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2006-2007

**EDUCATION
SOURCEBOOK**



**AMERICAN NUCLEAR SOCIETY
EDUCATION AND TRAINING DIVISION**

**NUCLEAR ENGINEERING
EDUCATION SOURCEBOOK**

**2006-2007
North American
Edition**

**American Nuclear Society
Education and Training Division**

Editors

**Man-Sung Yim
Associate Professor and Director of Graduate Programs
Department of Nuclear Engineering
North Carolina State University**

**John Gilligan
Vice Chancellor for Research and Graduate Studies
North Carolina State University**

Preface

In an effort to foster communication between various nuclear engineering communities, the *Nuclear Engineering Education Sourcebook* has been published since 1986 under Professor John Gilligan's editorship. The publication is to:

- stimulate new graduate student interest in nuclear engineering faculty research
- foster communication between faculty on an international scale
- encourage industry and national laboratory to use faculty expertise

This 2006-2007 edition continues to serve the same purpose and is prepared under the co-editorship of Professors Man-Sung Yim and John Gilligan. The criteria for school listing remain the same as before: The graduate nuclear engineering program have at least two full time faculty or six full time graduate nuclear engineering students. Tenured and tenure-track faculty who are budgeted for 25% or more time in nuclear engineering are listed. Other nuclear engineering or related programs can be found under the listings for ANS Student Branches and Research and Training Reactors. Electronic mail (e-mail) and web addresses have been included. The Sourcebook has been placed on the Web for easy access from the home page of the North Carolina State University's Department of Nuclear Engineering: (<http://www.ne.ncsu.edu/NE%20sourcebook/index.html>). Information about nuclear reactor facilities and research centers is included as well.

Copies of the Sourcebook will be distributed to Department Heads of Nuclear Engineering Programs as well as key industry, society and government officials. A limited number of extra copies can be requested in cases where web access is unavailable.

The Sourcebook is a publication by the Education Training Division of the American Nuclear Society under the support of Department of Energy. Appreciation is expressed to the Executive Committee of the Education and Training Division of the American Nuclear Society for their encouragement for this project. Special thanks go to Anthony Vinnola (Idaho National Laboratory) through the Department of Energy for providing funding for the publication and to all individuals who provided information for the Sourcebook. We would also like to acknowledge the help from Mr. Adam Davis with the preparation of the manuscript.

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John Gilligan, Co-Editor
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Professor of Nuclear Engineering
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AIR FORCE INSTITUTE OF TECHNOLOGY

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Department of Engineering Physics (AFIT/ENP)
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TEL: (937) 255-3636, ext. 4506 FAX: (937) 255-2921
<http://www.afit.edu/>

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| Masters | 9 | 16 | 9 |
| Ph.D. | 1 | 0 | 0 |

Nuclear Engineering is one of four graduate programs in the Engineering Physics Department
Civilian enrollment through the Dayton Area Graduate Studies Institute
Graduate Student Enrollment: 13 Masters/8 Ph.D.
[M.S., M.S.N.E., Ph.D.]
ABET Accreditation: M.S.N.E.

Charles J. Bridgman, Professor Emeritus of Nuclear Engineering (937-255-3636 ext. 4679);
[bridgman@afit.edu]; Ph.D. North Carolina State University 1963; Nuclear weapons effects and fallout modeling.

Larry Burggraf, Professor of Physics (937-255-3636 ext. 4507); [Larry.Burggraf@afit.edu]; Ph.D. University of Denver 1981; Radiation detection and measurement, materials chemistry, spectroscopy, radiation imaging, and in-situ environmental nuclear measurement.

David Gerts, Assistant Professor of Nuclear Engineering (937-255-3636 ext. 4571);
[David.Gerts@afit.edu]; Ph.D. Air Force Institute of Technology, 2002; Numerical modeling of neutron cross sections, nuclear weapons effects, and detection of nuclear detonations.

George John, Professor Emeritus of Nuclear Engineering (937-255-3636 ext. 4679);
[George.John@afit.edu]; Ph.D. Ohio State University 1952; Applications of nuclear techniques to problems in materials science (e.g., Mossbauer spectrometry), health physics and environmental radiation.

Kirk A. Mathews, Professor of Nuclear Engineering (937-255-3636 ext. 4508);
[Kirk.Mathews@afit.edu]; Ph.D. Air Force Institute of Technology 1983; Neutral particle transport, numerical methods, simulation and modeling of nuclear weapons effects and fuel cycle technologies.

James C. Petrosky, Assistant Professor of Nuclear Engineering (937-255-3636 ext. 4562);
[James.Petrosky@afit.edu]; Ph.D. Rensselaer Polytechnic Institute 1995; Radiation effects in semiconductors, radiation hardening of devices, and radiation detection.

Other Faculty

William F. Bailey, Associate Professor of Physics (937-255-3636 ext. 4501); [William.Bailey@afit.edu]; Ph.D. Air Force Institute of Technology 1978; Lasers, plasma physics, and computer simulation.

Robert L. Hengehold, Professor of Physics and Chairman, Department of Engineering Physics (937-255-3636 ext. 4757); [Robert.Hengehold@afit.edu]; Ph.D. University of Cincinnati 1965; Solid state physics and optical diagnostics.

Ronald F. Tuttle, Associate Professor of Nuclear Engineering (937-255-3636 ext. 4536); [Ronald.Tuttle@afit.edu]; Ph.D. University of Missouri-Columbia 1981; Space nuclear power.

UNITED STATES NAVAL ACADEMY

Martin E. Nelson,
LT Will Reed, Officer Representative
Mechanical Engineering Department
590 Holloway Road
Annapolis, MD 21402-5042
(410) 293-6427
FAX: (410) 293-2219
nelson@gwmail.usna.edu

ME/SE Graduates

| <u>2003-2004</u> | <u>2004-2005</u> | <u>2005-2006</u> |
|------------------|------------------|------------------|
| 150 | 150 | 160 |

No nuclear engineering major

Majors with nuclear track

Mechanical Engineering, nuclear track (ABET accredited)
Systems Engineering, nuclear track (ABET accredited)

Martin E Nelson, 410-293-6427, nelson@usna.edu, health physics, radiation detection and measurement, microelectronic reliability, radiation transport, shielding

Mark J. Harper, 410-293-6453, harper@usna.edu, advanced energy conversion, radiation detection and measurement

Nucleonics laboratory-

Director Prof. Martin E. Nelson, ph 410-293-5188

Sub-critical reactor, D-T neutron generator, D-D neutron generator, Thermo-Electron 6600 TLD reader

UNIVERSITY OF CALIFORNIA, BERKELEY

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Berkeley, CA 94720-1730
TEL: (510) 642-5010 / FAX: (510) 643-9685
<http://nuc.berkeley.edu/>

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 5 | 10 | 8 |
| Masters | 8 | 9 | 8 |
| Ph.D. | 4 | 6 | 6 |

Graduate Student Enrollment: 12 Masters/45 Ph.D.
[B.S., M.S., M.E., D.Eng., Ph.D.]
ABET Accreditation: B.S.(N.E.)

Jasmina L. Vujic, Department Chairman and Professor of Nuclear Engineering (510-643-8085); [vujic@nuc.berkeley.edu]; Ph.D. University of Michigan 1990; Numerical methods in radiation transport, nuclear reactor theory, bionuclear engineering and radiological physics.

Joonhong Ahn, Associate Professor of Nuclear Engineering (510-642-5107); [ahn@nuc.berkeley.edu]; Ph.D. University of California, Berkeley 1988; Radioactive waste management, nuclear fuel cycle.

Thomas J. Downar, Professor of Nuclear Engineering (510-643-8944); [downar@nuc.berkeley.edu]; Ph.D., Nuclear Engineering, Massachusetts Institute of Technology, 1984; Reactor Physics, large system analysis, numerical methods

Daniel M. Kammen, Professor of Nuclear Engineering (510-642-1139); [dkammen@socrates.berkeley.edu]; Ph.D. Harvard University, 1988. Energy, particularly renewables, development and the environment.

William E. Kastenberg, Daniel M. Tellep Distinguished Professor of Engineering (510-643-0574); [kastembe@nuc.berkeley.edu]; Ph.D. University of California, 1966; Nuclear reactor safety, risk assessment and risk management for nuclear and non-nuclear technologies, environmental risk assessment, ethical issues in the development of technology

Edward C. Morse, Professor of Nuclear Engineering (510-642-7275); [morse@nuc.berkeley.edu]; Ph.D. University of Illinois 1979; Applied plasma physics, fusion engineering.

Donald R. Olander, Professor of Nuclear Engineering (510-642-7055); [fuelpr@socrates.berkeley.edu]; Sc.D. Massachusetts Institute of Technology 1958; Nuclear reactor fuels and nuclear materials.

Per F. Peterson, Professor of Nuclear Engineering (510-643-7749); [peterson@nuc.berkeley.edu]; Ph.D. University of California 1988; Thermal hydraulics, thermal sciences, advanced reactors, inertial fusion energy, nuclear materials management.

Brian Wirth, Assistant Professor of Nuclear Engineering (510-643-2242); [bdwirth@nuc.berkeley.edu]; Ph.D. University of California Santa Barbara 1998; Effect of radiation on metals.

Other Faculty

Paul L. Chambré, Professor Emeritus in the Graduate School (510-642-7042); High-level radioactive waste disposal.

T. Kenneth Fowler, Professor Emeritus in the Graduate School (510-642-7071); Applied plasma physics.

Lawrence M. Grossman, Professor Emeritus (510-642-5341); Reactor physics.

Selig N. Kaplan, Professor Emeritus (510-642-5010); Nuclear physics.

Thomas H. Pigford, Professor Emeritus in the Graduate School (510-642-6469); Radioactive waste management.

Stanley G. Prussin, Professor Emeritus in the Graduate School (510-642-5274); [prussin@uclink4.berkeley.edu]; Ph.D. University of Michigan 1964; Fission products, nuclear physics, radiation detection and application of radiation science in bioengineering.

Virgil E. Schrock, Professor Emeritus in the Graduate School (510-642-6431); [schrock@nuc.berkeley.edu]; Reactor thermal hydraulics, reactor safety.

Professors in Residence:

Ehud Greenspan, (510-643-9983); [gehud@nuc.berkeley.edu]; Ph.D. Cornell University 1966; Advanced reactor concepts, nuclear design optimization.

Bruce Hasegawa, (415-502-4494); [bruceh@itsa.ucsf.edu]; Ph.D. University of Wisconsin, Madison 1984; Physics and engineering of medical imaging.

Ka-Ngo Leung, (510-486-7918) [knleung@lbl.gov]; Ph.D. University of California, Los Angeles, 1975; Ion sources and beam technology.

Eric B. Norman, (510-643-3288) [ebnorman@lbl.gov]; Ph.D. University of Chicago, 1978; Homeland security, neutrino physics and nuclear astrophysics

John Verboncoeur, (510-642-3477); [johnv@eecs.berkeley.edu]; Ph.D. Nuclear Engineering, University of California, Berkeley, 1992; Computational physics, plasmas.

Kai Vetter, (510-643-3288) [kvetter@llnl.gov]; Ph.D. J. W. Goethe-University, Frankfurt, 1995; applied nuclear physics: radiation detection, biomedical research, nuclear security

ROYAL MILITARY COLLEGE OF CANADA

Department of Chemistry and Chemical Engineering
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Kingston, Ontario, Canada K7K 7B4
TEL: (613) 541-6000, ext. 6271 FAX: (613) 542-9489
http://www.rmc.ca/academic/gradrech/energy_e.html

ME/SE Graduates

| | <u>2003-2004</u> | <u>2004-2005</u> | <u>2005-2006</u> |
|-------|------------------|------------------|------------------|
| M.ASc | 2 | 4 | 3 |
| Ph.D. | 1 | 2 | 1 |

Graduate Student Enrollment:
Total in Department: 54 students
M.ASc.: 4 (+ 5 part time)
Ph.D.: 4

Nuclear Science & Engineering Stream [M.Sc. M.A.Sc., Ph.D.]

William S. Andrews, Associate Professor of Chemical Engineering (613-541-6000, ext.6052); [andrews-w@rmc.ca]; Ph.D. Royal Military College of Canada 1995; Radiological dispersion devices, radiological contamination and remediation.

Leslie G.I. Bennett, Professor of Nuclear Engineering (613-541-6600, ext. 6614); [bennett-l@rmc.ca]; Ph.D. University of Toronto 1983; Aircrew radiation dosimetry, nuclear instrumentation and control, neutron radiography and radioscopy, neutron activation analysis.

Hugues W. Bonin, Professor of Nuclear Engineering (613-541-6600, ext. 6613); [bonin_h@rmc.ca]; Ph.D. Purdue University 1983; Reactor physics, advanced fuel cycles and management, novel reactor designs.

Brent J. Lewis, Professor of Nuclear Engineering (613-541-6611); [lewis-b@rmc.ca]; Ph.D. University of Toronto 1984; Nuclear fuel behaviour modelling during normal and accident conditions; aircrew and spacecrew radiation dosimetry.

William T. Thompson, Professor of Chemical and Materials Engineering (613-544-6159); [thompson-w@rmc.ca]; Ph.D. University of Toronto 1970; Nuclear materials thermodynamics.

Adjunct Faculty

Edward L. Cooper, Adjunct Assistant Professor of Nuclear Engineering (613-584-8811); [coopere@aecl.ca]; Ph.D. University of Waterloo 1977; Radionuclide transportation in the environment, tracer techniques.

Raghu Roa, Adjunct Assistant Professor of Nuclear Engineering (613-584-8811 Ext 4500); [roar@aecl.ca]; Ph.D. Indian Institute of Technology 1983; Environmental and radiochemistry.

Edward J. Waller, Adjunct Associate Professor of Nuclear Engineering (905-721-3111); [Ed.Waller@uoit.ca]; Ph.D. Rensselaer Polytechnic Institute 1997, Radiological decontamination and dispersion devices.

Diana Wilkinson, Adjunct Assistant Professor of Radiation Biology (613-998-5995); [Diana.Wilkinson@drdc-rddc.gc.ca]; Ph.D. University of Ottawa 1997; Radiation biology.

Other Faculty

Royal Military College of Canada SLOWPOKE-2 Facility

Kathy S. Nielsen, Director SLOWPOKE-2 Facility (613-541-6000, ext. 6385); [nielsen-k@rmc.ca]; M.Sc. University of British Columbia 1967; Neutron activation analysis and gamma ray spectroscopy.

UNIVERSITY OF CINCINNATI

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Cincinnati, OH 45221-0072
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<http://altmine.mie.uc.edu/nuclear/nuclear.html>

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| Masters | 7 | 3 | 4 |
| Ph.D. | 7 | 3 | 2 |

Full-Time Graduate Student Enrollment: 15 Masters/12 Ph.D.
[M.S., Ph.D.]

John Christenson, Nuclear & Radiological Engineering Program Director and Professor of Nuclear Engineering (513-556-2002); [john.christenson@uc.edu]; Ph.D. University of Wisconsin 1970; Nuclear reactor operations, analysis of reactor process computer input signals, probabilistic determination of reactor operability rules, optimal control of nuclear reactors.

Roy Eckart, Professor of Nuclear Engineering (513-556-5416); [roy.eckart@uc.edu]; Ph.D. University of Cincinnati 1971; Health physics and radiological engineering, environmental surveillance and monitoring.

G. Ivan Maldonado, Associate Professor of Nuclear Engineering (513-556-0412); [Ivan.Maldonado@uc.edu]; Ph.D. North Carolina State University, 1993; Computational engineering applications to reactor physics, LWR bundle and core design. Nuclear fuel management optimization, BWR reload design, licensing, and operational management.

Henry Spitz, Graduate Studies Director, Director of Laboratory of Basic and Applied Nuclear Science and Professor of Nuclear Engineering (513-556-2003); [henry.spitz@uc.edu]; Ph.D. New York University 1977; Internal radiation dosimetry, bioassay and in vivo measurements, occupational and environmental exposure assessment, radon measurement, epidemiology.

Bingjing Su, Associate Professor of Nuclear Engineering (513-556-2960); [bingjing.su@uc.edu]; Ph.D. University of California, Los Angeles 1995; Radiation transport in various media, reactor computations, medical imaging, Monte Carlo simulations.

Adrian Miron, Research Assistant Professor of Nuclear and Radiological Engineering (513-556-2543); [Adrian.Miron@uc.edu]; Ph.D. University of Cincinnati, 2001; Statistical data analysis, Stochastic and deterministic process modeling, Signal processing, computer code development and testing, radiological emergency planning.

Other Faculty:

Sam Glover, Adjunct Associate Professor of Nuclear Engineering (513 533 6829); [samuel.glover@uc.edu]; Ph.D. Washington State University, 1998; Neutron activation analysis, Monte Carlo modeling, analytical radiochemistry, occupational and exposure assessment

Kenny Gross, Adjunct Professor of Nuclear Engineering (858 625 5083); [kenny.gross@sun.com]; Ph.D. University of Cincinnati; Signal processing and computer system reliability

David Lindenschmidt, Adjunct Assistant Professor of Nuclear Engineering (513 419 5967); [david.lindenschmidt@duke-energy.com]; BSNE University of Cincinnati; Criticality analysis and criticality safety

Eugene Rutz, Adjunct Assistant Professor of Nuclear Engineering, Director. UC ACCEND Dual-Degree Program (513-556-1096); [eugene.rutz@uc.edu]; MSME University of Cincinnati 1986; Nuclear power plant systems, radiological engineering, human health risk assessment

Ray Wood, Adjunct Associate Professor (513 521-3515); [rwood@trininc.com]; Ph.D. University of Cincinnati, 1994; Radiological engineering and pathway analysis, radiation effects on materials

COLUMBIA UNIVERSITY

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TEL: (212) 854-4457 FAX: (212) 854-8257

<http://www.apam.columbia.edu/>; email: seasinfo.apam@columbia.edu

Fusion Plasma Physics and Medical Physics Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|---------|------------------|------------------|------------------|
| Masters | 17 | 27 | 10 |
| Ph.D. | 1 | 3 | 3 |

Graduate Students* Enrollment: 24 Masters/12 Ph.D.
[M.S., Ph.D.]

John C. Arbo, Associate (212-854-4457); [jca10@columbia.edu]; M.Phil. Columbia University 1985; Radiation detectors, *in-vivo* neutron/gamma transport modeling and measurement methods, medical physics.

Alan H. Boozer, Professor of Applied Physics (212-854-4785); [ahb17@columbia.edu]; Ph.D. Cornell University 1970; Plasma theory, theory of magnetic confinement for fusion energy, nonlinear dynamics.

Peter D. Esser, Professor of Clinical Radiology and Director of Clinical Computing, College of Physicians and Surgeons (212-305-6465); [pde2@columbia.edu]; Ph.D. Adelphi University (Brookhaven National Laboratory) 1971; Medical image enhancement and filtering, nuclear medicine, PET physics.

Ajay Kapur, Assistant Professor of Clinical Radiation Oncology (212-342-0755); [ak161@columbia.edu]; Ph.D. Stanford 1999; Monte Carlo radiation transport simulation, digital imaging systems, image guided radiation therapy.

Michael E. Mauel, Professor of Applied Physics (212-854-4455); [mauel@columbia.edu]; Sc.D. Massachusetts Institute of Technology 1983; Plasma physics, waves & instabilities, fusion & equilibrium control; space physics; plasma processing.

