	Okafor	SOUTH CAROLINA STATE UNIVERSITY
Donald	R	Olander	UNIVERSITY OF CALIFORNIA-BERKELEY
Andrew	G.	Osborne	COLORADO SCHOOL OF MINES
Lee		Ostrom	UNIVERSITY OF IDAHO
Lee		Ostrom	UNIVERSITY OF IDAHO
Natela		Ostrovskaya	TEXAS A&M UNIVERSITY
Abderrafi	M	Ougouag	IDAHO STATE UNIVERSITY
Camille	J.	Palmer	OREGON STATE UNIVERSITY
Todd	S.	Palmer	OREGON STATE UNIVERSITY
Scott		Palmtag	NORTH CAROLINA STATE UNIVERSITY
Ronald	R.	Parker	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Giovanni		Pastore	UNIVERSITY OF TENNESSEE, KNOXVILLE
Pretesh		Patel	GEORGIA INSTITUTE OF TECHNOLOGY
Alena		Paulenova	OREGON STATE UNIVERSITY
Imre		Pazsit	UNIVERSITY OF MICHIGAN
Kenneth	L.	Peddicord	TEXAS A&M UNIVERSITY
Per	F	Peterson	UNIVERSITY OF CALIFORNIA-BERKELEY
Victor	E.	Petrov	UNIVERSITY OF MICHIGAN
Bojan		Petrovic	GEORGIA INSTITUTE OF TECHNOLOGY
Harry	J.	Pettengill	UNIVERSITY OF TENNESSEE, KNOXVILLE
Ronald	E.	Pevey	UNIVERSITY OF TENNESSEE, KNOXVILLE
John	M	Pfotenhauer	UNIVERSITY OF WISCONSIN, MADISON
Simon		Phillpot	UNIVERSITY OF FLORIDA
Supathorn		Phongikaroon	UNIVERSITY OF IDAHO
Mark		Pierson	VIRGINIA POLYTECHNIC INSTITUTE
Michael	Z	Podowski	RENSSELAER POLYTECHNIC INSTITUTE
Chad	L	Pope	IDAHO STATE UNIVERSITY
Elmira		Popova	UNIVERSITY OF TEXAS, AUSTIN
Richard	R.	Porter	UNIVERSITY OF UTAH
Justin	M.	Pounders	UNIVERSITY OF MASSACHUSETTS, LOWELL
Sara		Pozzi	UNIVERSITY OF MICHIGAN
Pavana		Prabhakar	UNIVERSITY OF WISCONSIN, MADISON
Shikha		Prasad	TEXAS A&M UNIVERSITY
Mark	A	Prelas	UNIVERSITY OF MISSOURI, COLUMBIA

Anil	K.	Prinja	UNIVERSITY OF NEW MEXICO
W.	Cyrus	Proctor	UNIVERSITY OF SOUTH CAROLINA
Mitch		Pryor	UNIVERSITY OF TEXAS, AUSTIN
You		Qiang	UNIVERSITY OF IDAHO
You		Qiang	UNIVERSITY OF IDAHO
Louis		Qualls	UNIVERSITY OF TENNESSEE, KNOXVILLE
Jason		Quinn	UTAH STATE UNIVERSITY
R. Mohan		R. Mohan	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Magdi		Ragheb	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Jean		Ragusa	TEXAS A&M UNIVERSITY
Stephen	S.	Raiman	UNIVERSITY OF TENNESSEE, KNOXVILLE
Krishnan		Raja	UNIVERSITY OF IDAHO
Krishnan		Raja	UNIVERSITY OF IDAHO
Chester	R.	Ramsey	UNIVERSITY OF TENNESSEE, KNOXVILLE
Dipankar		Ray	UNIVERSITY OF MICHIGAN
Jason	D.	Readle	UNIVERSITY OF TENNESSEE, KNOXVILLE
Dan		Reece	TEXAS A&M UNIVERSITY
Steven	R	Reese	OREGON STATE UNIVERSITY
Thomas		Regan	UNIVERSITY OF MASSACHUSETTS, LOWELL
Shripad		Revankar	PURDUE UNIVERSITY
Jose	N.	Reyes, Jr.	OREGON STATE UNIVERSITY
Dakota		Roberson	UNIVERSITY OF IDAHO
Elwyn		Roberts	UNIVERSITY OF SOUTH CAROLINA