Gerald Navratil, Professor of Applied Physics (212-854-4496); [navratil@columbia.edu]; Ph.D. University of Wisconsin 1976; Plasma physics, plasma diagnostics, fusion energy science.

Edward L. Nickoloff, Professor of Clinical Radiology (212-305-5005); [ein1@columbia.edu]; Sc.D. Johns Hopkins 1977; Radiation dosimetry, CT dosimetry and digital imaging systems, image quality assessments, x-ray spectrum analysis, quality control measurements.

I. C. Noyan, Professor of Materials Science and of Applied Physics (212-854-8919); [icn2@columbia.edu]; Ph.D. Northwestern 1984; X-ray and neutron diffraction, microdiffraction analysis, radiation sources, characterization and modeling of mechanical and micromechanical deformation; nondestructive testing.

Stephan L. Ostrow, Adjunct Professor of Applied Physics (212-854-4457); [slo8@columbia.edu]; Eng.Sc.D. Columbia University 1978; Radiation shielding/transport/science, chemical/explosives/nuclear detectors, THz radiation applications, superconducting energy storage.

Thomas S. Pederson, Associate Professor of Applied Physics (212-854-6528); [tsp22@columbia.edu]; Ph.D. Massachusetts Institute of Technology 2000; Plasma physics, magnetic confinement, fusion energy, non-neutral plasmas, positron-electron plasmas, plasma turbulence.

Amiya K. Sen, Professor of Electrical Engineering (212-854-3124); [amiya@ee.columbia.edu]; Ph.D. Columbia University 1963; Plasma physics, fluctuations and anomalous transport in plasmas, control of plasma instabilities.

Cheng Shie Wu, Professor of Clinical Radiation Oncology, College of Physicians and Surgeons (212-305-2991); [csw6@columbia.edu]; Ph.D. University of Kansas 1985; Microdosimetry, biophysical modeling, dosimetry of brachytherapy, gel dosimetry, second cancers induced by radiotherapy.

Marco Zaider, Senior Lecturer, Columbia University College of Physicians and Surgeons; Professor of Physics in Radiology, Cornell Medical School; Attending Physicist and Head of Brachytherapy Physics, Dept. of Medical Physics, Memorial Sloan-Kettering Cancer Center; (212-639-7125); [mzaider@mskcc.org]; Ph.D. Tel Aviv University 1976; Medical physics, biophysical modeling, microdosimetry, quantum chemistry, radiation transport.

*Does not include graduate students registered in other departments

UNIVERSITY OF FLORIDA

Nuclear & Radiological Engineering
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Gainesville, FL 32611
Main Office: (352) 392-1401; Fax: (352) 392-3380
www.nre.ufl.edu

| | Degrees Awarded | | |
|-------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 13 | 6 | 10 |
| M.S. | 6 | 4 | 15 |
| M.E. | 5 | 0 | 2 |
| Ph.D. | 2 | 5 | 6 |

Fall 2006 Enrolled Graduate Students: 72
ABET Accredited Program: Nuclear Engineering (B.S.)

Alireza Haghghat, Professor and Chairman, Director of UF Transport Theory Group (UFTTG), Interim Director of FINDS, ((352) 392-1401, Ext. 306), [haghghat@ufl.edu]; Ph.D. University of Washington, 1986; Particle transport methods and their applications, parallel computing, Monte Carlo methods, reactor physics, perturbation techniques, design of nondestructive interrogation systems for homeland security applications, simulation of nuclear reactors, radiation systems, and medical devices.

Samim Anghaie, Professor, Director of Innovative Nuclear Space Power and Propulsion Institute (INSPI), ((352) 392-1401, Ext. 307), [anghaie@ufl.edu]; Ph.D. The Pennsylvania State University, 1982; Advanced nuclear systems and reactor design, thermal hydraulics, nuclear fuels and materials.

James Edward Baciak, Assistant Professor, ((352) 392-1401, Ext. 312), [jimmer@ufl.edu]; Ph.D. University of Michigan, 2004; Radiation measurements, room temperature gamma-ray spectroscopy, radiation instrumentation, scintillation detectors, compound semiconductor materials, national security - nuclear nonproliferation, environmental monitoring, active and passive interrogation, gas detectors.

Wesley E. Bolch, Professor, Graduate Coordinator, Health Physics Program Coordinator, ((352) 392-1401, Ext. 308), [wbolch@ufl.edu]; Ph.D. University of Florida, 1988; Computational medical physics, internal and external radiation dosimetry, skeletal microimaging and dosimetry, tomographic voxel phantoms of pediatric patients, organ dose assessment in diagnostic radiology and radiation therapy, radiation bio-effects and DNA damage by radiolytic free radicals.

Edward T. Dugan, Associate Professor, ((352) 392-1401, Ext. 309), [edugan@ufl.edu]; Ph.D. University of Florida 1976; Radiation transport, Monte Carlo analysis, reactor analysis and nuclear power plant dynamics and control, space nuclear power and propulsion, and radiographic imaging techniques applied to non- destructive examination.

David R. Gilland, Associate Professor, ((352) 392-1401, Ext. 310), [gilland@ufl.edu]; Ph.D. University of North Carolina 1989; Medical imaging using positron emission tomography (PET) and single photon emission computed tomography (SPECT). Development of novel imaging instrumentation and reconstruction methods applied to dynamic cardiac imaging. Analysis of medical image quality using human observer models.

David E. Hintenlang, Associate Professor, Medical Physics Program Coordinator, ((352) 392-1401, Ext. 311), [dhinten@ufl.edu]; Ph.D. Brown University 1985; Clinical medical physics applications of radiation imaging and dosimetry, techniques to accurately quantify and minimize pediatric, CT, and mammography doses and optimization of image quality.

Sanjiv Samant, Associate Professor, ((352) 392-1401, Ext. 306), [samant@ufl.edu]; Ph.D. University of Western Ontario, Canada 1988; Radiation therapy physicist, megavolt x-ray imaging, detector design, medical image processing, Monte Carlo simulation, dosimetry.

Glenn E. Sjoden, Associate Professor, Associate Director of UFTTG, Interim Associate Director of FINDS, ((352) 392-1401, Ext. 323), [sjoden@ufl.edu]; Ph.D. The Pennsylvania State University, 1982; Particle transport and numerical methods, nuclear systems analysis: medical, power generation, defense programs, NDT, and detection. Also, convective heat transfer, computational fluids and high performance computing applications.

James S. Tulenko, Professor, Director of Laboratory for Development of Advanced Nuclear Fuels and Materials, ((352) 392-1401, Ext. 314), [tulenko@ufl.edu]; M.S. Massachusetts Institute of Technology 1963; Nuclear fuel cycle, radioactive wastes, reactor analysis, engineering application of radioisotopes, robotics, intelligent databases, system analysis.

Other Faculty:

Robert J. Amdur, M.D., Professor and Department Chair of UF Radiation Oncology, (352-395-0316, amdurrj@shands.ufl.edu)

Manuel Arreola, Assistant Professor and Director of Radiological Physics (352-265-0680, Ext. 45217, arreom@radiology.ufl.edu)

Frank J. Bova, Professor of Neurosurgery (352-392-0287, bova@neurosurgery.ufl.edu)

Libby F. Brateman, Associate Professor, Department of Radiology (352-392-0293, rbrightgs@ufl.edu)

James Dempsey, Assistant Professor, Radiation Oncology (352-265-8217, dempsey@ufl.edu)

Nils J. Diaz, Professor Emeritus of Nuclear & Radiological Engineering (301-415-8430, cmrdiaz@nrc.gov)

William H. Ellis, Associate Professor Emeritus of Nuclear & Radiological Engineering (352-392-1413, ellis@ufl.edu)

Kathleen Hintenlang, Medical Physicist, Robert Boissoneault Oncology Institute (352-861-2400, khintenlang@rboi.org)

Siyong Kim, Assistant Professor, Department of Radiation Oncology, Mayo Clinic, Jacksonville, FL, (904-953-0953, kim.siyong@mayo.edu)

Chihray Liu, Associate Professor, Department of Radiation Oncology (352-392-0287, liuer@ufl.edu)

Nancy P. Mendenhall, M.D., Medical Director of the Florida Proton Therapy Institute and Associate Chair of the Department in Jacksonville (352-265-0287, mendenan@shands.ufl.edu)

M. Jack Ohanian, Emeritus Professor of Nuclear & Radiological Engineering (352-392-0946, johanian@ufl.edu)

Jatinder R. Palta, Professor, Department of Radiation Oncology (352-395-0287, paltajr@ufl.edu)

William S. Properzio, Associate Professor and Director, Department of Environmental Health and Safety (352-392-1590, bill@ehs.ufl.edu)

Glen J. Schoessow, Professor Emeritus of Nuclear & Radiological Engineering (352-392-1401, Ext. 313)

Dean Schoenfeld, Research Assistant, Department of Nuclear & Radiological Engineering (352-392-1401, Ext. 324, dschoen@ufl.edu)

Shailendra Shukla, Assistant Professor, (352-376-1611, Ext. 6514, shukss@radiology.ufl.edu)

Research Laboratories:

NRE Robotics Laboratory

Mission: To develop methods to solve the problem of remote manipulation and management of nuclear wastes.

Director: Prof. James Tulenko
(352) 392-1401, Ext. 314
tulenko@ufl.edu

Particle Transport & Distributed Computing (PTDC)

Mission: Development of advanced particle transport methods, simulation of large real-world problems on distributed computing PC Clusters. Currently, the lab includes 42 CPUs with 104 GB of memory and Gbit/s networks.

Co-Directors: Alireza Haghighat, Ph.D. and Glenn E. Sjoden, Ph.D.
(352) 392-1401, Ext. 306
haghighat@ufl.edu , sjoden@ufl.edu

Institutes:

Innovative Nuclear Space Power and Propulsion Institute (INSPI)

Mission: INSPI research covers a broad range of activities including feasibility analysis for ultra-compact nuclear power reactor concepts as well as experimental and theoretical research to establish the fundamental properties of high temperature materials and processes used in space power reactors.

INSPI Web site: <http://inspi.ufl.edu/>

Director: Samim Anghaie, Ph.D.
(352) 392-1427 or (352) 392-1401, Ext. 307
anghaie@ufl.edu

The Florida Institute of Nuclear Detection and Security (FINDS)

Mission: To serve as a design-basis center for research, development, testing, and engineering (RDTE) projects that directly satisfy nuclear detection problems that face Florida and the nation.

FINDS Web site: <http://finds.nre.ufl.edu>

Interim Director: Alireza Haghighat, Ph.D.
Interim Associate Director: Glenn E. Sjoden, Ph.D.
(352) 392-1401, Ext. 306
haghighat@ufl.edu

GEORGIA INSTITUTE OF TECHNOLOGY

Nuclear and Radiological Engineering and Medical Physics Programs

George W. Woodruff School

Atlanta, GA 30332-0405

TEL: (404) 894-3718 FAX: (404) 894-3733

<http://www.nre.gatech.edu> and <http://www.mp.gatech.edu>

E-Mail: nehp.info@nre.gatech.edu

NE/MP Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|---------|------------------|------------------|------------------|
| B.S. | 10 | 8 | 22 |
| Masters | 2 | 3 | 18 |
| Ph.D. | 1 | 2 | 1 |

Graduate Student Enrollment: 53 Masters/21 Ph.D.

[B.S.N.R.E., M.S.N.E., M.S.M.P. Ph.D.]

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

Farzad Rahnema, Professor and Associate Chair of the Woodruff School, Chair of the Nuclear and Radiological Engineering and Medical Physics Programs (404-894-3731 or 404 894-3718); [farzad@gatech.edu]; Ph.D. University of California, Los Angeles 1981; computational reactor and medical physics, radiation transport, perturbation and variational methods, nuclear criticality safety.

Said I. Abdel-Khalik, Southern Nuclear Distinguished Professor (404-894-3719); [said.abdelkhalik@me.gatech.edu]; Ph.D. University of Wisconsin-Madison 1973; Inertial fusion technology, reactor thermal-hydraulics; nuclear plant operations, reactor safety.

Sang Cho, Associate Professor (404-385-1301); [scho@gatech.edu]; Ph.D. Texas A&M University, College Station, TX, 1997; Radiotherapy Physics, Cancer Imaging, Nanotechnology.

Cassiano de Oliveira, Professor (404-385-4928); [Cassiano.deoliveira@nre.gatech.edu]; Ph.D. University of London, England, 1987; deterministic radiation transport methods, solution self-adaptivity, inverse photon scattering problems.

Srinivas Garimella, Associate Professor (404-894-7479); [srinivas.garimella@me.gatech.edu]; Ph.D. The Ohio State University, Columbus, OH, 1990; Heat Transfer, Thermal-hydraulics, Microchannel Phase Change.

Nolan E. Hertel, Professor (404-894-3601); [nolan.hertel@nre.gatech.edu]; Ph.D. University of Illinois at Urbana-Champaign 1979; Radiological assessment, radiation dosimetry and shielding, radiation transport and dosimetry, radiation detector simulations, and neutron measurements.

Wilfred van Rooijen, Assistant Professor (404-894-3718); [vanrooijen@mail.gatech.edu]; PhD Delft University of Technology, Delft, The Netherlands 2006. Advanced fuel cycle physics, fast reactors, (sub)critical systems for integral and transmutation fuel cycles.

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 transport theory.

C-K Chris Wang, Associate Professor (404-894-3727); [chris.wang@nre.gatech.edu]; Ph.D. Ohio State University 1989; Radiation detection, microdosimetry, radiation biophysics, and neutron therapies for cancer.

Adjunct Faculty Affiliated with the Medical Physics Program

Eric S. Elder, Assistant Professor of Radiation Oncology and Director of Clinical Medical Physics, Emory University School of Medicine (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 H. Fox, Associate Professor of Radiation Oncology and Director of Medical Physics Division, Department of Radiation Oncology, Emory University School of Medicine (404-778-2304); [tim@radonc.emory.org]; Ph.D., Georgia Institute of Technology 1994; Diplomate, American Board of Radiology 1997; optimization algorithms, clinical decision making software, dose calculation and advanced treatment planning system, molecular imaging, adaptive radiation therapy.

Rebecca M. Howell, Assistant Professor of Radiation Oncology Physics Division, Emory University School of Medicine; [rebecca@radonc.emory.org]; Ph.D., University of Texas Health Science Center at San Antonio 2005; Diplomate, American Board of Radiology 2005; M.S. University of Texas Health Science Center at San Antonio 2001; Clinical Measurements, Secondary Neutron Dose.

Tom C.-C. Hu, Assistant Professor of Radiology and Director of Small Animal Imaging Program, Medical College of Georgia; [thu@mail.mcg.edu]; Ph.D., Carnegie Mellon University, 2001; MBA, Villanova University, 2005; non-invasive magnetic resonance imaging (MRI) in small animals

ZongJian (Z.J.) Cao, Professor of Radiology, Medical College of Georgia and Co-director of Medical Physics, MCG Health Inc.; [zcao@mail.mcg.edu]; Ph.D., Indiana University 1986; Certified by the American Board of Science in Nuclear Medicine 1995; single photon emission computed tomography (SPECT), positron emission tomography (PET), PACS, internal dosimetry estimation.

Other Faculty

Ward O. Winer, Regents' Eugene C. Gwaltney, Jr. Professor and Chair of the George W. Woodruff School of Mechanical Engineering (404-894-3200); [ward.winer@me.gatech.edu]; Ph.D. (Mechanical Engineering) University of Michigan 1962; Ph.D. (Physics) University of Cambridge, England 1964; Fluid flow, high-pressure rheology, lubrication, tribology, thermomechanics.

Kenneth W. Crase, Adjunct Professor; Technical Advisor, Radiological Protection Services, Westinghouse Savannah River Company (803-952-7892); [kenneth.crase@srs.gov]; Ph.D. (Physics), University of Tennessee 1971; Operational radiation protection, environmental radioactivity, and radiation dosimetry.

S. Mostafa Ghiaasiaan, Professor (404-894-3200); [seyed.ghiaasiaan@me.gatech.edu]; Ph.D. University of California, Los Angeles 1983; Heat transfer, two-phase flow, nuclear reactor engineering.

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

Bernd Kahn, Director, Environmental Resources Center, Professor Emeritus of Nuclear Engineering and Health Physics (404-894-3776); [bernd.kahn@me.gatech.edu]; Ph.D. Massachusetts Institute of Technology 1960; Radiochemistry, radiochemical analysis, radiological monitoring.

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

Richard Sanchez, Adjunct Professor; Research Director, CEA Saclay, Professor at INSTN (+33 1 6908 5404, [richard.sanchez@cea.fr]; Ph.D. University of Washington 1981, Ph.D. University of Orsay 1979; Reactor physics, transport theory and numerical methods.

Tristan Utschig, Senior Academic Professional for the Scholarship and Assessment of Teaching and Learning, Center for the Enhancement of Teaching and Learning; (404-385-2949); [tris.utschig@cetl.gatech.edu]; Ph.D. (Engineering Physics) University of Wisconsin – Madison 2000; Faculty Development, Assessment, Thermochemical Nuclear Safety Analysis, Hydrodynamics Modeling.

Nazia Zakir, Radiation Safety Officer, (404-894-3621); [nazia.zakir@ors.gatech.edu]; M.S. Radiological Physics, Rutgers University 1999. Operational Health Physics, Radiological Safety, Medical Physics, Radiological Monitoring, Hospital Health Physics.

Nuclear 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.

IDAHO STATE UNIVERSITY

College of Engineering
Lillibridge Engineering Laboratory
P. O. Box 8060
Pocatello, ID 83209
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<http://www.coe.isu.edu>

| | NE Graduates | | |
|-------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 0 | 0 | 0 |
| M.S. | 2 | 2 | 2 |
| Ph.D. | 1 | 1 | 0 |

Graduate Student Enrollment: 14 Masters/10 Ph.D.
[M.S in Nuclear Science and Engineering and Ph.D. in Engineering & Applied Science]

John S. Bennion, P.E., CHP, Associate Professor of Engineering, Nuclear Engineering Interim Chair and Reactor Manager (208-282-3351); [jbennion@isu.edu]; Ph.D. University of Utah 1996; Nuclear engineering, reactor physics, criticality safety, reactor experiments, radiation protection and shielding.

Jianwei Chen, Assistant Professor of Nuclear Engineering, (208-282-7808); [chenjian@isu.edu]; Ph.D. University of Cincinnati 2004; Nuclear engineering, radiation detection and measurement, nondestructive assay.

Jay F. Kunze, P.E., CHP, Professor of Engineering (208-282-4147); [kunzejay@isu.edu]; Ph.D. Carnegie-Mellon University 1959; Reactor physics design, thermodynamic analysis, space power applications, medical applications, renewable energy applications and energy conservation, decontamination and decommissioning.

Michael J. Lineberry, Research Professor of Engineering, Director of Institute of Nuclear Science and Engineering (208-282-7808); [Michael.Lineberry@inl.gov]; Ph.D. California Institute of Technology 1972; Reactor physics, nuclear fuel cycle.

Mary Lou Dunzik Gougar, Research Assistant Professor of Nuclear Engineering (208-282-7809); [mldg@isu.edu]; Ph.D. Penn State University 2004; Nuclear fuel cycle, nuclear waste treatment.

Patricia Paviet-Hartmann, Research Associate Professor of Nuclear Engineering (208-282-7808); [pavipatr@isu.edu]; Ph.D. University of Paris 1992; Radiochemistry, actinide chemistry, repository science.

Thomas Hartmann, Research Associate Professor of Nuclear Engineering (208-282-7937); [hartthom@isu.edu]; Ph.D. University of Heidelberg 1995; Nuclear chemistry, nuclear ceramic fuels, vitrification, actinide host phases.

Other Faculty

Tommy Ambrose, Ph.D., P.E. Adjunct Faculty (208-282-2902).

Steven Aumeier, Ph.D., Idaho National Laboratory, Adjunct Faculty, (208-533-7479).

Richard R. Brey, Ph.D., CHP, Professor, Director of Health Physics Program (208-282-2667); [brey@Athena.physics.isu.edu].

Thomas F. Gesell, Ph.D., Professor of Health Physics (208-282-3669); gesell@physics.isu.edu].

J. Stephen Herring, Ph.D., Idaho National Laboratory, Adjunct Faculty (208-526-9497).

Soon Sam Kim, Ph.D., Idaho National Laboratory, Adjunct Faculty (208-526-7634).

D. Scott Lucas, Ph.D., Idaho National Laboratory, Adjunct Faculty (208-526-2366).

Kathryn A. McCarthy, Ph.D., Idaho National Laboratory, Adjunct Faculty (208-526-9392).

Vince Maio, MS, Idaho National Laboratory, Adjunct Faculty

John I. Sackett, Ph.D., P.E. Research Professor of Nuclear Engineering (208-282-7808).

Kevan Weaver, Ph.D., Idaho National Laboratory, Adjunct Faculty (208-526-0321).

SPECIAL FACILITIES Associated with Nuclear Engineering Program

AGN-201M, 0.005 kW, Dr. John Bennion, Director
Lillibridge Engineering Laboratory, Pocatello, ID 83208-8060
(208) 282-3351/FAX: (208) 282-4538
jbennion@isu.edu

Idaho Accelerator Center, Director, Doug Wells, Ph.D. (208-282-5875); Radiation effects, NDT/NDE elemental analysis, imaging, nuclear medicine (such as BNCT), health physics, instrument testing and calibration. FY2005 Research Expenditures: ~\$3 million.

Environmental Assessment and Monitoring Laboratory, Director, Richard Brey, Ph.D. (208-282-2667). Low level radiation monitoring, instrument calibration, trace element analysis. High range dosimetry support for the Idaho Accelerator Center. Annual Research Expenditures: \$180,000.

Environmental Monitoring Laboratory – Director: Tom Gesell, Ph.D. (208-282-3669). Low level radiation monitoring, radioanalytical analysis, instrument calibration, trace element analysis. Research Expenditures: \$1,470,000 over 5-year budget cycle.

Skyline Laboratory – Director: Brian Williams, Ph.D. Nuclear instrumentation, vertical and horizontal thermal hydraulic test loops, motor operated valve test device. Annual research expenditures ~\$300,000

UNIVERSITY OF ILLINOIS

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<http://www.ne.uiuc.edu>
E-Mail: nuclear@uiuc.edu

NPRE Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|-------|------------------|------------------|------------------|
| B.S. | 5 | 16 | 14 |
| M.S. | 5 | 7 | 11 |
| Ph.D. | 4 | 2 | 4 |

Graduate Student Enrollment: 16 Masters/49 Ph.D.; total 65

[B.S., M.S., Ph.D.]

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

James F. Stubbins, Head and Professor of Nuclear Engineering (217-333-6474); [jstubb@uiuc.edu]; Ph.D. University of Cincinnati 1975; Development, analysis, and application of materials, primarily for energy-related applications; nuclear systems design and analysis; nuclear materials, nuclear fuels, irradiation damage and effects, mechanical properties, high temperature corrosion, electron microscopy.

Roy A. Axford, Professor of Nuclear Engineering (217-333-4399); [r-axford@uiuc.edu]; Sc.D. Massachusetts Institute of Technology 1958; Application of the Lie Theory of Local Transformation Groups to the solution of linear and nonlinear systems of differential equations that arise in engineering science, theoretical physics, applied mathematics, computational physics of nuclear energy systems.

Brent J. Heuser, Associate Professor of Nuclear Engineering (217-333-9610); [bheuser@uiuc.edu]; Ph.D. University of Michigan 1990; Hydrogen/metal systems, defects in materials, thin-film structures, numerical simulations of spallation source systems, neutron scattering techniques.

Barclay G. Jones, Professor of Nuclear Engineering and Professor of Mechanical Engineering (217-333-3535); [bgjones@uiuc.edu]; Ph.D. University of Illinois 1966; Thermal-hydraulics, reactor safety, multiphase flow, boiling heat transfer, turbulence measurement and modeling, flow-induced vibrations and hydroacoustics, human-machine interfaces for reactor control and simulation, food irradiation-safety.

George H. Miley, Professor of Nuclear Engineering and Electrical and Computer Engineering (217-244-4947); [ghmiley@uiuc.edu]; Ph.D. University of Michigan 1959; Fusion systems, plasma engineering, reactor kinetics and control, nuclear pumped lasers, direct energy conversion, hydrogen energy production and fuel cells, low-energy nuclear reactions in solids.

Ling Jian Meng, Assistant Professor of Nuclear Engineering (217-244-6651); [ljmeng@uiuc.edu]; Ph.D. University of Southampton, UK 2001; Ultra-high resolution imaging systems for biomedical/molecular imaging applications; novel imaging sensor based on room temperature semiconductor detectors.

Magdi H. Ragheb, Associate Professor of Nuclear Engineering (217-333-6569); [m-ragheb@uiuc.edu]; Ph.D. University of Wisconsin 1978; Computational methods, reactor theory, Monte Carlo methods, radiation protection and shielding, probabilistic risk assessment, applied artificial intelligence, supercomputing.

David N. Ruzic, Professor of Nuclear Engineering (217-333-0332); [druzic@uiuc.edu]; Ph.D. Princeton University 1984; Experimental fusion research, modeling of edge plasma atomic physics, atomic properties of potential first-wall materials, plasma-material interaction, plasma processing of semi-conductors, extreme ultraviolet (EUV) sources for lithography, physical and chemical vapor deposition.

Clifford E. Singer, Professor of Nuclear Engineering (217-333-1814); [csinger@uiuc.edu]; Ph.D. University of California at Berkeley 1971; Plasma transport near material boundaries, plasma-wall interaction; advanced propulsion systems, nuclear proliferation, and South Asian nuclear programs.

Rizwan Uddin, Professor of Nuclear Engineering and Computational Science and Engineering (217-244-4944); [rizwan@uiuc.edu]; Ph.D. University of Illinois 1988; Nuclear reactor theory, homogenization techniques, computational methods, reactor thermal hydraulics, virtual nuclear systems, nonlinear dynamical systems, computational biology.

Other Faculty

Michael Aref, Adjunct Assistant Professor of Nuclear Engineering (217-333-2295); [maref@uiuc.edu]; Ph.D. University of Illinois 2003; M.D. University of Illinois 2006; Medical imaging, MRI, uses and applications of chemical and radiochemical compounds as image contrast agents, medical practice.

Herman Cember, Adjunct Professor of Nuclear Engineering (765-496-1474); [cembersh@aol.com]; Ph.D. University of Pittsburgh 1960; Health physics and occupational safety.

Thomas J. Dolan, Adjunct Professor of Nuclear Engineering (217-333-2295); [dolantj@uiuc.edu]; Ph.D. University of Illinois 1970; Innovative plasma confinement concepts for nuclear fusion; fusion power plant design, safety, environmental aspects, and economics; molten salt fission reactors, nuclear training programs for developing countries; and coordination of international activities in nuclear energy, applications, and education.

Daniel F. Hang, Professor Emeritus of Nuclear Engineering (217-333-3348); [d-hang@uiuc.edu]; nuclear fuel cycle economics.

Brian Jurczyk, Adjunct Assistant Research Professor (708-955-6691); [bjurczyk@starfireindustries.com]; MBA University of Illinois 2000; Ph.D. University of Illinois 2001; Development and application of plasmas for neutron sources, space propulsion, materials surface and near surface processing, and security diagnostics.

Kevin Kim, Professor of Electrical and Computer Engineering and Adjunct Professor of Nuclear Engineering (217-333-7162); [kevinkim@uiuc.edu]; Ph.D. Cornell University 1971; Plasma applications.

David W. Miller, Adjunct Associate Professor of Nuclear Engineering and Director of the North American Technical Center, IAEA Information System on Occupational Exposure, (217-333-1098); [dwmphd@aol.com]; Ph.D. Purdue University 1976; Radiological applications to shielding, radiation instrumentation and nuclear facilities design, health physics, Occupational Dose Studies and Dose

Reduction Technologies, International Scientific Standard (IAEA, UNCSCLEAR), Biomedical applications and medical radiological protocols. Effluent studies.

Richard F. Nelson, Adjunct Assistant Professor (217-337-3273); [rfnelson@uiuc.edu]; Ph.D. University of Illinois 1984; Radiation medical imaging and therapy.

ANS Student Branch Advisors: Rizwan Uddin, Professor, and Daniel F. Hang, Professor Emeritus, Department of Nuclear, Plasma, and Radiological Engineering, 214 Nuclear Engineering Laboratory, 103 South Goodwin Ave, Urbana, IL 61801, (217) 333-2295, FAX: (217) 333-2906, [rizwan@uiuc.edu].

KANSAS STATE UNIVERSITY

Department of Mechanical and Nuclear Engineering

3002 Rathbone Hall

Manhattan, KS 66506-5205

TEL: (785) 532-5610 / FAX: (785) 532-7057

<http://www.mne.ksu.edu>

E-mail: jks@ksu.edu

NE Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|-----------------------|------------------|------------------|------------------|
| B.S. (Nuclear Option) | 5 | 5 | 12 |
| Masters | 0 | 1 | 3 |
| Ph.D. | 0 | 0 | 0 |

Graduate Student Enrollment: 13 Masters/7 Ph.D.

ABET Accreditation: BS ME(Nuclear Option)

MS and PhD in Nuclear Engineering

J. Kenneth Shultis: Professor and Director of Nuclear Engineering Programs (785-532-5626); [jks@ne.ksu.edu] Ph.D. University of Michigan 1969; transport theory and radiation protection and shielding, radiological assessment, radiative transfer, remote sensing, inverse analyses, computer modeling.

William L. Dunn: Associate Professor (785-532-5628); [dunn@mne.ksu.edu], Ph.D. North Carolina State University 1974; radiation measurements and applications (gauging, nondestructive evaluation, quantitative analysis, dosimetry, tracing), Monte Carlo methods and applications, mathematical modeling and inverse analyses.

Stephen J. Eckels: Associate Professor and Director for the Institute for Environmental Research (785-352-22830); [eckels@mne.ksu.edu], Ph.D. Iowa State University 1993; two-phase flow, thermal hydraulics, measurement of two-phase flow data.

Don Fenton: Professor (785-532-2322); [fenton@mne.ksu.edu], Ph.D. University of Illinois 1974; combustion, thermodynamics, crude deposition in systems with subcooled boiling.

Douglas S. McGregor: Associate Professor and Director of the SMART Laboratory and the Tate Neutron Activation Analysis Laboratory (785-532-5284); [mgregor@ksu.edu] Ph.D. University of Michigan 1993; research in radiation detectors and detection systems, ionizing and non-ionizing radiation, semiconductor device physics, design, and fabrication.

Akira T. Tokuhiko: Associate Professor and Director of the Tate Neutron Activation Analysis Laboratory (785-532-3428); [tokuhiko@ksu.edu] Ph.D. Purdue, 1991; thermal hydraulics, two-phase flow, reactor engineering, design and safety, silica and polymer gels, applied biometrics and robotics, micro-fluidics, dynamic modeling.

Mike Whaley: Director of the KSU Nuclear Reactor Facility (785-532-6657); [whaley@ksu.edu], MS University of Florida, 1990; neutron radiography, neutron activation analysis, neutron depth profiling, stress analyses.

Other Faculty

N. Dean Eckhoff: Professor Emeritus of Nuclear Engineering (785-532-5610); [nde@ksu.edu]

Richard E. Faw: Professor Emeritus of Nuclear Engineering (336-922-7547); [fawre@triad.rr.com]

Gale Simons: Professor Emeritus of Nuclear and Electrical Engineering (785-532- 5600)

SPECIAL FACILITIES Associated with the Nuclear Engineering Program

KSU TRIGA Reactor Facility, Director, Mike Whaley (785-532-6657); [whaley@ksu.edu], the KSU reactor supports nuclear research and education. The 250 kW (soon to be licensed for 1 MW) reactor has 4 beam ports, two thermal column facilities, and in-core irradiation facilities including a central thimble, pneumatic “rabbit” system, (dry) 40-position rotary specimen rack, and spectrally tailored in-core dry tubes. Associated facilities include a neutron activation analysis laboratory, panoramic dosimeter calibration facility, gamma irradiator, Californium source, and high-resolution neutron radiography camera, neutron diffractometer.

Semiconductor Materials and Radiological Technologies (SMART) Laboratory, Director, Douglas S. McGregor (785-532-5284); [mcgregor@ksu.edu]; the SMART laboratory includes semiconductor manufacturing and processing facilities. Facilities include a clean room, furnaces, evaporators, and all other equipment required to grow, process, fabricate and test semiconductor devices. Research is focused on developing innovative radiation detectors based on various detection technologies, including semiconductor, scintillation, and gas-filled devices.

Tate Neutron Activation Laboratory: Director, Douglas S. McGregor (785-532-5284); [mcgregor@ksu.edu]; the TATE NAA Laboratory is equipped with several HPGe and Ge(Li) detectors for spectroscopic gamma ray and X-ray energy analysis of neutron activated samples. The laboratory is used extensively in connection with the TRIGA reactor facility, and is equipped with sample preparation and electronic support equipment.

Radiation Measurement Applications (RMA) Laboratory: Director, William Dunn (785-532-5628); [dunn@mne.ksu.edu]; In this laboratory we conduct research and teaching experiments on nondestructive evaluation, energy dispersive X-ray fluorescence analysis, applications of scintillating fibers, radioactive and activable tracer studies, and radioisotope gauging. The laboratory has a dark room within which the scintillating fiber experiments can be conducted with minimal background from visible and ultra-violet sources.

Inter-Disciplinary Engineering and Applied Systems (IDEAS) Laboratory: Director, Akira Tokuhira (785-532-3428); [tokuhira@ksu.edu]; The IDEAS undertakes various, interdisciplinary projects in the thermal-fluid sciences, reactor engineering, design and safety, applied biometrics and robotics, silica and polymer gels, micro-fluidics and heat transfer and dynamic modeling.

UNIVERSITY OF MARYLAND

Nuclear Engineering Program
Chemical & Nuclear Engineering
College Park, MD 20742
301-405-5226, 301-314-9601 (Fax),
<http://www.gradschool.umd.edu/catalog/programs/ENNU.html>

| | NE Graduates | | |
|---------|---------------------|------------------|------------------|
| | <u>7/02-6/03</u> | <u>7/03-6/04</u> | <u>7/04-6/05</u> |
| B.S. | 7 | 3 | 5 |
| Masters | 4 | 2 | 2 |
| Ph.D. | 2 | 1 | 0 |

Graduate Student Enrollment:
Total in Department: 8 students
Nuclear Engineering [B.S., M.S., Ph.D.]
ABET Accreditation: None

Mohamad I. Al-Sheikhly, Professor ((301) 405-5214); [mohamad@umd.edu]; Ph.D. University of New Castle 1981; Radiation engineering, polymers, electronic packaging materials.

Mohammad Modarres, Professor and Director of Graduate Program ((301) 405-5226); [modarres@umd.edu]; Ph.D. Massachusetts Institute of Technology 1979; Probabilistic Risk Assessment, Reactor Safety. [<http://www.enme.umd.edu/facstaff/faculty/professors/modarres.html>]

Ali Mosleh, Professor((301) 405-5215); [mosleh@umd.edu]; Ph.D. University of California, Los Angeles 1981; Probabilistic Risk Assessment, Reactor Safety. [<http://www.enme.umd.edu/facstaff/faculty/professors/mosleh.html>]

Gary A. Pertmer, Associate Professor and Associate Dean of A. James Clark School of Engineering; [pertmer@umd.edu]; Ph.D. University of Missouri, Columbia 1978; Two-phase flow and heat transfer, reactor systems analysis.

Research Faculty

Marvin L. Roush, Professor Emeritus; [roush@umd.edu]; Nuclear Physics, Reactor Safety. [<http://www.enme.umd.edu/facstaff/faculty/professors/roush.html>]

Joseph Silverman, Professor Emeritus; [jagman@umd.edu]; Radiation Engineering.

Other Faculty

Kazys K. Almenas, Professor Emeritus; Thermal-Hydraulics.

Y.Y. Hsu, Professor Emeritus; Thermal-Hydraulics.

Nuclear Engineering Research Centers

Radiation Engineering

Director

Dr. Mohamad Al-Sheikhly

(301) 405-5214

mohamad@umd.edu

Radiation Facilities aim is to provide industry, government agencies, and other educational institutions with advanced technology research programs and services in the fields of manufacturing, reliability, environmental, nuclear medicine, and high dose dosimetry for radiation processing. The ionizing radiation is the primary tool for these programs. The combination of radiation facilities available at the University of Maryland include:

Maryland University Training Reactor (MUTR) Linear Accelerator

Co-60 gamma cell

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Department of Nuclear Science and Engineering
77 Massachusetts Avenue, Room 24-105
Cambridge, MA 02139-4307
TEL: (617) 253-5456 FAX: (617) 258-7437
<http://web.mit.edu/nse/>

| | NE Graduates | | |
|----------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 4 | 12 | 16 |
| M.S. | 21 | 25 | 20 |
| Ph.D. | 13 | 15 | 20 |
| Engineer | 2 | 1 | 0 |

Graduate Student Enrollment: 107
[S.B., S.M., N.E.(Professional), Ph.D./Sc.D.]
ABET Accreditation: S.B. (N.E.)

Ian H. Hutchinson, Head of the Department and Professor of Nuclear Science and Engineering and Co-Principal of the Alcator C-Mod Program (617-253-8760); [ihutch@mit.edu]; Ph.D. Australian National University 1976; Plasma physics and controlled fusion.

George Apostolakis, Professor of Nuclear Science and Engineering and Engineering Systems Division (617-252-1570); [apostola@mit.edu]; Ph.D. California Institute of Technology 1973; Probabilistic nuclear reactor safety, methods for risk and reliability analysis of complex systems, risk-benefit analysis.

Ronald G. Ballinger, 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.

Jacopo Buongiorno, Assistant Professor of Nuclear Science and Engineering and Mechanical Engineering (617-253-7316); [jacopo@mit.edu]; Ph.D. Massachusetts Institute of Technology 2000; Design and analysis of advanced nuclear reactor systems; Two-phase flow and heat transfer; Nanofluid technology.

Sow-Hsin Chen, Professor of Nuclear Science and Engineering (617-253-3810); [sowhsin@mit.edu]; Ph.D. McMaster University 1964; Thermal neutron, x-ray and laser light scattering spectroscopy.

Jeffrey A. Coderre, Associate Professor of Nuclear Science and Engineering (617-452-3383); [Coderre@mit.edu]; Ph.D. Yale University 1981; Radiation biology, boron neutron capture therapy.

David G. Cory, Professor of Nuclear Science and Engineering (617-253-3806); [dcory@mit.edu]; Ph.D. Case Western Reserve University 1987; Nuclear magnetic resonance spectroscopy and imaging; Quantum information processing.