Nicholas		Roberts	UTAH STATE UNIVERSITY
Norman	F	Roderick	UNIVERSITY OF NEW MEXICO
William	R.	Roy	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Arthur	E	Ruggles	UNIVERSITY OF TENNESSEE, KNOXVILLE
John		Russell	UNIVERSITY OF IDAHO
David	N.	Ruzic	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Erno		Sajo	UNIVERSITY OF MASSACHUSETTS, LOWELL
Tatsuya		Sakurahara	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
John		Santarius	UNIVERSITY OF WISCONSIN, MADISON
Mohamed		Sawan	UNIVERSITY OF WISCONSIN, MADISON
Donald		Scheef	UNIVERSITY OF PITTSBURGH
Barry		Scheetz	PENNSYLVANIA STATE UNIVERSITY
Matt		Schell	US NAVAL ACADEMY
Joshua	P	Schlegel	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Sonja		Schmid	VIRGINIA POLYTECHNIC INSTITUTE
Erich		Schneider	UNIVERSITY OF TEXAS, AUSTIN
DuWayne	L.	Schubring	UNIVERSITY OF FLORIDA
Richard		Schultz	TEXAS A&M UNIVERSITY
Anthony	M	Scopatz	UNIVERSITY OF SOUTH CAROLINA
Volkan		Seker	UNIVERSITY OF MICHIGAN
Steven	C	Shannon	NORTH CAROLINA STATE UNIVERSITY
Lin		Shao	TEXAS A&M UNIVERSITY

Zeev		Shayer	COLORADO SCHOOL OF MINES
James	R	Sheff	UNIVERSITY OF MASSACHUSETTS, LOWELL
Shanbin		Shi	RENSELAER POLYTECHNIC INSTITUTE
Jae-Hyeok		Shim	UNIVERSITY OF TENNESSEE, KNOXVILLE
Koroush		Shirvan	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Michael	P	Short	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
John	K.	Shultis	KANSAS STATE UNIVERSITY
Richard		Siergiej	UNIVERSITY OF PITTSBURGH
Michael	F	Simpson	UNIVERSITY OF UTAH
Clifford	E.	Singer	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Vaibhav		Sinha	OHIO STATE UNIVERSITY
Tatyana		Sizyuk	PURDUE UNIVERSITY
Valeryi		Sizyuk	PURDUE UNIVERSITY
Steven	S.	Skutnik	UNIVERSITY OF TENNESSEE, KNOXVILLE
Rachel		Slaybaugh	UNIVERSITY OF CALIFORNIA-BERKELEY
Carol	S	Smidts	OHIO STATE UNIVERSITY
Barton	L	Smith	UTAH STATE UNIVERSITY
Joseph	D	Smith	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Kord		Smith	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Leslie	M	Smith	UNIVERSITY OF WISCONSIN, MADISON
Robert		Smith	UNIVERSITY OF IDAHO
Robert		Smith	UNIVERSITY OF IDAHO
Vladimir		Sobes	UNIVERSITY OF TENNESSEE, KNOXVILLE
Miao		Song	UNIVERSITY OF MICHIGAN
Avneet		Sood	NORTH CAROLINA STATE UNIVERSITY
Carl	R	Sovinec	UNIVERSITY OF WISCONSIN, MADISON
Kumar		Sridharan	UNIVERSITY OF WISCONSIN, MADISON
Weston	M.	Stacey, Jr.	GEORGIA INSTITUTE OF TECHNOLOGY
Joseph	R.	Stainback, IV	UNIVERSITY OF TENNESSEE, KNOXVILLE
Katharina		Stapelmann	NORTH CAROLINA STATE UNIVERSITY
Don		Steiner	RENSELAER POLYTECHNIC INSTITUTE