Jeffrey P. Freidberg, Professor of Nuclear Science and Engineering and Associate Director of the MIT Plasma Science and Fusion Center (617-253-8670); [jpfreid@mit.edu]; Ph.D. Polytechnic Institute of Brooklyn 1964; Plasma physics and controlled thermonuclear fusion.

Michael W. Golay, Professor of Nuclear Science and Engineering (617-253-5824); [golay@mit.edu]; Ph.D. Cornell University 1969; Nuclear reactor technology innovation, fluid mechanics, heat transfer

Linn W. Hobbs, Professor of Materials Science and Engineering and Nuclear Science and Engineering (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 non-metallic solids.

Alan Jasanoff, N. C. Rasmussen Assistant Professor, Department of Nuclear Science & Engineering, Department of Brain & Cognitive Sciences, and Biological Engineering Division. (617-452-2538); [jasanoff@mit.edu]; Ph.D. Harvard University; Functional Magnetic Resonance Imaging (fMRI); molecular neuroimaging; behavioral and systems neuroscience.

Andrew C. Kadak, Professor of the Practice Nuclear Science and Engineering (617-253-0166); [kadak@mit.edu]; Ph.D. Massachusetts Institute of Technology 1972; Energy policy, advanced nuclear energy plants, management effectiveness, high level radioactive waste disposal, nuclear plant license renewal, reactor vessel embrittlement, nuclear plant operations, safety analysis, regulatory effectiveness.

Mujid S. Kazimi, TEPCO Professor of Nuclear Engineering and Mechanical Engineering and Director of Center for Advanced Nuclear Energy Systems (CANES) (617-253-4206); [Kazimi@mit.edu]; Ph.D. Massachusetts Institute of Technology 1973; Nuclear systems thermal and safety performance, nuclear fuel cycle, nuclear energy for hydrogen production.

Richard K. Lester, Professor of Nuclear Science and Engineering and Director of Industrial Performance Center (617-253-7704); [rklester@mit.edu]; Ph.D. Massachusetts Institute of Technology 1979; energy technology management; nuclear energy policy; productivity, innovation, and competitiveness policy.

Kim Molvig, Associate Professor of Nuclear Science and Engineering (617-253-9741); [Molvig@mit.edu]; Ph.D. University of California, Irvine 1975; Plasma physics, kinetic theory of space and fusion plasma.

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

Dennis Whyte, Associate Professor of Nuclear Science and Engineering (617-253-1748); [white@psfc.mit.edu]; Ph.D. Universite du Quebec 1992; Plasma-surface interactions physics and diagnostics for magnetic fusion energy. Accelerator-based simulation of plasma-surface interaction in fusion reactors.

Jacquelyn C. Yanch, Professor of Nuclear Science and Engineering (617-258-6999); [jcyanch@mit.edu]; Ph.D. University of London 1988; Computational methods in medical applications of radiation, including dosimetry, therapy and imaging.

Sidney Yip, Professor 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.

Other Faculty

Gordon L Brownell, Professor of Nuclear Science and Engineering Emeritus (617-253-7017); [glbr@shore.net]

Michael J. Driscoll, Professor of Nuclear Science and Engineering Emeritus (617-253-4219); [mickeyd@mit.edu]

Elias P. Gyftopoulos, Professor of Nuclear Science and Engineering and Mechanical Engineering Emeritus (617-253-3804)

Otto K. Harling, Professor of Nuclear Science and Engineering Emeritus (617-253-4201); [oharling@mit.edu]

Kent F. Hansen, Professor of Nuclear Science and Engineering Emeritus (617-253-7384); [kfhansen@mit.edu]

Bruce R. Rosen, Senior Lecturer of Nuclear Science and Engineering (617-726-5122); [bruce@nmr.mgh.harvard.edu]

Kenneth C. Russell, Professor of Nuclear Science and Engineering and Materials Science and Engineering Emeritus (617-253-3328); [kenruss@mit.edu]

Neil E. Todreas, KEPCO Professor of Nuclear Science and Engineering and Professor of Mechanical Engineering Emeritus (617-253-5296); [Todreas@mit.edu]

Dwight L. Williams, Martin Luther King Visiting Professor of Nuclear Science and Engineering (617-253-4244); [drdwight@mit.edu]

John A Bernard, Principal Research Engineer, Nuclear Science and Engineering; Director of Operations, Nuclear Reactor Laboratory (617-253-4202); [bernardj@mit.edu]

Peter Catto, Senior Research Scientist, Nuclear Science and Engineering; Assistant Director Plasma Science and Fusion Center (617-253-5825); [catto@psfc.mit.edu]

Pavel Hejzlar, Principal Research Scientist, Nuclear Science and Engineering; Director, Advanced Reactor Technology Program, Center for Advanced Nuclear Energy Systems (617-253-4231); [hejzlar@mit.edu]

Richard C. Lanza, Senior Research Scientist, Nuclear Science and Engineering (617-253-2399); [Lanza@mit.edu]

Joseph V. Minervini, Senior Research Engineer, Nuclear Science and Engineering; Head of Fusion Technology and Engineering Division, Plasma Science Fusion Center (617-253-5503); [minervini@psfc.mit.edu]

Nuclear Science and Engineering Research Centers

Center for Advanced Nuclear Energy Systems [<http://web.mit.edu/canes/>], Director, Professor Mujid Kazimi (NSE). CANES has four research program areas: Advanced Reactor Systems. Nuclear Fuel Cycles, Enhanced Performance of Nuclear Power Plants, and Nuclear Energy and Sustainability. The

Center offers three short summer professional courses: Nuclear Systems Safety, Reactor Technology for Power Plant Executives, and Probabilistic Methods for Nuclear Plant Management. Annual Research Expenditure: \$4,000,000.

Plasma Science and Fusion Center [<http://web.psfc.mit.edu/>], Director, Professor Miklos Porkolab (Physics) [porkolab@psfc.mit.edu]. The Plasma Science and Fusion Center carries out a broad range of research in the science of plasmas, plasma based technologies, and fusion science and technology. With a budget of \$32.8-million in FY06, the Center conducts experimental and theoretical research in understanding the physics of plasmas and its 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 environmental monitoring and pollution control and remediation. Foremost among these research activities is the Alcator Project, an experimental tokamak device for magnetic confinement fusion research and a National Facility, which accounts for more than half of the Center's FY06 research budget at \$19.8-million.

MIT Research Reactor

Director Prof. David E. Moncton [dem@mit.edu]

Two medical irradiation facilities for NCT research and clinical trials, the fission converter based epithermal neutron beam has the highest intensity in the world. There are 11 beam port, 4 pneumatic tubes, 4 vertical thimbles in the graphite reflector, a prompt gamma neutron activation analysis facility, a neutron activation analysis lab, a gamma irradiation facility, and unique in-core irradiation loops for water chemistry, materials, and advanced nuclear fuel research.

UNIVERSITY OF MASSACHUSETTES -LOWELL

Nuclear Engineering Program

One University Avenue

Lowell, MA 01854

Telephone: 978 934-3166; Fax: 978 934-3047

<http://www.uml.edu/college/engineering/chemical/>

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|------|------------------|------------------|------------------|
| BS * | 1 | 2 | 2 |
| MS | 2 | 1 | 1 |
| PhD | | | |

*Nuclear Engineering Option Program

This year's student enrollment

24 Undergraduate

4 MS

1 Ph.D.

Degree programs accredited by ABET ABET Accreditation: BS degree: Nuclear Engineering Option in Chemical Engineering

Gilbert J. Brown, Professor and Coordinator (978 934 3166); [gilbert_brown@uml.edu]; Ph.D. Massachusetts Institute of Technology 1974; Nuclear workforce; public acceptance; Safety and economics of nuclear reactors and nuclear fuel cycle; characterization of materials under neutron radiation.

James R. Sheff, Professor, (978 934 3169); [james_sheff@uml.edu]; Ph.D. University of Washington 1965: Transport phenomena; control systems; separation processes; laboratory processes and mathematical methods.

John R. White, Professor, (978 934 3165); [john_white@uml.edu]; Ph.D. University of Tennessee 1976; Research reactor digital control and data acquisition; computational reactor physics; design and optimization of LWR reload cores using generalized perturbation theory methods; computer methods and PC applications of reactor analysis tools.

Physics Department and Adjunct Faculty in Radiological and Nuclear Science

Leo Bobek, Adjunct Professor Telephone: 978 934-3365 Email: leo_bobek@uml.edu
Areas: Reactor operations and control.

Clayton S. French Jr., Professor Telephone: 978 934-3286 Email: clayton_french@uml.edu
Areas: Radiological science and protection.

Gunter H.R. Kegel, Professor Telephone: 978 934-3280 Email: gunter_kegel@uml.edu Areas:
Experimental nuclear physics, radiation effects in materials.

Glenn J. Sunberg, Associate Professor Telephone: 978 934-2591 Email: glenn_sunberg@uml.edu
Areas: Advanced materials testing and characterization

Mark Tries, Assistant Professor Telephone: 978 934-3353 Email: mark_tries@uml.edu
Areas: Radiological science and protection.

Radiation Laboratory

The UMass Lowell Radiation Laboratory provides controlled radiation environments and analytical measurement services to government organizations and to industry. The laboratory provides facilities for proton, neutron, and gamma environments. It consists of a 1-Megawatt research reactor which produces thermal neutrons for activation purposes and for digital neutron radiography and fast neutrons for atomic displacement research. The laboratory also has a 5.5 MV Pulsed van-de-Graaff accelerator and a Cobalt-60 irradiation facility.

Director: Dr. Gunter Kegel

Telephone: 978.934.3366

Fax: 978.934.4067

Email: radlab@uml.edu

Website: <http://www.uml.edu/radlab/>

McMASTER UNIVERSITY

Department of Engineering Physics

Faculty of Engineering

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<http://www.engphys.mcmaster.ca/>

NE Graduates

7/02-6/03

7/03-6/04

| | | |
|-----------|---|---|
| B.Eng. | 6 | 4 |
| G.Diploma | 3 | 3 |
| M.Eng. | 1 | 4 |
| Ph.D. | 0 | 0 |

Graduate Student Enrollment:

Total in Department: 56 students

M.Eng.: 5

Ph.D. 4 + 1 (part time)

Nuclear Engineering & Energy Systems Stream [B.Eng., M.Eng., Ph.D.]

Jen-Shih Chang, Professor Emeritus of Engineering Physics (905-525-9140, ext.24924); [changj@mcmaster.ca]; Ph.D. York University 1975; Fission and fusion nuclear reactor thermal hydraulics, neutron radiography, neutron activation analysis, plasma environmental engineering.

Chang Y. Ching, Associate Professor of Mechanical Engineering and Associate Member of Engineering Physics (905-525-9140, ext. 24998); [chingcy@mcmaster.ca]; Nuclear reactor thermal hydraulics and two-phase flow.

William J. Garland, Professor of Engineering Physics (905-525-9140, ext. 24925); [garlandw@mcmaster.ca]; Ph.D. McMaster University 1975; Reactor physics, thermal hydraulics, reactor systems analysis, performance support systems.

Archie A. Harms, Professor Emeritus of Engineering Physics (905-525-9140, ext. 24927); [harmasa@mcmaster.ca]; Ph.D. University of Washington; Reactor physics, fusion energy.

Glenn D. Harvel, Adjunct Assistant Professor of Engineering Physics (905-525-9140, ext. 24608); [harvelg@mcmaster.ca]; Ph.D. McMaster University 1995; Reactor thermal hydraulics and nuclear instrumentation.

J.E. Hayward, Assistant Professor of Radiology and Associate Member of Engineering Physics; (905-515-9140, ext. 22891); Ph.D. McMaster University.

Fred M. Hoppe, Professor of Mathematics & Statistics and Associate Member of Engineering Physics (905-515-9140, ext. 24688); [hoppe@mcmaster.ca]; Ph.D. Princeton; Extreme value statistics, statistical uncertainty analysis.

David P. Jackson, Adjunct Professor of Engineering Physics (905-525-9140, ext. 24651); [jacksond@mcmaster.ca]; Ph.D. University of Toronto; Nuclear material, fusion energy.

Terence J. Kennett, Professor Emeritus of Engineering Physics (905-525-9140, ext. 24475); [Kennett@mcmaster.ca]; Ph.D. McMaster University; Radiation physics.

V.S. Krishnan, Adjunct Professor of Engineering Physics (905-525-9140, ext. 24608); Ph.D. University of Rochester, 1975; Reactor thermal hydraulics and nuclear instrumentation.

John C. Luxat, Professor of Engineering Physics and NSERC/UNENE Industrial Research Chair in Nuclear Safety Analysis, (905-525-9140 ext. 24670) [luxatj@mcmaster.ca]; Ph.D. University of Windsor, 1972; Nuclear safety, nuclear reactor thermal hydraulics, reactor physics, reactor and plant control.

Marilyn F. Lightstone, Associate Professor of Mechanical Engineering and Associate Member of Engineering Physics (905-525-9140 ext. 27726); [lightsm@mcmaster.ca]; Ph.D. University of Waterloo, Computational fluid dynamics, Subchannel flow analyses.

S.F. Poehlman, Professor of Software Engineering and Associate Member of Engineering Physics (905-525-9140, ext. 22891); Ph.D. McMaster University; Reactor control and data acquisition system.

Nickola Popov, Adjunct Professor of Engineering Physics (905-525-1940, ext. 24608); Ph.D. University of Zagreb; Reactor thermal hydraulics and safety analyses.

Victor G. Snell, Adjunct Professor of Engineering Physics (905-525-1940, ext. 24608); Ph.D. University of Toronto, Reactor safety.

Other Faculty

McMaster Institute of Applied Radiation Sciences (MCIARS)

David R. Chettle, Professor of Medical Physics and Applied Radiation Sciences (905-525-9140, ext. 27340); [chettle@mcmaster.ca]; Ph.D. University of Birmingham.

Fiona E. McNeill, Associate Professor of Medical Physics and Applied Radiation Sciences (905-525-9140, ext. 24099); [fmcneill@mcmaster.ca]; Ph.D. University of Birmingham.

Colin Seymour, Professor of Medical Physics and Applied Radiation Sciences (905-525-9140, ext. 26289); [seymouc@mcmaster.ca]; Ph.D. Trinity College Dublin.

UNIVERSITY OF MICHIGAN

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<http://www.ners.engin.umich.edu>; pjgramer@umich.edu

NERS Conferred Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|---------|------------------|------------------|------------------|
| B.S.E. | 13 | 16 | 38 |
| Masters | 13 | 32 | 21 |
| Ph.D. | 10 | 16 | 7 |

Graduate Student Enrollment: 14 Masters/69 Ph.D.

[Nuclear Engineering and Radiological Sciences - B.S.E., M.S., M.S.E., Professional Engineer, Ph.D.;
Engineering Physics - B.S.E.]

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

William R. Martin, Department Chair and Professor 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.

Michael Atzmon, Professor of Nuclear Engineering and Radiological Sciences (734-764-6888); [atzmon@umich.edu]; Ph.D. California Institute of Technology 1985; Thermodynamics and kinetics of materials, amorphous metal alloys, radiation effects in materials.

Alex F. Bielajew, Professor of Nuclear Engineering and Radiological Sciences (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.

Rodney C. Ewing, Professor of Geological Sciences and Nuclear Engineering and Radiological Sciences (734-763-9295); [rodewing@umich.edu]; Ph.D. Stanford 1974; Nuclear waste management, radiation effects in complex ceramics and glasses.

Ronald F. Fleming, 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.

John E. Foster, Associate Professor of Nuclear Engineering and Radiological Sciences (734-764-1976); [jefoster@umich.edu]; Ph.D. University of Michigan Applied Physics 1996; Low-temperature plasma science; propulsion, environmental, energy conversion, and processing plasmas; space and atmospheric plasma phenomena.

Ronald M. Gilgenbach, Professor of Nuclear Engineering and Radiological Sciences (734-763-1261); [rongilg@umich.edu]; Ph.D. Columbia University 1978; Plasmas, fusion, and laser electron beam interactions with plasmas and materials

Mark Hammig, Assistant Research Scientist of Nuclear Engineering and Radiological Sciences (734-764-5225); [hammig@umich.edu]; Ph.D. University of Michigan, 2005; radiation detector development; stochastic systems research; photonic devices.

Zhong He, Associate Professor of Nuclear Engineering and Radiological Sciences (734-764-7130); [hezhong@umich.edu]; Ph.D. Southampton University, U. K. 1993; Room-temperature semiconductor gamma-ray detectors and gamma-ray imaging devices.

James Paul Holloway, Professor of Nuclear Engineering and Radiological Sciences (734-936-3126); [hagar@umich.edu]; Ph.D. University of Virginia 1989; Computational physics, reactor physics, numerical methods for plasma kinetic theory, software engineering, nonlinear dynamics.

Kimberlee J. Kearfott, Professor of Nuclear Engineering and Radiological Sciences (734-763-9117); [kearfott@umich.edu]; Sc.D. Massachusetts Institute of Technology 1980; Radiation safety, medical physics, radiation detection and dosimetry, environmental radioactivity, explosives detection, homeland security.

Karl M. Krushelnick, Professor of Nuclear Engineering and Radiological Sciences (734-763-4877); [kmmkr@umich.edu]; Ph.D. Princeton University, Astrophysical Sciences (Plasma Physics) 1994; Plasma physics, nuclear fusion, high power lasers.

Edward W. Larsen, Professor of Nuclear Engineering and Radiological Sciences (734-936-0124); [edlarsen@umich.edu]; Ph.D. Rensselaer Polytechnic Institute 1971; Numerical and analytical methods for neutron, electron, photon, and thermal radiation transport.

Y. Y. Lau, Professor of Nuclear Engineering and Radiological Sciences (734-764-5122); [yylau@umich.edu]; Ph.D. Massachusetts Institute of Technology 1973; Plasma and beam physics, high power radiation sources, vacuum microelectronics.

John C. Lee, Professor and Graduate Chair 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.

Sebastien Teyseyre, Research Investigator in Nuclear Engineering and Radiological Sciences (734-764-5225); [teysseyr@umich.edu]; Ph.D. Ecole Nationale Supérieure des Mines de Saint Etienne 2001; Stress corrosion cracking, radiation effects on materials.

Lumin Wang, Professor of Nuclear Engineering and Radiological Sciences (734-647-8530); [lmwang@umich.edu]; Ph.D. University of Wisconsin-Madison 1988; Ion beam modification of materials, transmission electron microscopy, nanocrystalline materials, and nuclear materials.

Gary S. Was, Professor of Nuclear Engineering and Radiological Sciences and Associate Dean for Research (734-763-4675); [gsw@umich.edu]; Sc.D. Massachusetts Institute of Technology 1980; Radiation effects on materials, nuclear fuels, ion beam modification of materials, hydrogen embrittlement, stress corrosion cracking.

David K. Wehe, Associate Professor of Nuclear Engineering and Radiological Sciences (734-763-1151); [dkw@umich.edu]; Ph.D. University of Michigan 1984; Radiation measurements and applications.

Feng Zhang, Assistant Research Scientist in Nuclear Engineering and Radiological Sciences (734-615-6890); [zhangf@umich.edu]; Ph.D. University of Michigan 2004; Radiation measurements and applications

Other Faculty

Ziya A. Akcasu, Professor Emeritus of Nuclear Engineering (734-764-5535); [ziya@umich.edu].

James J. Duderstadt, President Emeritus, University of Michigan and University Professor of Science and Engineering (734-647-7300); [jjd@umich.edu].

Terry Kammash, Stephen S. Attwood Professor of Engineering and Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-764-0205); [tkammash@umich.edu].

William Kerr, Professor Emeritus of Nuclear Engineering (734-763-2056); [wkerr@umich.edu].

John S. King, Professor Emeritus of Nuclear Engineering (734-936-1591); [jsking@umich.edu].

Glenn F. Knoll, Professor Emeritus of Nuclear Engineering and Radiological Sciences (734-936-0121); [gknoll@umich.edu].

Dieter Vincent, Professor Emeritus of Nuclear Engineering (734-936-1592); [dvincent@umich.edu].

Adjunct Faculty

Frederick W. Buckman, Adjunct Professor in Nuclear Engineering and Radiological Sciences (734-764-4260); [fwb@umich.edu].

Jeremy Busby, Adjunct Assistant Professor of Nuclear Engineering and Radiological Sciences (865-241-4622); [jbusby@umich.edu]. Irradiation effects in metals for high temperature, fusion, and spacecraft reactors, radiation-effects in refractory metals; materials research.

Michael Flynn, Adjunct Professor in Nuclear Engineering and Radiological Sciences (313-874-4483); [mikef@rad.hfh.edu]. Radiological physics, radiology and nuclear medicine, radiation transport.

Mitchell Goodsitt, Adjunct Professor of Nuclear Engineering and Radiological Sciences (734-936-7474); [goodsitt@umich.edu].

Randall K. Ten Haken, Adjunct Professor in Nuclear Engineering and Radiological Sciences (734-936-4287); [rth@umich.edu]. Nuclear engineering and radiation oncology.

Ruth Weiner, Adjunct Professor in Nuclear Engineering and Radiological Sciences (505-284-8406); [ruthweiner@aol.com]. Radiation risk analysis, radioactive waste management.

Nuclear Engineering Research Centers

Fission & Radiation Transport Group:

<http://alyeska.engin.umich.edu/open/FissionAndRadiationTransport/>

Michigan Ion Beam Laboratory (MIBL):

<http://www.ners.engin.umich.edu/labs/mibl/>

Plasma and Fusion Laboratories:

<http://www.ners.engin.umich.edu/labs/plasma/>

Radiation Effects & Radioactive Waste Management Group

<http://www.geo.lsa.umich.edu/relw/>

Radiation Materials Science Research Group:

<http://www.ners.engin.umich.edu/research/rms/>

Radiation Measurements Group:

<http://czt-lab.engin.umich.edu/>

Radiological Health Engineering Laboratory:

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

RELATED UNIVERSITY RESEARCH GROUPS AND LABORATORIES

Center for Ultrafast Optical Science (CUOS):

<http://www.eecs.umich.edu/CUOS/>

Electron Microbeam Analysis Laboratory (EMAL):

<http://www.emal.engin.umich.edu/>

ANS Student Branch

Professor Zhong He: (734)764-7130; hezhong@umich.edu

Health Physics Society

Professor Kimberlee Kearfott: (734) 763-9117; Kearfott@umich.edu

UNIVERSITY OF MISSOURI, COLUMBIA

Nuclear Science and Engineering Institute

E2433 Lafferre Hall

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TEL: (573) 882-3550 FAX: (573) 884-4801

<http://www.missouri.edu/~nuclear/> E-Mail: MillerW@missouri.edu

NE Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|---------|------------------|------------------|------------------|
| Masters | 2 | 7 | 4 |
| Ph.D. | 4 | 2 | 2 |

Graduate Student Enrollment: 38 Masters/28 Ph.D.

[M.S. (Power), M.S. (Health Physics), M.S. (Medical Physics), Ph.D.]

Wynn A. Volkert, Interim Director of the Nuclear Science and Engineering Institute, Curators' Professor, Professor of Radiology, Nuclear Engineering, Chemistry and Biochemistry (573-882-6759); [VolkertW@Missouri.edu]; Ph.D. University of Missouri 1968; Nuclear medicine, development and study of new radio-labeled bio-molecular targeting constructs as cancer-specific diagnostic and therapeutic radiopharmaceuticals.

Tushar Ghosh, Director of Graduate Studies and Associate Professor of Nuclear Engineering (573-882-9736); [GhoshT@missouri.edu]; Ph.D. Oklahoma State University 1989; Mass transfer in absorption processes—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 of Nuclear Engineering and Chemical Engineering, and Director of Particulate Systems Research Center (573-882-8201); [LoyalkaS@missouri.edu]; Ph.D. Stanford University 1967; Kinetic theory of gases, neutron transport, mechanics of aerosols, physics and thermal hydraulics of nuclear reactors, reactor safety analysis.

William H. Miller, Professor of Nuclear Engineering and Director of Energy Systems and Resources Program (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.

Mark A. Prelas, Professor of Nuclear Engineering (573-882-9691); [PrelasM@missouri.edu]; Ph.D. University of Illinois 1979; Plasma physics and plasma processes, fusion, direct energy conversion, hybrid lasers and nuclear-pumped lasers, laser kinetics, gaseous electronics, diamond films and materials.

Robert V. Tompson, Associate Professor of Nuclear Engineering (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

John Gahl, Professor of Electrical and Computer Engineering and MURR Senior Research Scientist.

Michael D. Glascock, Research Assistant Professor of Nuclear Engineering, MURR Senior Research Scientist.

Silvia S. Jurisson, Professor of Chemistry and Radiology.

Paul F. Miceli, Associate Professor of Physics.

J. David Robertson, MURR Director of Education and Development and Professor of Chemistry.

Nuclear Science and Engineering Institute Research Centers

Midwest Nuclear Science and Engineering Consortium, Director, Wynn A. Volkert (573-882-6759); [VolkertW@Missouri.edu]. Increase nuclear science and educational opportunities at all grade levels, strengthen and broaden undergraduate and graduate minority student support to increase representation in nuclear science and engineering occupations, facility additions and equipment upgrades to enhance research and educational capabilities, hiring of new faculty, providing long-term impact on nuclear science and engineering research and education, establishment of innovative MURR Utilization Grant Program, new faculty hires, and postdoctoral positions to increase reactor-based research initiatives. Annual Expenditures: ~\$1,400,000.

Particulate Systems Research Center, Director, Dr. Sudarshan Loyalka (573-882-8201); [LoyalkaS@Missouri.edu]. Single particle and integral experiments, indoor air pollution, clean room technology, radon measurement and mitigation, nucleation and condensation, particle motion in viscous fluids, and materials manufacturing. Annual Research Expenditures: ~\$250,000.

Energy Systems and Resources Program, Director, William H. Miller (573-882-8366); [NeumeyerG@Missouri.edu]. Research and traineeship program funded by investor utilities from Missouri area and government agencies, focusing on electric utility interests. Annual Research Expenditures: ~\$120,000.

Radiopharmaceutical Sciences Institute, Director, Wynn A. Volkert (573)-882-6759); [volkertw@missouri.edu]. Research and educational programs directed toward study and development of novel radiopharmaceuticals for *in vivo* molecular imaging and targeted radiotherapy. Includes the Bimolecular Imaging Center activities involving micro-PET, micro-MRI, micro-SPECT and micro-CT instrumentation. Annual Research Expenditures: ~\$2,500,000.

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Nuclear Engineering Program
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| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 10 | 13 | 14 |
| Masters | 5 | 2 | 1 |
| Ph.D. | 0 | 0 | 0 |

Graduate Student Enrollment: 2 Masters / 6 Ph.D.

[B.S., M.S., Ph.D.]

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

Arvind S. Kumar, Program Chair and Professor of Nuclear Engineering (573-341-4747); [kumar@umr.edu]; Ph.D. University of California, Berkeley 1977; Nuclear materials, radiation effects, mechanical properties, nuclear plant life extension.

Gary E. Mueller, Associate Professor of Nuclear Engineering (573-341-4348); [gmueller@umr.edu]; Ph.D. University of Missouri 1980; Nuclear power safety, particle bed characterization, space nuclear power, radioactive waste minimization.

Seungjin Kim, Assistant Professor of Nuclear Engineering, (573-341-6780); [kimsj@umr.edu]; Ph.D. Purdue University 1999; Two-phase flow modeling and experiment, bubble dynamics, reactor safety, severe accident analysis, and advanced two-phase flow instrumentation.

Shoaib Usman, Assistant Professor of Nuclear Engineering (573-341-4745); [usmans@umr.edu]; Ph.D. University of Cincinnati 1997; Turbulence and dispersion, micro convection, radiation measurement and effects on materials, and interaction with fluids.

Jeffrey King, Assistant Professor of Nuclear Engineering (573-341-6834); [kingjc@umr.edu]; Ph.D. University of New Mexico 2006; Computer simulation of nuclear reactor systems; performance analysis of innovative reactor concepts; design and modeling of space nuclear reactor power systems; and innovation in nuclear engineering education.

Other Faculty

Mariesa L. Crow, Adjunct Professor of Nuclear Engineering; Dean of School of Materials, Energy & Earth Resources; Professor of Electrical and Computer Engineering (573-341-4149); [crow@umr.edu]; Ph.D. University of Illinois; Power systems analysis, dynamic stability, computational algorithms, power electronics.

Delbert E. Day, Adjunct Professor of Nuclear Engineering; Curators' Professor Emeritus of Ceramic Engineering and Senior Investigator, Graduate Center for Materials Research (573-341-4354); [day@umr.edu]; Ph.D. Pennsylvania State; Structure and properties of glass, oxynitride glasses, composites, solids and nuclear waste disposal, biomaterials.

David A. Summers, Adjunct Professor of Nuclear Engineering; Curator's Professor of Mining Engineering, Director of Rock Mechanics & Explosives Research/Waterjet Laboratory (573-341-4314); [dsummers@umr.edu]; Ph.D. The University of Leeds, England 1968; Application of waterjets in remotely controlled reactive material removal, plant decommissioning and metal sample cutting, mining excavation and drilling, and the extraction of radioactive waste from storage facilities.

Tod Moser, Adjunct Professor of Nuclear Engineering; Manager, Plant Engineering, AmerenUE Callaway Plant [moserto@umr.edu or tamoser@cal.ameren.com].

Tim Herrmann, Adjunct Professor of Nuclear Engineering; Manager, Engineering Services, AMerenUE Callaway Plant [teherrmann@cal.ameren.com].

Eric Loewen, Adjunct Professor of Nuclear Engineering, General Electric Company [eric.loewen@ge.com].

Special Equipment, Services and Research:

Reactor-based laboratories, neutron activation analysis, operator training and student operator licensing. One beam port, thermal column, and both gamma and neutron irradiation available for research.

ÉCOLE POLYTECHNIQUE DE MONTRÉAL

Campus de l'Université de Montreal

Nuclear Engineering Institute

Box 6079, Succ. Centre-ville

Montreal (Quebec) H3C 3A7

CANADA

TEL: (514) 340-4803 / FAX: (514) 340-4192)

<http://www.polymtl.ca/nucleaire/>

Types of degrees: master and doctoral degrees.

This years graduate student enrolment: 15 Master, 7 PhD .

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| Masters | 2 | 2 | 6 |
| Ph.D. | 1 | 0 | 1 |

Graduate Student Enrollment: 13 Masters/9 Ph.D.

[M.S., M.N.E., Ph.D.]

Jean Koclas, Director of Nuclear Engineering Institute and Professor of Nuclear Engineering (514-340-4711, ext. 4263); [jean.koclas@polymtl.ca]; Ph.D. MIT 1980; Space-time kinetics, reactor physics.

Lubomir Zikovsky, Professor of Nuclear Engineering (Retired) (514-340-4711, ext. 4803); [lubomir.zikovsky@polymtl.ca]; Ph.D. Texas A&M University 1977; Radioactivity, radioisotopes, activation analysis.

Altan Tapucu, Professor of Nuclear Engineering (Retired) (514-340-4711, ext. 4602); [altan.tapucu@polymtl.ca]; D.Sc.A. Technical University of Istanbul 1968; Heat transfer, boiling and two-phase flow.

Alberto Teysedou, Professor of Nuclear Engineering (514-340-4711, ext. 4522); [alberto.teysedou@polymtl.ca]; Ph.D. Ecole Polytechnique de Montréal 1987; Thermalhydraulics, instrumentation, heat transfer, boiling and two-phase flow.

Daniel Rozon, Professor of Nuclear Engineering (Emeritus), (514-340-4711, ext. 4803); [daniel.rozon@polymtl.ca]; Ph.D. McMaster University 1985; Fuel management, reactor kinetics.

Robert Roy, Professor of Nuclear Engineering (514-340-4711, ext. 4262); Ph.D. Ecole Polytechnique de Montréal 1987; High performance computing, transport theory.

Alain Hébert, Professor of Nuclear Engineering (514-340-4711, ext. 4519); [alain.hebert@polymtl.ca]; Ph.D. Université de Paris XI 1981; Reactor physics, transport theory, lattice cell calculations.

Guy Marleau, Professor of Nuclear Engineering, (514-340-4711, ext. 4204); [guy.marleau@polymtl.ca]; Ph.D. McGill 1983; Reactor physics, transport theory, lattice cell calculations, generalized perturbation theory methods.

Other Faculty

Gregory G. Kennedy, Senior Research Scientist and Director of the SLOWPOKE Laboratory (514-340-4711, ext. 4780); [greg.kennedy@polymtl.ca]; Ph.D. McGill 1975; Neutron activation analysis.

Andrei Olekhovitch, Research Scientist (514-340-4711, ext. 5976); [andrei.olekhovitch@polymtl.ca]; Ph.D. Moscow Engineering Physics Institute 1989, and PhD Ecole Polytechnique de Montreal 1998; Thermalhydraulics, heat transfer, boiling, two-phase flows, critical heat flux.

UNIVERSITY OF NEVADA, LAS VEGAS

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<http://www.me.unlv.edu/>

| | NE Graduates | | |
|-------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 1 | 2 | 3 |
| M.S. | 0 | 0 | 1 |
| Ph.D. | 1 | 1 | 1 |

Undergraduate Student Enrollment: 1 (M.E. with N.E. option)

Graduate Student Enrollment: 4 Masters/3 Ph.D.

[Degrees offered: B.S.M.E. (Nuclear Engineering option), M.S in Materials and Nuclear Engineering, and Ph.D. in Engineering or Mechanical Engineering (Nuclear Engineering specialization)]

Denis Beller, Research Professor of Nuclear Engineering, (702-895-1452); [bellerd@unlv.nevada.edu]; Ph.D. Purdue University 1986; Coordinator M.S. in Materials and Nuclear Engineering degree program; nuclear systems and fuel cycle analysis, reactor physics, subcritical experiments.

William Culbreth, Associate Professor of Mechanical Engineering and Associate Dean for Research, College of Engineering (702-895-53426); [William.Culbreth@cmail.nevada.edu]; Ph.D. University of California, Santa Barbara; radiation transport.

Ajit Roy, Professor of Mechanical Engineering, (702-895-1463); [aroy@unlv.nevada.edu]; Ph.D. Case Western Reserve University 1981; metallurgy, materials science and engineering.

Other Faculty

Anthony Hechanova, Associate Research Professor, (702-895-1547); [hechanov@unlv.nevada.edu]; Ph.D. Massachusetts Institute of Technology 1995, thermal-hydraulics and heat transfer, radiological risk assessment.

Gary Cerefice, Assistant Research Professor, (702-895-2612); [cerefice@unlv.nevada.edu]; Ph.D. Massachusetts Institute of Technology 1999; nuclear waste management, radiochemistry.

Ken Czerwinski, Associate Professor of Radiochemistry, (702-895-2612); [czerwin2@unlv.nevada.edu]; Ph.D. U.C. Berkeley 1992; radiochemistry (actinide chemical kinetics and thermodynamics, speciation in environmental remediation, and separations).

Warnick Kernan, Adjunct Faculty, (702-295-8600); [kernanwj@nv.doe.gov]; radiation detection, nuclear emergency response.

Charlotta E. Sanders, P.E., Adjunct Faculty (702-821-8222); [Charlotta_Sanders@ymp.gov]; Sc.D. Royal Institute of Technology 1999; Nuclear engineering, reactor physics, radiation protection and shielding, criticality safety.

David Stahl, adjunct faculty, (702-295-4846) [david_stahl@ymp.go], Ph.D. New York University 1972; nuclear materials, waste management.

SPECIAL FACILITIES Associated with Nuclear Engineering & Research Programs

Nuclear Science and Technology Division (NSTD), Harry Reid Center (HRC) for Environmental Studies, Director Prof. Anthony Hechanova.

Materials Performance Laboratory, Director Prof. Ajit Roy.

Lead-Bismuth Eutectic Thermalhydraulic Test Loop, Director Dr. Jian Ma, Research Scientist and HRC NSTD Molten Metals Research Group Leader, (702-895-5055) [jianma@egr.unlv.edu].

Transmission Electron Microscopy Laboratory, Director Dr. Longzhou Ma, Research Scientist, (702-895-2024) [lma@unlv.nevada.edu].

Radiation Detection Laboratory, Director Prof. Ken Czerwinski.

UNIVERSITY OF NEW BRUNSWICK

Departments of Chemical and Mechanical Engineering

PO Box 4400

Fredericton NB E3B 5A3

CANADA

TEL: (506) 453-4520/5138 / FAX: (506) 453-3591

<http://www.unb.ca/web/ME/me.html>

<http://www.unb.ca/web/che>

NE Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|---------|------------------|------------------|------------------|
| B.S. | 1 | 1 | 1 |
| Masters | 2 | 2 | 3 |
| Ph.D. | 0 | 2 | 4 |

Graduate Student Enrollment: 7 Masters/6 Ph.D/1 PostDoc.

[B.Sc.E., M.Eng., M.Sc.E., Ph.D.]

Degree programs accredited by ABET

CEAB Accreditation: B.Sc.E. in Chemical and Mechanical Engineering

Robin A. Chaplin, Professor of Power Plant Engineering and Chair of Chemical Engineering (506-453-5138); [rchaplin@unb.ca]; Ph.D. Queen's University 1986; Steam power plant simulation, thermodynamic analysis of power plant systems, development and presentation of nuclear power plant training programs.

William G. Cook, Assistant Professor of Chemical Engineering (506-452-6318); [wcook@unb.ca]; Ph.D. University of New Brunswick 2005; Electrochemistry and corrosion in high-temperature and supercritical water; online corrosion sensors/probes.

Esam M. A. Hussein, Professor, Coordinator of Laboratory for Threat-Material Detection (506-447-3105); [hussein@unb.ca]; Ph.D. McMaster University 1983; Nondestructive testing and imaging with radiation, threat-material detection.

Derek H. Lister, Professor of Chemical Engineering, Holder of Research Chair in Nuclear Engineering (506-447-3299); [dlister@unb.ca]; Ph.D. University of Leicester 1969; Radioactivity and corrosion control in nuclear power reactors, radiation chemistry, fouling in heat transfer equipment.

Other Faculty and Staff

Paul J. Arsenault, Research Officer, Backscatter Imaging, (506-447-3421); [parsenau@unb.ca].

John T. Bowles, Research Officer, X-Ray Imaging, (506-447-3421); [jbowles@unb.ca].

Andrew Feicht, Research Engineer, Chemical Engineering (506-453-3530); [afeicht1@unb.ca].

Chien-Ee Ng, Research Assistant, Chemical Engineering (506-453-4668); [cng@unb.ca].

Sivakumar Thangavelu, Research Officer, Gamma Imaging, (506-447-3421); [sthangav@unb.ca].