Andrew		Stephan	UNIVERSITY OF TENNESSEE, KNOXVILLE
Roger	E.	Stoller	UNIVERSITY OF MICHIGAN
Ashley	C.	Stowe	UNIVERSITY OF TENNESSEE, KNOXVILLE
Robert	A.	Stubbers	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
James	F.	Stubbins	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
David		Stuenkel	UNIVERSITY OF MICHIGAN
Clair	J	Sullivan	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
William	A	Summers	UNIVERSITY OF SOUTH CAROLINA
Xiaodong		Sun	UNIVERSITY OF MICHIGAN
Zaijing		Sun	UNIVERSITY OF SOUTH CAROLINA
Michael	A.	Sutton	UNIVERSITY OF SOUTH CAROLINA
Izabela		Szlufarska	UNIVERSITY OF WISCONSIN, MADISON
Danesh		Tafti	VIRGINIA POLYTECHNIC INSTITUTE
Sola		Talabi	UNIVERSITY OF PITTSBURGH



Rusi		Taleyarkhan	PURDUE UNIVERSITY
David	S	Teolis	UNIVERSITY OF PITTSBURGH
Gary		Tepper	VIRGINIA COMMONWEALTH UNIVERSITY
Alberto		Teyssedou	POLYTECHNIQUE MONTRÉAL
Bruce	R	Thomadsen	UNIVERSITY OF WISCONSIN, MADISON
Alexander	G.R.	Thomas	UNIVERSITY OF MICHIGAN
Neil	E.	Todreas	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Akira		Tokuhiro	UNIVERSITY OF ONTARIO INSTITUTE OF TECHNOLOGY
Robert	V	Tompson	UNIVERSITY OF MISSOURI, COLUMBIA
Michael	R	Tonks	UNIVERSITY OF FLORIDA
Lawrence	W	Townsend	UNIVERSITY OF TENNESSEE, KNOXVILLE
Nicole		Treeman	US NAVAL ACADEMY
Mark		Tries	UNIVERSITY OF MASSACHUSETTS, LOWELL
Dallas		Trinkle	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Mario	F	Trujillo	UNIVERSITY OF WISCONSIN, MADISON
Timothy	H	Trumbull	RENSSELAER POLYTECHNIC INSTITUTE
Lefteri		Tsoukalas	PURDUE UNIVERSITY
Pavel	V.	Tsvetkov	TEXAS A&M UNIVERSITY
Galina		Tsvetkova	TEXAS A&M UNIVERSITY
James	S.	Tulenko	UNIVERSITY OF SOUTH CAROLINA
Paul	J	Turinsky	NORTH CAROLINA STATE UNIVERSITY
Rizwan		Uddin	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN
Kenan		Unlu	PENNSYLVANIA STATE UNIVERSITY
Belle	R	Upadhyaya	UNIVERSITY OF TENNESSEE, KNOXVILLE
Shoaib		Usman	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Vivek		Utgikar	UNIVERSITY OF IDAHO
Timothy		Valentine	UNIVERSITY OF TENNESSEE, KNOXVILLE
Karl	A.	Van Bibber	UNIVERSITY OF CALIFORNIA-BERKELEY
Ray		Vanderby, Jr.	UNIVERSITY OF WISCONSIN, MADISON
Jean	Claude	Van-Duysen	UNIVERSITY OF TENNESSEE, KNOXVILLE
Richard		Vasques	OHIO STATE UNIVERSITY
William	G.	Vernetson	UNIVERSITY OF FLORIDA
Kai		Vetter	UNIVERSITY OF CALIFORNIA-BERKELEY
Karen		Vierow	TEXAS A&M UNIVERSITY
Peter		Vilks	McMASTER UNIVERSITY
Dieter		Vincent	UNIVERSITY OF MICHIGAN
Francesco		Volpe	UNIVERSITY OF WISCONSIN, MADISON
Jasmina	L	Vujic	UNIVERSITY OF CALIFORNIA-BERKELEY
Richard	M	Waer	TEXAS A&M UNIVERSITY
Fabian		Waleffe	UNIVERSITY OF WISCONSIN, MADISON
Donald	E	Wall	UNIVERSITY OF FLORIDA
James		Wall	GEORGIA INSTITUTE OF TECHNOLOGY
Nathalie	A.	Wall	UNIVERSITY OF FLORIDA
C-K Chris		Wang	GEORGIA INSTITUTE OF TECHNOLOGY
Dean		Wang	OHIO STATE UNIVERSITY

Lumin		Wang	UNIVERSITY OF MICHIGAN
Peng		Wang	UNIVERSITY OF MICHIGAN
Yi		Wang	UNIVERSITY OF SOUTH CAROLINA
Gary	S.	Was	UNIVERSITY OF MICHIGAN
Justin	K	Watson	UNIVERSITY OF FLORIDA
David	K.	Wehe	UNIVERSITY OF MICHIGAN
Bernard	W.	Wehring	NORTH CAROLINA STATE UNIVERSITY
Ruth		Weiner	UNIVERSITY OF MICHIGAN
Haiming		Wen	MISSOURI UNIVERSITY OF SCIENCE & TECHNOLOGY
Michael	T	Wenner	UNIVERSITY OF PITTSBURGH
William	J.	Wepfer	GEORGIA INSTITUTE OF TECHNOLOGY
Janelle	P	Wharry	PURDUE UNIVERSITY
Anne	E.	White	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
John	R.	White	UNIVERSITY OF MASSACHUSETTS, LOWELL
Dennis	G.	Whyte	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Gerald		Wicks	NORTH CAROLINA STATE UNIVERSITY
Jorg		Wiezorek	UNIVERSITY OF PITTSBURGH
Martin	R.	Williamson	UNIVERSITY OF TENNESSEE, KNOXVILLE
Paul	P. H.	Wilson	UNIVERSITY OF WISCONSIN, MADISON
Leigh		Winfrey	PENNSYLVANIA STATE UNIVERSITY
Glenn	C	Winters	RENSELAER POLYTECHNIC INSTITUTE
Brian	D.	Wirth	UNIVERSITY OF TENNESSEE, KNOXVILLE
Robert	J	Witt	UNIVERSITY OF WISCONSIN, MADISON
Richard	T.	Wood	UNIVERSITY OF TENNESSEE, KNOXVILLE
Tom		Wood	UNIVERSITY OF IDAHO
Brian	G	Woods	OREGON STATE UNIVERSITY
Qiao		Wu	OREGON STATE UNIVERSITY
Xu		Wu	NORTH CAROLINA STATE UNIVERSITY
Zeyun		Wu	VIRGINIA COMMONWEALTH UNIVERSITY
Yi		Xie	PURDUE UNIVERSITY
George		Xu	RENSELAER POLYTECHNIC INSTITUTE
Yunlin		Xu	PURDUE UNIVERSITY
Ge		Yang	NORTH CAROLINA STATE UNIVERSITY
Haori		Yang	OREGON STATE UNIVERSITY
Won Sik		Yang	UNIVERSITY OF MICHIGAN
Yong		Yang	UNIVERSITY OF FLORIDA
Anna	N	Yaroslavsky	UNIVERSITY OF MASSACHUSETTS, LOWELL
Bilge		Yildiz	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Sidney		Yip	MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Lingyu		Yu	UNIVERSITY OF SOUTH CAROLINA
Robert	Z	Zboray	PENNSYLVANIA STATE UNIVERSITY
Dingkang		Zhang	GEORGIA INSTITUTE OF TECHNOLOGY
Jinsuo		Zhang	VIRGINIA POLYTECHNIC INSTITUTE
Xiaodong		Zhang	UNIVERSITY OF TENNESSEE, KNOXVILLE
Yang		Zhang	UNIVERSITY OF ILLINOIS, URBANA-CHAMPAIGN

Yongfeng		Zhang	UNIVERSITY OF WISCONSIN, MADISON
Haiyan		Zhao	UNIVERSITY OF IDAHO
Ting		Zhu	GEORGIA INSTITUTE OF TECHNOLOGY
Yuefeng		Zhu	UNIVERSITY OF MICHIGAN
Steven	J.	Zinkle	UNIVERSITY OF TENNESSEE, KNOXVILLE