Edward J. Waller, Adjunct Professor of Mechanical Engineering (506-447-3422); [waller@unb.ca].

Ilan Yarr, Honorary Research Associates (506-447-3421) [iyaar@unb.ca].

Research Centers

Center for Nuclear Research (CNER): General Manager, Andy Justason [CNER@UNB.CA], (506)-453-5111, reactor water chemistry simulation, corrosion of nuclear materials, electrochemistry, chemical sensors/probes, CFD. 20 kCi Gamma Cell (Cobalt-60).

Laboratory for Threat Material Detection: Director, Esam Hussein [ltmd@unb.ca], (506)-447-3421. NDT and radiation imaging (<http://www.unb.ca/ME/research/LTMD/>).

UNIVERSITY OF NEW MEXICO

Department of Chemical and Nuclear Engineering
Farris Engineering Center, Room 209
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<http://www-chne.unm.edu/>

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 8 | 8 | 12 |
| Masters | 3 | 5 | 10 |
| Ph.D. | 2 | | 2 |

Graduate Student Enrollment (Fall 2006): 25 Masters/17 Ph.D.

[B.S., M.S., Ph.D.]

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

Julia E. Fulghum, Chair and Professor of Chemical and Nuclear Engineering (505-277-5431); [jfulghum@unm.edu]; Ph.D. University of North Carolina 1987; Surface characterization, 3-D material characterization.

Robert D. Busch, Lecturer III of Chemical and Nuclear Engineering; Director Nuclear Engineering Laboratory and Chief Reactor Supervisor (505-277-8027); [busch@unm.edu]; Ph.D. University of New Mexico 1976; Nuclear criticality safety, environmental radiation measurements, reactor physics.

Gary W. Cooper, Associate Professor of Chemical and Nuclear Engineering and Graduate Advisor of Nuclear Engineering (505-277-2557); [garywc@unm.edu]; Ph.D. University of Illinois 1976; Plasma and beam diagnostics, fusion engineering and nuclear measurements.

Mohamed S. El-Genk, Professor of Chemical and Nuclear Engineering (505-277-5442); [mgenk@unm.edu]; Ph.D. University of New Mexico 1978; Thermal hydraulic design, reactor safety, fuel behavior and space nuclear power.

Anil K. Prinja, Associate Chair and Professor of Chemical and Nuclear Engineering (505-277-4600); [prinja@unm.edu]; Ph.D. University of London 1980; Radiation transport modeling, analysis and simulation in deterministic and stochastic media.

Norman F. Roderick, Professor Emeritus of Chemical and Nuclear Engineering (505-277-2209); [roderick@unm.edu]; Ph.D. University of Michigan 1971; Theoretical and computational plasma, fusion physics and numerical methods in radiation transport.

Taro Ueki, Assistant Professor of Chemical & Nuclear Engineering (505-277-7964); [tueki@unm.edu]; Ph.D. University of Michigan. 1998; Computational radiation transport, Monte Carlo methods.

Edward D. Arthur, Director Center for Nuclear Non Proliferation Science and Technology and Research Professor, Department of Chemical and Nuclear Engineering (505-690-3505); earthur@unm.edu; Ph. D. University of Virginia 1973; nuclear non proliferation and safeguards, nuclear fuel cycle, energy system modeling

Other Faculty

Harold M. Anderson, Associate Professor Emeritus of Chemical and Nuclear Engineering (505-277-5661); [anderson@unm.edu]. Computer simulation of transport phenomena; radioactive waste disposal; wastewater treatment; plasma processing.

Plamen Atanassov, Associate Professor of Chemical and Nuclear Engineering (505-277-2640); [plamen@smpl.com]. Electrochemical and sensor systems.

C. Jeffrey Brinker, Professor of Chemical and Nuclear Engineering (505-272-7627); [cjbrink@sandia.gov]. Synthesis and processing of porous and composite nanostructures; sol-gel processing; thin films and membranes.

Heather Canavan, Assistant Professor of Chemical and Nuclear Engineering (505-277-8026); [canavan@unm.edu]. Biomaterials, cell/surface interactions, biomedical engineering.

Joseph L. Cecchi, Professor of Chemical and Nuclear Engineering; Dean, School of Engineering (505-277-5522), [cecchi@unm.edu]. Electronic materials and thin films; plasma etching and deposition.

John G. Curro, UNM/National Laboratory Professor of Chemical and Nuclear Engineering (505-272-7129); [jgcurro@sandia.gov].

Abhaya K. Datye, Professor of Chemical and Nuclear Engineering (505-277-0477); [datye@unm.edu]. Heterogeneous catalysis; electron microscopy; materials characterization.

Sang M. Han, Associate Professor of Chemical and Nuclear Engineering (505-277-3118); [meister@unm.edu]. Compound semiconductor quantum devices, heterogeneous surface phenomena.

Ronald E. Loehman, UNM/National Laboratory Professor of Chemical and Nuclear Engineering (505-272-7601); [loehman@unm.edu]. Ceramics engineering.

Gabriel P. López, Professor of Chemical and Nuclear Engineering, Professor of Chemistry (part-time), and Director, Center for Biomedical Engineering (505-277-4939); [gplopez@unm.edu]. Thin films; chemistry and biochemistry of self-assembled monolayers.

Richard W. Mead, Associate Professor Emeritus of Chemical and Nuclear Engineering (505-277-3221); [rmead@unm.edu]. Process analysis; hydrometallurgy; fossil energy.

Dimitar Petsev, Assistant Professor of Chemical & Nuclear Engineering (505-277-3221); [dimitar@unm.edu]. Complex fluids, nanoscience, electrokinetic phenomena.

Scott S. Sibbett, Research Professor and Co-Director of Center for Biomedical Engineering (505-277-2803); [ssibbett@unm.edu]. Biophysics and bioseparations.

Timothy L. Ward, Professor of Chemical and Nuclear Engineering (505-277-2067); [tlward@unm.edu]. Aerosol processes; aerosol synthesis of materials; ceramic membrane fabrication and characterization.

David G. Whitten, Research Professor and Co-Director of Center for Biomedical Engineering; Editor-in-Chief, *Langmuir*, Professor of Chemistry and Biochemistry at ASU (505-277-5736); [whitten@unm.edu]. Biophysics; chemical physics; materials science/metallurgy. Sensors; photophysics of dyes and conjugated polyelectrolytes; biocidal films.

Special Equipment, Services and Research:

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

NORTH CAROLINA STATE UNIVERSITY

Department of Nuclear Engineering
1110 Burlington Laboratories
Raleigh, NC 27695-7909
TEL: (919) 515-2301 / FAX: (919) 515-5115
<http://www.ne.ncsu.edu>

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/01-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 5 | 10 | 19 |
| Masters | 5 | 7 | 8 |
| Ph.D. | 2 | 4 | 5 |

Graduate Student Enrollment: 35Masters/17Ph.D.
[B.S., M.S., M.N.E., Ph.D.]

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

Mohamed A. Bourham, Interim Department Head and Professor of Nuclear Engineering (919-515-7662); [bourham@ncsu.edu]; Ph.D. Ain Shams University, Egypt 1976; Plasma material interaction and surface modifications, plasma-driven launchers, plasma diagnostics, pulsed power, fusion engineering and technology, atmospheric and non-ideal plasmas, plasma sterilization and decontamination systems.

Man-Sung Yim, Director of Graduate Programs and Associate Professor (919-515-1466); [yim@ncsu.edu]; Ph.D. University of Cincinnati 1987; Sc.D. Harvard University 1994; Nuclear waste management, risk analysis, radiological health, nuclear nonproliferation.

Ayman I. Hawari, Director of the Nuclear Reactor Program and Associate Professor of Nuclear Engineering (919-515-4598); [ayman.hawari@ncsu.edu]; Ph.D. The University of Michigan 1995; Radiation measurements, gamma-ray spectrometry, nuclear reactor dosimetry, application of neutrons in nondestructive analysis, development and validation of thermal neutron scattering data.

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

J. Michael Doster, Associate Professor of Nuclear Engineering (919-515-3658); [doster@ncsu.edu]; Ph.D. North Carolina State University 1982; Reactor heat transfer and thermal hydraulics, systems analysis and simulation, space reactors, stability of multi-phase flow models.

Robin P. Gardner, Professor of Nuclear Engineering and Chemical Engineering and Director of the Center for Engineering Applications of Radioisotopes (919-515-3378); [gardner@ncsu.edu]; Ph.D. Pennsylvania State University 1961, P.E.; Radioisotope measurement applications, Monte Carlo simulation of radiation gauges and analyzers, radiation detection.

John G. Gilligan, Professor of Nuclear Engineering and Vice Chancellor for Research and Graduate Studies (919-515-2117); [gilligan@ncsu.edu]; Ph.D. University of Michigan 1977; Plasma-materials interaction, plasma physics, fusion technology.

Orlando E. Hankins, Assistant Professor of Nuclear Engineering (919-515-3292); [hankins@ncsu.edu]; Ph.D. North Carolina State University 1985; Plasma diagnostics, plasma-materials interaction, plasma processing, low-temperature plasmas.

K. Linga Murty, Professor of Nuclear Engineering and Materials Engineering (919-515-3657); [murty@ncsu.edu]; Ph.D. Cornell University 1970; Nuclear materials, deformation and cracking mechanisms, dynamical properties of defects in materials using NMR, mechanical integrity of electronic interconnects.

Paul J. Turinsky, Professor of Nuclear Engineering and Director of the Electric Power Research Center (919-515-5098); [turinsky@ncsu.edu]; Ph.D. University of Michigan 1970; Nuclear fuel management optimization, space-time reactor kinetics, and adaptive core simulation.

Other Faculty

Donald J. Dudziak, Professor Emeritus of Nuclear Engineering (919-515-1465); [dudziak@ncsu.edu]

Thomas S. Elleman, Professor Emeritus of Nuclear Engineering (919-515-3620); [elleman@ncsu.edu]

Scott A. Lassell, Manager of Nuclear Services and Lecturer (919-525-3347); [salassel@unity.ncsu.edu]

Richard M. Lindstrom, Adjunct Professor of Nuclear Engineering, National Institutes of Standards and Testing.

David McNelis, Interinstitutional Faculty [mcnelis@unc.edu]

Raymond L. Murray, Professor Emeritus of Nuclear Engineering [murray@eos.ncsu.edu]

Avneet Sood, Adjunct Assistant Professor of Nuclear Engineering, Los Alamos National Laboratories [soda@lanl.gov]

Kuruvilla Verghese, Professor Emeritus of Nuclear Engineering (919-515-3929); [verghese@ncsu.edu]

Monroe S. Wechsler, Adjunct Professor of Nuclear Engineering (919-515-3620); [wechsler@ncsu.edu]

Bernard W. Wehring, Adjunct Professor of Nuclear Engineering (919-515-4599); [bwwehrin@unity.ncsu.edu]

Gerald D. Wicks, Reactor Health Physicist and Lecturer (919-515-4601); [wicks@ncsu.edu]

B. Wieland, Adjunct Associate Professor of Nuclear Engineering, Duke University.

Nuclear Engineering Research Centers:

Electric Power Research Center, Director, Dr. Paul J. Turinsky (NE), [turinsky@ncsu.edu], (919-515-5098). Nuclear reactor core simulation and fuel cycle optimization.

Center for Engineering Applications of Radioisotopes, Director, Dr. Robin P. Gardner (NE), [gardner@ncsu.edu], (919-515-3378). Research and development in nuclear oil well logging tools and other industrial and medical radiation measurement applications. This is often done by using Monte Carlo simulation for efficiency.

NCSU Nuclear Reactor Program

Director: Dr. Ayman Hawari, [ayman.hawari@ncsu.edu], (919-515-4598); Andrew T. Cook, Manager of Engineering & Operations, [atcook@ncsu.edu], (919.515.4602). In addition to the use of PULSTAR for various experimental and educational uses, a variety of neutron beam facilities are being developed on the PULSTAR reactor for multidisciplinary uses. These facilities include: Powdered neutron diffractometer and/or Small Angle Neutron Scattering (SANS) system; Ultra-Cold Neutron (UCN) sources; High intensity positron beam; Phase contrast neutron imaging system; Curved neutron guide for gamma-free thermal neutron beam. A state of the art neutron activation analysis facility is also available.

THE OHIO STATE UNIVERSITY

Nuclear Engineering Program
N250F Scott Laboratory
201 West 19th Avenue
Columbus, OH 43210-1142
TEL: (614) 292-8519 FAX: (614) 292-3163
<http://nuclear.osu.edu> E-Mail: nuclear@osu.edu

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| Masters | 6 | 9 | 4 |
| Ph.D. | - | - | 1 |

Graduate Student Enrollment: 28
[B.Sc. (NE Option) in Engineering or Engineering Physics
M.Sc. and Ph.D. in Nuclear Engineering]
ABET Accreditation: B.Sc. in Engineering with Nuclear Option

Richard S. Denning, Visiting Professor, Nuclear Engineering; Chair, Nuclear Engineering Graduate Program; Director, Nuclear Reactor Laboratory (614-292-5736); [denning.8@osu.edu]; Ph.D. University of Florida 1967; Reactor safety, probabilistic risk assessment, behavior of severe accidents in nuclear plants, design of inherently safe reactors.

Brian K Hajek, Senior Research Engineer and Associate Chair, Nuclear Engineering (614-292-5405); [hajek.1@osu.edu]; M.Sc. The Ohio State University 1972; Reactor operations and regulation, licensing and safety, personnel training, human-machine interfaces.

Tunc Aldemir, Professor of Nuclear Engineering and Mechanical Engineering (614-292-4627); [aldemir.1@osu.edu]; Ph.D. University of Illinois 1978; Risk analysis, numerical methods, systems dynamics of nuclear plants, reactor physics, in-core fuel management, inherently safe reactors.

Thomas E. Blue, Professor of Nuclear Engineering and Mechanical Engineering (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, accelerator-based Boron Neutron Capture Therapy (BNCT) for cancer.

Richard N. Christensen, Professor Emeritus of Nuclear Engineering and Mechanical Engineering (614-292-0445); [christensen.3@osu.edu]; Ph.D. Stanford University 1974; Heat transfer, boiling and condensation, nuclear energy, inherently safe reactors and passive safety systems.

Don W. Miller, Professor Emeritus of Nuclear Engineering and Mechanical Engineering (614-292-7979); [miller.68@osu.edu]; Ph.D. The Ohio State University 1971; Reactor instrumentation, reactor dynamics and control, nuclear medical instrumentation, dynamic safety systems, safety critical software, digital x-ray radiography.

Xiaodong Sun, Assistant Professor of Nuclear Engineering and Mechanical Engineering (614-247-7646); [sun.200@osu.edu]; Ph.D. Purdue University 2001; Thermal hydraulics and reactor safety, two-phase flow and instrumentation, boiling and condensation, interfacial area transport and bubble dynamics.

Other Faculty

Shoichiro Nakamura, Professor Emeritus of Mechanical and Nuclear Engineering (614-292-0121); [nakamura@lcro.eng.ohio-state.edu]; Ph.D. Kyoto University 1967; Computational fluid mechanics, reactor physics, numerical analysis and computational methods.

Robert E. Bailey, Professor Emeritus of Nuclear Engineering and Mechanical Engineering (614-292-5485); [bailey.13@osu.edu]; Ph.D. Purdue University 1963; Energy impact assessments, measurement with nuclear radiation, neutron radiography.

Steven Maheras, Adjunct Faculty, Ph.D. Colorado State 1988; Battelle Memorial Institute, (614-424-4563); [maheras.1@osu.edu]; Waste management

Special Facilities

OSU RESEARCH REACTOR

Dr. Richard S. Denning, Director, [Denning.8@osu.edu]; The Nuclear Reactor Laboratory is a pool-type reactor that operates at a maximum power level of 0.5MW. The central irradiation facility has a maximum total flux of 3×10^{13} n/cm²/sec. Two beam ports are available for large specimens. A pneumatic transfer tube is used for rapid insertion and removal. A thermal column provides a highly thermalized source of neutrons. A cobalt gamma irradiation facility is adjacent to the reactor.

OREGON STATE UNIVERSITY

Department of Nuclear Engineering and Radiation Health Physics
132 Radiation Center
Corvallis, OR 97331-5902
Tel: 541-737-2343; Fax: 541-737-0480

| | NE Graduates | | |
|-------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 15 | 14 | 23 |
| M.S. | 3 | 6 | 12 |
| Ph.D. | 0 | 1 | 2 |

Graduate Student Enrollment: 36 (On Campus) 29 (ecampus)
ABET Accreditation: B.S. in NE and B.S in Radiation Health Physics

Jose Reyes, Jr., Department Head and Professor; Henry W. and Janice J. Schuette Endowed Chair in Nuclear Engineering and Radiation Health Physics; Director, Advanced Thermal Hydraulic Research Laboratory; Co-Director, Academic Center of Excellence in Thermal Hydraulics and Reactor Safety (541-737-7065); [reyes@ne.orst.edu]; Ph.D. University of Maryland 1986; thermal hydraulics, multi-phase fluid flow, scaling analyses, ALWR Safety, and reactor system design.

David M. Hamby, Chairman Graduate Program Professor (541-737-8682); [hambydm@ne.orst.edu]; Ph.D. University of North Carolina 1989; health physics, beta dosimetry, beta spectroscopy, radiation detection, environmental health physics, environmental transport, fate and transport model analysis, radiation risk.

Michael R. Hartman, Assistant Professor (541-737-7046); [mike.hartman@oregonstate.edu]; Ph.D. University of Michigan 2005; neutron scattering, neutron activation analysis, solid-state hydrogen storage, advanced nuclear reactor design.

Jack F. Higginbotham, Professor; Director, Oregon NASA Space Grant; Associate Vice President for Research, Research Office (541-737-7068); [jackf.higginbotham@orst.edu]; Ph.D. Kansas State University 1987; radiation shielding, radiation protection, activation analysis, radiation detection, nuclear instrumentation.

Kathryn A. Higley, Chairman Distance Ed Program; Chairman Radiation Health Physics Program; Associate Professor (541-737-0675); [higley@ne.orst.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, and environmental regulations.

Andrew C. Klein, Professor (on-loan to Idaho National Laboratory as the Director, Education, Training, and Research Partnerships); [kleina@ne.orst.edu]; Ph.D. University of Wisconsin, Madison 1983; Space nuclear applications design, nuclear systems analysis, radiation shielding, and health physics.

Todd S. Palmer, Chairman Undergraduate Program; Associate Professor; Co-Director, Academic Center of Excellence in Thermal Hydraulics and Reactor Safety (541-737-7064); [palmerts@ne.orst.edu]; Ph.D. 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.

Brian Woods, Assistant Professor; Co-Principle Investigator, Advanced Thermal Hydraulic Research Laboratory; ANS Student Chapter Advisor, (541-737-6335); [woods@engr.orst.edu]; Ph.D. University of Maryland 2001; reactor thermal hydraulics, reactor safety, computational fluid dynamics, multi-phase/multi-species flow, and heat transfer.

Qiao Wu, Associate Professor; Co-Principle Investigator, Advanced Thermal Hydraulic Research Laboratory; (541-737-7066); [qiao@engr.orst.edu]; Ph.D. Purdue University 1995; thermal hydraulics and reactor safety, reactor engineering and design, multi-phase flow and boiling heat transfer, ALWR and IFR stability and safety, thermal hydraulics instrumentation.

Other Faculty

Stephen E. Binney, Director Emeritus, Radiation Center; Professor Emeritus; Administrator, Western Nuclear Science Alliance (541-737-3018); [binneys@rc.orst.edu]; Ph.D. University of California, Berkeley 1970; Applications of nuclear instrumentation and techniques, production of medical radioisotopes, boron neutron capture therapy, transmutation of radionuclides, nuclear radiation shielding.

Abdollah T. Farsoni, Associate Professor, Senior Research (541-737-9645); [abi.farsoni@oregonstate.edu]; Ph.D. Oregon State University 2006; health physics, radiation detection and digital spectroscopy, neutron activation analysis, advanced digital readout electronics, digital signal processing, nuclear detection systems for homeland security.

Alena Paulenova, Assistant Professor Senior Research, (541-737-7070); [paulenova@engr.orst.edu]; Ph.D. Moscow/ Kharkov State University 1985; speciation and mobility of radionuclides in natural bio-geochemical systems; Complexation of the actinides and lanthanides with organic ligands for medical imaging and radiotherapy; Radioanalytical and separation processes (radiochemical sensors, waste treatment).

Leah Minc, NAA Research Coordinator, Assistant Professor Senior Research (541-737-4216); [mincleah@engr.orst.edu]; Ph.D. University of Michigan 1994; instrumental neutron activation analysis (INAA) with applications in the environmental, biological, and geological sciences; materials science in archaeology.

Steven R. Reese, Instructor and Acting Director, Radiation Center (541-737-2341); [steve.reese@oregonstate.edu]; Ph.D. Colorado State University 1997; radiation protection, expertise in regulatory compliance and neutron radiography, activation analysis, radiation shielding, and dosimetry.

John C. Ringle, Associate Dean Emeritus of the Graduate School and Professor Emeritus (541-737-7067); [ringlejc@ne.orst.edu]; Ph.D. University of California, Berkeley 1964; radioactive waste management, environmental effects of nuclear power.

Research Centers Oregon State TRIGA Reactor (OSTR), Director: Dr. Steven Reese [steve.reese@oregonstate.edu], 1 MWth TRIGA reactor with FLIP fuel

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| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/07-6/06</u> |
| B.S. | 13 | 27 | 32 |
| Masters | 10 | 7 | 10 |
| Ph.D. | 2 | 3 | 4 |

Graduate Student Enrollment: Masters/ Ph.D.: 24/23
[B.S., M.S., M.N.E., M.Eng., Ph.D.]
ABET Accreditation: B.S.(N.E.)

Jack S. Brenizer, Jr., Chair and Professor 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 test ban treaty monitoring and aerogel materials.

Arthur T. Motta, Professor of Nuclear Engineering (814-865-0036); [atm2@psu.edu]; Ph.D. University of California, Berkeley 1988; Irradiation effects in metals and microstructural evolution under irradiation both from an experimental and a theoretical point of view.

Yousry Y. Azmy, Professor of Nuclear Engineering (814-865-0039); [yya3@psu.edu]; Ph.D. University of Illinois, Urbana 1985; Methods and applications in nuclear computational science, including numerical methods, iterative acceleration schemes, multiprocessing algorithms for deterministic particle transport equations.

Gary L. Catchen, Professor of Nuclear Engineering (814-865-2011); [g9c@psu.edu]; Ph.D. Columbia University 1979; Hyperfine interactions, radiation detection and measurement, radiation dosimetry, developing teaching techniques for nuclear science.

Fan-Bill Cheung, Professor of Nuclear and Mechanical Engineering (814-863-4261); [fxc4@psu.edu]; Ph.D. University of Norte Dame 1974; 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.

Robert M. Edwards, Professor of Nuclear Engineering (814-865-0037); [rmenuc@enr.psu.edu]; Ph.D. Pennsylvania State University 1991; Power plant simulation and control, applications of artificial intelligence and expert systems to power plant operation.

Lawrence E. Hochreiter, Professor of Nuclear and Mechanical Engineering (814-865-6198); [leh nuc@enr.psu.edu]; Ph.D. Purdue University 1971; Thermal-hydraulic modeling of nuclear power plants, reactor safety analysis, experimental study of two-phase flow and heat transfer.

Kostadin Ivanov, Professor of Nuclear Engineering (814-865-0040); [kni1@psu.edu]; Ph.D. Bulgarian Academy of Sciences; Three-dimensional reactor core analysis, computational methods in reactor statics and dynamics, thermal-hydraulic reactor system transient modeling of power plants, coupled 3-D kinetics/thermal-hydraulic simulations and bench marking, core design and management.

John H. Mahaffy, Associate Professor of Nuclear Engineering (814-865-0043); [jhm@psu.edu]; Ph.D. University of Colorado 1974; Two-phase thermal-hydraulics, numerical modeling of two-phase flow, nuclear safety analysis, parallel computing.

C. Frederick Sears, Director, Penn State Radiation Science and Engineering Center (RSEC) and Affiliate Associate Professor of Nuclear Engineering (814-865-6351); [cfsnuc@enr.psu.edu]; Ph.D. Pennsylvania State University 1969, Nuclear safety and management, reactor operation, utilization and training, instrumentation and control, research and service applications utilizing the RSEC facilities.

Barry Scheetz, Professor of Civil and Nuclear Engineering, and Senior Scientist, Material Research Laboratory (814-865-3539) [se6@psu.edu].

Kenan Unlu, Associate 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 and Neutron Activation Analysis.

Other Faculty

Edward S. Kenney, Professor Emeritus of Nuclear Engineering (814-863-1653).

Edward H. Klevans, Professor and Department Head Emeritus of Nuclear Engineering (814-865-4785); [ehknuc@enr.psu.edu].

Samuel H. Levine, Professor Emeritus of Nuclear Engineering (814-863-1653) [shl@psu.edu]

Gordon E. Robinson, Professor Emeritus of Nuclear Engineering (814-865-0045); [ger@psu.edu].

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NE Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
|---------|------------------|------------------|------------------|
| B.S. | 19 | 22 | 21 |
| Masters | 5 | 3 | 15 |
| Ph.D. | 4 | 2 | 5 |

Graduate Student Enrollment: 30 Masters (N.E.)/35 Ph.D.

[B.S., M.S., M.S.N.E., Ph.D.]

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

Vincent F. Bralts, Interim Head [nehead@ecn.purdue.edu]; and Associate Dean of Resource Planning and Management bralts@purdue.edu; Professor of Agricultural and Biological Engineering; Ph. D Michigan State University,

Arden L. Bement, David Ross Distinguished Professor of Nuclear Engineering, currently Director, National Science Foundation (on indefinite leave from Purdue University), Gaithersburg, MD (301-975-2300); [bement@ecn.purdue.edu]; Ph.D. University of Michigan, 1963; Ferroelectric ceramics, high-temperature superconductors, thin films, textures, microstructures, ferroelectric fatigue, electro-transport properties, microscopy, and energy policy and management.

Chan K. Choi, Professor of Nuclear Engineering, (765-494-6789); [choi@purdue.edu]; Ph.D. Southern Illinois University 1973; Inertial confinement fusion, target material interface instabilities, fast-ion slowing and alpha-particle heating, magnetic fusion, compact tori kinetic transport, and fusion space propulsion.

Thomas J. Downar, Professor of Nuclear Engineering (765-494-5752); [downar@ecn.purdue.edu]; Ph.D. Massachusetts Institute of Technology 1984; Computational methods in reactor physics and fluid dynamics, parallel computing, reactor physics, and fuel cycle analysis.

Audeen Fentiman, Professor of Nuclear Engineering (765-496-2133); fentiman@purdue.edu Ph.D. The Ohio State University 1982; Radioactive waste management and recruitment and education of engineering students.

Takashi Hibiki, Associate Professor of Nuclear Engineering (765-496-9033); [hibiki@rri.kyoto-u.ac.jp]; Ph.D. Chemical Engineering, Osaka University, 1990 Basic two-phase flow experiments and modeling; Interfacial area transport equation development, Development of fast neutron radiography system, Thermal-hydraulic research at micro-gravity conditions, Critical heat flux and heat transfer in mini channels, Two-phase flow in micro and mini channels, Drift-flux model development in various channels, Subcooled boiling experiments and modeling, Flow-induced vibration analysis, Research reactor utilization for industrial purposes.

Mamoru Ishii, Walter H. Zinn Distinguished Professor of Nuclear Engineering, and Director, Institute of Thermal-hydraulics (765-494-4587); [ishii@ecn.purdue.edu]; Ph.D. Georgia Institute of Technology 1971; Thermal-hydraulics, two-phase flow modeling and experiment, multiphase flow instrumentation, advanced reactor safety, light water reactor safety and fast reactor safety.

Tatjana Jevremovic, Assistant Professor of Nuclear Engineering (765-494-4480); [tatjanaj@purdue.edu]; Ph.D. University of Tokyo 1993; Numerical modeling in reactor physics, neutron transport, reactor core design, radiation protection, environmental issues and nuclear medicine.

Martin A. Lopez de Bertodano, Associate Professor of Nuclear Engineering, (765-494-9169); [bertodan@ecn.purdue.edu]; Ph.D. Rensselaer Polytechnic Institute 1991; Fluid mechanics, experimental two-phase flow, turbulence and MHD, computational models for multidimensional two-phase flow.

Shripad T. Revankar, Associate Professor of Nuclear Engineering (765-496-1782); [shripad@ecn.purdue.edu]; Ph.D. Karnatak University, India 1983; Experimental two-phase flow and heat transfer, two-phase flow diagnostics, integral system testing, nuclear reactor safety, multiphase transport in porous media, and thermal modeling of composite fuels.

Rusi P. Taleyarkhan, Arden L. Bement Jr. Professor of Nuclear Engineering (765-494-0198); [rusi@purdue.edu]; Ph.D. Rensselaer Polytechnic Institute 1982; MBA Rensselaer Polytechnic Institute 1980; Acoustic inertial confinement fusion, nano-macro scale applications of nuclear technologies, metastable fluid technologies for nanoscale energetic burst generation, research reactor safety, power reactor safety, nuclear homeland security, advanced nuclear particle detection technologies, novel explosives and propellant systems for less-than-lethal and barrier penetration devices.

Lefteri H. Tsoukalas, Professor of Nuclear Engineering, (765-496-9696); [tsoukala@ecn.purdue.edu]; Ph.D. University of Illinois 1989; Fuzzy, neural and other artificial intelligence approaches to existing and future-generation reactor systems with emphasis in modeling, diagnostics and control, complex energy systems.

Other Faculty

Jere H. Jenkins, Director of Radiation Laboratories (765-496-3573); [jere@ecn.purdue.edu]

Denis E. Beller, Adjunct Professor of Nuclear Engineering; [denis@ecn.purdue.edu]

Franklyn M. Clikeman, Professor Emeritus of Nuclear Engineering (765-496-3437); [clikeman@ecn.purdue.edu]

Jean-Marc Delhaye, Adjunct Professor of Nuclear Engineering; [delhaye@ecn.purdue.edu]

Owen Gailar, Professor Emeritus of Nuclear Engineering; [mud2@ix.netcom.com]

Paul S. Lykoudis, Professor Emeritus of Nuclear Engineering; [lykoudis@ecn.purdue.edu]

Sean H. McDevitt, Adjunct Associate Professor of Nuclear Engineering; [mcdevitt@ecn.purdue.edu]

Robert E. Montgomery, Courtesy Appointment, Professor of Engineering Education;
[rmont@purdue.edu]

Karl O. Ott, Professor Emeritus of Nuclear Engineering (765-494-5751); [ott@ecn.purdue.edu]

Victor H. Ransom, Professor Emeritus of Nuclear Engineering (765-496-3437);
[ransom@ecn.purdue.edu]

Alvin A. Solomon, Professor Emeritus of Nuclear Engineering and Director of Energy Materials
Laboratory (765-494-5753); [solomon@ecn.purdue.edu]

John P. Sullivan, Courtesy Appointment, Professor of Aeronautics and Astronautics
Engineering; [john.p.sullivan.1@purdue.edu]

Alexander Sesonske, Professor Emeritus of Nuclear Engineering; [alses@compuserve.com]

Karen M. Vierow, Adjunct Assistant Professor of Nuclear Engineering;
[vierow@ecn.purdue.edu]

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<http://www.rpi.edu/dept/mane/deptweb/>

Nuclear Engineering /Engineering Physics Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>6/05-6/06</u> |
|---------|------------------|------------------|------------------|
| B.S. | 39 | 45 | 38 |
| Masters | 8 | 3 | 4 |
| Ph.D. | 6 | 5 | 4 |

Graduate Student Enrollment: 2 Masters/ 18 Ph.D.

[B.S., M.S., M.E., D.Eng., Ph.D.]

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

Yaron Danon, Associate director of the Gaertner LINAC laboratory and Associate Professor of Nuclear Engineering and Engineering Physics (518-276-4008); [danony@rpi.edu]; Ph.D. Rensselaer Polytechnic Institute 1993; Nuclear instrumentation and data, accelerator technology and radiation applications for non-destructive testing, Pyroelectric Accelerators.

Donald A. Drew, Eliza J. Ricketts Professor of Applied Mathematics and Joint Professor of Nuclear Engineering (518-276-6903); [drewd@rpi.edu]; Ph.D. Rensselaer Polytechnic Institute 1970; Multiphase flow, applied mathematics and fluid mechanics, mathematical biology.

Mark J. Embrechts, Associate Professor in the Department of Decision Sciences and Engineering Systems and Joint Associate Professor of Nuclear Engineering (518-276-4009); [embrem@rpi.edu]; Ph.D. Virginia Polytechnic Institute 1981; Engineering applications of fractals, chaos and neural networks.

Richard T. Lahey, Jr. The Edward E. Hood. Professor of Engineering (518-276-6614); [laheyr@rpi.edu]; Ph.D. Stanford University 1971; Multiphase flow and boiling heat transfer, nuclear reactor thermal-hydraulics and safety analysis, Sonofusion technology.

Li (Emily) Liu, Assistant Professor of Nuclear Engineering and Engineering Physics (518-276-8592); [liue@rpi.edu]; Ph.D. Massachusetts Institute of Technology 2005; Applications of neutron scattering and other nuclear techniques to nuclear and hydrogen energy, nanotechnology, condensed matter physics, polymer and biological sciences, and radiation damages.

Bimal K. Malaviya, Executive Officer and Professor of Nuclear Engineering and Engineering Physics (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, Director of the Center for Multiphase Research, Director of the Program for Graduates of the US Navy Nuclear Power School and Professor of Nuclear Engineering and Engineering Physics (518-276-4000); [podowm@rpi.edu]; Ph.D. Warsaw Technical University, Poland 1972; Multiphase flow and heat transfer, reactor dynamics and safety, system stability, applied mathematics.

Don Steiner, Research Professor of Nuclear Engineering (518-276-4016); [steind@rpi.edu]; Ph.D. Massachusetts Institute of Technology 1967; Fusion systems analysis, plasma engineering, blanket design and overall fusion reactor design.

Timothy Wei, Professor and Head of Mechanical, Aerospace and Nuclear Engineering (518-276-6351); [weit@rpi.edu]; Ph.D. The University of Michigan 1987; Experimental fluid dynamics - turbulence, fluid-structure interactions, multiphase flows.

George Xu, Professor of Nuclear Engineering and Engineering Physics (518-276-4010); [xug2@rpi.edu]; Ph.D. Texas A&M 1994; Environmental health physics, health and medical physics, Monte Carlo simulations, anatomical modeling, biomedical use of radiation.

Other Faculty

Steven P. Antal, Research Assistant Professor of Nuclear Engineering and Engineering Physics (518-395-6985); [antals@rpi.edu]; Ph.D. Rensselaer Polytechnic Institute 1994; Fluid mechanics and heat transfer, computational fluid dynamics, parallel high performance computing, numerical methods, multiphase flow technology, reactor thermal hydraulics and safety.

Robert C. Block, Active Professor Emeritus of Nuclear Engineering and Engineering Physics, Director of the Gaertner LINAC laboratory (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.

Peter Caracappa, Institute Radiation Safety Officer and Research Associate in Nuclear Engineering and Engineering Physics with teaching duties in the Navy Nuclear Program; (518-276-2212); [caracp3@rpi.edu]; M.S. Rensselaer Polytechnic Institute 2001; health physics, radiological engineering, radiation transport modeling.

Research Centers

The Gaertner Linear Accelerator (LINAC) Laboratory, Dr. Robert C. Block [blockr@rpi.edu], (518-276-6404), 100 MeV, used to produce neutrons and high-intensity electron and gamma radiation.

Center for Multiphase Research (CMR), Dr. Michael Z. Podowski [podowm@rpi.edu], (518-276-4000), interdisciplinary work includes crystal growth experiments in outer space, predicting critical heat flux using first-principle methods, assessing the consequences of hypothetical nuclear reactor accidents, developing state-of-the-art laser optical diagnostic systems for measuring multidimensional phenomena, etc.

Health Physics Laboratory - Whole Body Counter and systems for the analysis of beta, gamma, and alpha spectra from radionuclides, Dr. George Xu [xug2@rpi.edu], (518-276-4014).

The Walthousen Laboratory - Reactor Facility, 0.1 kW, Glenn Winters [winteg@rpi.edu], located in Schenectady, NY, for operational training and core physics studies.

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<http://www.me.se.edu/nuclear/index.html>

| | NE Graduates | | |
|---------|--------------|-----------|-----------|
| | 7/03-6/04 | 7/04-6/05 | 7/05-6/06 |
| Masters | 0 | 2 | 8 |
| PhD | 0 | 0 | 0 |

Graduate Student Enrollment: 24 Masters/7 Ph.D.
[M.S., M.N.E, Ph.D.]

Jamil Khan, Interim Chair and Professor (803) 777-1578; [khan@engr.sc.edu]; Ph.D. Clemson University, 1988; Nuclear reactor, thermal hydraulics, enhanced heat transfer, heat transfer and fluid flow with phase change, computational and experimental fluid dynamics related to contaminants transport in rooms, heat transfer in porous media, microchannel heat transfer.

Abdel Bayoumi, Program Director and Professor (803) 777-1845; [bayoumi@engr.sc.edu]; Ph.D. North Carolina State University 1982; Product Design and Development; Design for Manufacture and Assembly; Application of nuclear power in future energy including the use of hydrogen as fuel in internal combustion engines.

Travis W. Knight, Assistant Professor of Nuclear Engineering (803) 777-1465; [twknight@sc.edu]; Ph.D. University of Florida 2000; Advanced nuclear fuels and materials, reactor design, advanced fuel cycles, space nuclear power and propulsion, and application of nuclear power in future energy economies for sustainability including the production of hydrogen from nuclear energy.

Jeff Morehouse, Professor (803) 777-3017; [more@engr.sc.edu]; Ph, D. Auburn University, 1976; Simulations of thermodynamic heat engine applications involving spacebased fuel cell power systems, ground-coupled heat pumps, solar thermal systems; and other advanced energy power systems.

Other Faculty

Thad Adams, Adjunct Professor, [thad.adams@srnl.doe.gov]; Ph.D, University of Florida, 1997; Nuclear fuels, advanced materials for nuclear systems, spent nuclear fuel storage, disposal technologies for special nuclear materials, high temperature materials for thermochemical hydrogen production.

Mel Buckner, Adjunct Professor, (803) 442-6373; [mbuckner001@comcast.net]; Ph.D. University of Tennessee, 1970; Plutonium disposition, advanced fuel cycle initiatives, and nuclear hydrogen production .

Marc Garland, Adjunct Professor, (865) 574-3251; [garlandma@oml.gov]; Ph.D.

University of Maryland, 2004; Production of radioisotopes in nuclear reactors and particle accelerators, medical applications of radioisotopes.

Max Gorenssek, Adjunct Professor, (803) 725-1314; [maximilian.gorenssek@srnl.doe.gov]; Ph.D., Princeton University, 1981; Nuclear hydrogen production, Nuclear hydrogen production, Thermochemical and hybrid hydrogen production process development, steady-state and dynamic flow sheet simulation and optimization, and high level waste treatment.

Val Loiselle, Adjunct Professor, (803) 576-5598; [loiselle@enr.sc.edu] ; MS. Rensselaer Polytechnic Institute, Troy, NY, 1973; Nuclear engineering; environmental remediation, emphasis on radioactive waste management and disposal; transportation and disposal of EPA pond closures, and radioactive metal recycle manufacturing.

Elwyn Roberts, Adjunct Professor, (803) 777-2252; [robertse@enr.sc.edu]; Ph.D. University of Sheffield, England, 1960; Materials performance in nuclear reactors, product design, manufacturing and concurrent engineering.

Bill Summers, Adjunct Professor, (803) 725-7766; [william.summers@srnl.doe.gov]; Ph.D. University of Pittsburgh, 1985; Energy policy, supply and demand; advanced energy systems analysis and design; fuel cells and the hydrogen economy; nuclear hydrogen production process design and economic analysis.

Balendra Sutharshan, Adjunct Professor, [SutharB@westinghouse.com]; Ph.D. Massachusetts Institute of Technology, 1998; Nuclear fuel performance, reactor engineering, Thermal hydraulics, two-phase flows, application of Six Sigma and Lean.

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<http://www.engr.utk.edu/nuclear>

| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 13 | 14 | 22 |
| Masters | 13 | 5 | 17 |
| Ph.D. | 4 | 2 | 0 |

Graduate Student Enrollment: 4 Certificate/34 M.S./12 Ph.D.
[B.S., M.S., Ph.D.]
ABET Accreditation: B.S.(N.E.)

H.L. Dodds, Department Head and IBM Professor of Nuclear Engineering (865-974-2525); [hdj@utk.edu]; Ph.D. The University of Tennessee 1970, P.E.; Reactor core analysis, transient modeling and simulation, reactor safety analysis, advanced reactors, nuclear criticality safety.

J. Wesley Hines, Associate Professor of Nuclear Engineering (865-974-5048); [jhines2@utk.edu]; Ph.D. Ohio State University 1994; Diagnostics and surveillance, artificial intelligence methods, expert systems and neural networks.

Laurence F. Miller, Professor of Nuclear Engineering (865-974-5048); [lfmiller@utk.edu]; Ph.D. Texas A&M University 1976, P.E.; Particle and radiation transport, diagnostics and surveillance, waste management, health physics, modeling and simulation, instrumentation and control.

Ronald E. Pevey, Associate Professor of Nuclear Engineering (865-974-5048); [rpevey@utk.edu]; Ph.D. The University of Tennessee 1982, P.E.; Reactor physics, thermal hydraulics, computer methods development, shielding, nuclear criticality safety.

Arthur E. Ruggles, Professor of Nuclear Engineering (865-974-2525); [aruggles@utk.edu]; Ph.D. Rensselaer Polytechnic Institute 1987; Reactor thermalhydraulics, liquid metal flow and heat transfer, cavitation and fluid transients, accelerator target design and microchannel flow.

Lawrence W. Townsend, Professor of Nuclear Engineering (865-974-5048); [ltownsen@utk.edu]; Ph.D. University of Idaho 1980; Radiation physics, transport, shielding and risk assessment; Nuclear and Radiological engineering; Theoretical nuclear physics.

Belle R. Upadhyaya, Professor of Nuclear Engineering (865-974-5048); [bupadhya@utk.edu]; Ph.D. University of California, San Diego 1975, P.E.; Dynamics, instrumentation and control, monitoring and diagnostics, advanced signal processing, next generation reactors, autonomous control of space reactors, nondestructive examination, maintenance and reliability engineering.

Research Faculty

Ray S. Booth, Research Professor, Ph.D., University of Florida
Research interests: liquid metal reactors, research reactors, environmental impacts, neutron wave propagation.

Raymond W. Durante, Research Associate, Stevens Institute of Technology
Research interests: advanced reactor design and food irradiation

Mario Fontana, Research Professor, Ph.D., Purdue University
Research interests: Power reactor safety (including response to potential terrorist attack, and advanced reactor systems).

Barry D. Ganapol, Research Professor, Ph.D., U. of California, Berkeley
Research Interests: radiation and particle transport theory, fast reactor safety, applied mathematics, satellite remote sensing.

Andrei V. Gribok, Research Assistant Professor, Ph.D., Moscow Institute of Biological Physics.
Research interests: artificial intelligence techniques, surveillance and diagnosis, Inverse and ill-posed problems, Regularization theory.

Martin L. Grossbeck, Research Professor, Ph.D., University of Illinois
Research interests: radiation effects in materials, burnable absorbers, research reactors, and ultra-high vacuum technology.

John T. Mihalcz, Professor, Ph.D., University of Tennessee
Research interests: radiation measurements for nuclear safeguards and nuclear criticality safety, reactor physics.

Hanna Moussa, Research Assistant Professor, Ph.D., University of Tennessee
Research Interests: radiation safety, Monte Carlo simulation of radiation transport.

Fred R. Mynatt, Research Professor, Ph.D., University of Tennessee
Research interests: radiation transport, isotope production and nuclear regulations, advanced reactor design.

Harry Pettengill, Research Professor, Ph.D., University of Michigan
Research interests: radiological health, bio-terrorism, emergency response, worker training, health and safety services, and international and domestic health studies

Thomas H. Scott, Associate Professor, Ph.D., Florida State University
Primary activity: college-wide advising and recruiting.

Andrew C. Stephan, Research Assistant Professor, Ph.D., University of Tennessee.
Research interests: radiation detection.

Adjunct Faculty

Dr. Andrei I. Apostolaei, Adjunct Assistant Professor

Dr. Tom Byrne, Adjunct Assistant Professor

Dr. Zhong Cao, Adjunct Professor

Dr. David H. Cook, Adjunct Associate Professor

Dr. M. D. DeHart, Adjunct Assistant Professor

Dr. Felix Difilippo, Adjunct Professor

Dr. Keith Eckerman, Adjunct Associate Professor

Dr. Paul W. Frame, Adjunct Assistant Professor

Dr. Tony Gabriel, Adjust Professor

Dr. J.C. Gehin, Adjunct Assistant Professor

Dr. F. Owen Hoffman, Adjunct Professor

Dr. David E. Holcomb, Adjunct Assistant Professor

Dr. Alan Icenhour, Adjunct Assistant Professor

Dr. Erik B. Iverson, Adjunct Associate Professor

Dr. James Lyon, Adjunct Professor

Dr. Jose March-Leuba, Adjunct Associate Professor

Dr. Gloria Mei, Adjunct Associate Professor

Dr. Trent Nichols, Adjunct Professor

Dr. Adrian Oliver, Adjunct Associate Professor

Dr. Sara A. Pozzi, Adjunct Assistant Professor

Dr. Chet Ramsey, Adjunct Assistant Professor

Dr. David R. Simpson, Adjunct Assistant Professor

Dr. Joseph Thie, Adjunct Professor

Dr. James E. Turner, Adjunct Professor

Dr. Timothy Valentine, Adjunct Assistant Professor

Dr. Graham V. Walford, Adjunct Professor

Dr. Colin D. West, Adjunct Professor

Dr. Michael Westfall, Adjunct Professor

Emeritus Faculty

Peter G. Groer, Professor of Nuclear Engineering (865-974-5048); [groer@utk.edu]; Ph.D. University of Vienna, Austria 1967; Radiation risk assessment, competing risk theory, health physics, reliability analysis.

Thomas W. Kerlin, Professor, Ph.D., Tennessee
Research interests: diagnostics and surveillance, modeling and simulation, instrumentation and control

Rafael B. Perez, Professor, Ph.D., Madrid
Research interests: diagnostics and surveillance, artificial intelligence methods

Hall C. Roland, Associate Professor, Ph.D., Tennessee
Primary activity: high school recruiting

Paul N. Stevens, Professor, Ph.D., Northwestern, PE
Research interests: particle and radiation transport

Robert E. Uhrig, Distinguished Professor of Nuclear Engineering (865-975-3110); [ruhig@utk.edu]; Ph.D. Iowa State University 1954, P.E.; Diagnostics and surveillance, artificial intelligence methods, expert systems and neural networks.

Nuclear Engineering Research Centers

Maintenance and Reliability Center, Director, Thomas V. Byerly, [http://www.engr.utk.edu/mrc/]. Use of management systems, analysis techniques and advanced predictive and preventive technologies to identify, manage and eliminate failures that lead to losses in system function.

Measurement and Control Engineering Center, Director, Kelsey Cook, [http://mcec.engr.utk.edu/]. Multi-site interdisciplinary research and educational institution directed toward the development of new sensors and control systems to improve the productivity of U.S. industry.

Oak Ridge DOE Complex

Close collaboration with the Oak Ridge DOE Complex including both the Oak Ridge National Laboratory, [http://www.ornl.gov/], and the Oak Ridge Y-12 Plant, [http://www.y12.doe.gov/].

TEXAS A&M UNIVERSITY

129 Zachry Engineering Center - 3133 TAMU
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<http://nuclear.tamu.edu>; gradinfo@tamu.edu

NE Graduates

| | 7/03-6/04 | 7/04-6/05 | 7/05-6/06 |
|-------|-----------|-----------|-----------|
| B.S. | 36 | 32 | 30 |
| M.S. | 16 | 8 | 7 |
| Ph.D. | 6 | 6 | 4 |

Types of degrees offered

B.S., M.E., M.S., D.E., and Ph.D.: Nuclear Engineering;
B.S.: Radiological Health Engineering; M.E., M.S.: Health Physics
Graduate Student Enrollment for Spring 2007: 96
Degree Programs Accredited by ABET
B.S. (N.E.); B.S. (R.H.E.)

John W. Poston, Sr., Interim Department Head, Professor of Nuclear Engineering, Graduate Coordinator, (979-845-4161); [j-poston@ne.tamu.edu]; Ph.D. Georgia Institute of Technology 1971. External and internal dosimetry, thermoluminescence dosimetry, applied health physics, Monte Carlo radiation transport.

Marvin L. Adams, Professor of Nuclear Engineering, Associate Vice President for Research, Director of Center for Large-Scale Scientific Computing; (979-845-4198); [mladams@tamu.edu]; Ph.D. University of Michigan 1986. Development of computational methods for transport problems and the implementation of these methods in computer codes.

Frederick R. Best, Associate Professor of Nuclear Engineering, Director of NASA Center for Space Power in TEES (979-845-4108); [fbest@tamu.edu]; Ph.D. Massachusetts Institute of Technology 1980. Reactor thermal hydraulics, interphase transport phenomena.

William S. Charlton, Associate Professor of Nuclear Engineering, Director of NSSPI (979-845-7092); [wcharlton@tamu.edu]; Ph.D. Texas A&M University 1999. Nuclear nonproliferation and international security, reactor physics and fuel cycle analysis, reactor experimentation and nuclear data development.

John R. Ford, Associate Professor of Nuclear Engineering, ANS Student Advisor, (979-845-6271); [ford@ne.tamu.edu]; Ph.D. University of Tennessee, 1982. Radiation and cancer biology.

Yassin A. Hassan, Associate Department Head and Professor of Nuclear Engineering (979-845-7090); [y-hassan@tamu.edu]; Ph.D. University of Illinois 1979; Computational and experimental thermal-hydraulics, reactor safety, fluid mechanics, two-phase flow, turbulence and laser velocimetry and imaging techniques.

William H. Marlow, Professor of Nuclear Engineering, Undergraduate Coordinator, (979-845-2271); [w-marlow@tamu.edu]; Ph.D. University of Texas, Austin 1973. Physics of molecular clusters and small particles, aerosols; applications in materials, environmental, radiation safety, health protection research.

Sean McDevitt, Assistant Professor of Nuclear Engineering (979-862-1745); [mcdevitt@ne.tamu.edu]; Ph.D. Nuclear Engineering, Purdue University, 1992. Nuclear materials science, nuclear fuel behavior and processing, materials processing in the nuclear fuel cycle, high temperature materials science.

Jim E. Morel, Professor of Nuclear Engineering (979-845-6072); [morel@ne.tamu.edu]; Ph.D. University of New Mexico 1979. Computer code development, standardization, and configuration controls; neutron transport, charged-particle transport, thermal radiation transport and radiation hydrodynamics.

K. L. Peddicord, Professor of Nuclear Engineering and Vice Chancellor for Research and Federal Relations, Texas A&M University System (979-862-2831); [k-peddicord@tamu.edu]; Ph.D. University of Illinois 1972. Nuclear engineering education advanced nuclear fuels, nuclear materials safety, and the disposition of weapons plutonium, nuclear generated hydrogen and the hydrogen economy, and Generation IV nuclear systems.

Jean C. Ragusa, Assistant Professor of Nuclear Engineering (979-862-2033); [ragusa@ne.tamu.edu]; Ph.D. Institut National Polytechnique de Grenoble, France 2001. Nuclear reactor physics and nuclear engineering analysis, neutronics design, computational methods applied to nuclear engineering, finite element spatial kinetics, multi-physics coupling, and high performance computing.

Warren D. Reece, Professor of Nuclear Engineering and Director, Nuclear Science Center (979-847-8946); [reece@ne.tamu.edu]; Ph.D. Georgia Institute of Technology 1988. Radiation transport, location of breach of clad, assessment of effective dose equivalent.

Lin Shao, Assistant Professor of Nuclear Engineering (979-845-4107); [lshao@tamu.edu]; Ph.D., University of Houston, 2001. Materials science and nanotechnology, radiation effects in nuclear and electronic materials, Ion beam analysis.

Pavel V. Tsvetkov, Assistant Professor of Nuclear Engineering (979-845-6648); [pavel@cedar.tamu.edu]; Ph.D. Texas A&M University 2002. Fundamentals of theoretical nuclear reactor physics and energy technology, complex multi-purpose nuclear systems, methodology and model development for analysis of innovative energy systems, integrated computer code systems for nuclear energy system modeling, direct energy conversion methods, fuel cycle analysis, safety of nuclear systems and energy technology, non-proliferation aspects of nuclear technology, information technologies.

Karen Vierow, Associate Professor of Nuclear Engineering (979-458-0600); [vierow@ne.tamu.edu]; Ph.D., University of Tokyo, 1999. Thermal hydraulics, two-phase flow phenomenon, specifically condensation heat transfer reactor safety, physics model and analysis code development.

Other Faculty

David R. Boyle, Visiting Associate Professor of Nuclear Engineering, Associate Director of NSSPI, (979-845-8768); [dboyle@tamu.edu]; Ph.D. Massachusetts Institute of Technology, 1980. Safety and efficiency of pluton storage and disposition approaches.

Leslie A. Braby, Research Professor of Nuclear Engineering (979-862-1798); [labraby@tamu.edu]; Ph.D. Oregon State University, 1972. Radiation dosimetry; microdosimetry; biological effects of radiation; microbeam lab; food irradiation.

William E. Burchill, Adjunct Professor of Nuclear Engineering (979-845-1670); [burchill@ne.tamu.edu]; Ph.D. University of Illinois, 1970. Nuclear power, nuclear safety, risk management (PRA), reactor regulation, reactor operations, and reactor design.

Ron R. Hart, Professor Emeritus of Nuclear Engineering (979-845-4157); [rhart@tamu.edu]; Ph.D. University of California, Berkeley, 1967. Ion-beam solid interactions, neutron transmutation doping, radiation effects.

William D. James, Visiting Associate Professor of Nuclear Engineering (979-845-7630); [wdjames@tamu.edu]; Ph.D. University of Arkansas, 1975. Elemental analysis with an emphasis in radiochemical and nuclear methods. Methods include neutron activation analysis, x-ray fluorescence, gamma spectroscopy including use of high resolution germanium detectors and Compton suppression, fast neutron activation analysis using D,T accelerators and laboratory automation. Recent expansion into ICP-MS with laser ablation and ion chromatography front ends for analysis of solutions, solids and chemical species.

Warren F. “Pete” Miller, Associate Director, Nuclear Security Science and Policy Institute, Research Professor, TEES (979-845-6093); [wmiller@ne.tamu.edu]; Ph.D. Northwestern University, Evanston, ILL 1973.

Paul Nelson, Professor Emeritus of Nuclear Engineering; also Professor of Mathematics and Computer Science (979-845-4132); [pnelson@ne.tamu.edu]; Ph.D. University of New Mexico 1969. Computational methods in transport theory, disposition of excess weapons plutonium.

Natela Ostrovskaya, Lecturer of Nuclear Engineering (979-862-4409); [Natela@ne.tamu.edu]; Ph.D., Texas A&M University, 2005. Mathematical and computer modeling of radiation response of human tissues and predicting changes occurring in tissues following radiation insult.

RESEARCH AND SERVICE LABORATORIES AND FACILITIES

ACCELERATOR LABORATORY

Dr. Lin Shao, 979.845.4107, lshao@tamu.edu

The primary mission of the Accelerator Laboratory is to study ion beam-solid interactions. The laboratory has two primary accelerators with maximum voltages of 200 kV and 160 kV, and a secondary accelerator.

AGN-201M NUCLEAR REACTOR LABORATORY

Dr. William Charlton, 979.845.7092, wcharlton@tamu.edu

The Reactor Laboratory maintains a 5-watt AGN-201M nuclear reactor for studies of nuclear reactor operations and interactions of neutrons with matter.

CENTER FOR LARGE-SCALE SCIENTIFIC SIMULATIONS

Dr. Marvin Adams, 979.845.4198, mladams@tamu.edu

The objective of the Center for Large-Scale Scientific Simulations (CLASS) is to advance the state of the art in large-scale scientific simulations

CENTER FOR SPACE POWER (CSP)

Dr. Frederick Best, 979.845.4108, fbest@tamu.edu

The Center's mission is to develop technologies with industry for NASA mission needs and space power-related commercial ventures. Technologies include specialized heat pipes, advanced battery components, novel electronic materials, digital communications algorithms, power conditioners, magnetic bearings for flywheel energy storage, and other power-related devices.

FUEL CYCLE AND MATERIALS LABORATORY (FCML)

Dr. Sean McDeavitt, 979.862.1745, mcdeavitt@tamu.edu

The Fuel Cycle and Materials Laboratory (FCML) was established to study current issues in the nuclear fuel cycle, including materials and chemical processing, advanced fuels and materials, and waste immobilization. Equipment in FCML includes high temperature furnaces, two inert atmosphere gloved boxes, and a 90-ton hydraulic press.

LASER DIAGNOSTICS MULTIPHASE FLOW LABORATORY

Dr. Yassin Hassan, 979.845.7090, y-hassan@tamu.edu

The mission of the laboratory is to investigate the complex, multiphase flow of multiscale, multiphysics flow phenomena using non-intrusive global field measurement techniques. The laboratory is equipped with fast-pulsed, high-energy lasers and fast high resolution cameras.

NUCLEAR HEAT TRANSFER SYSTEMS LAB

Dr. Karen Vierow, 979.458.0600, vierow@tamu.edu

The lab is equipped with a large steam supply, a high speed camera, extensive thermal hydraulic instrumentation and a state-of-the-art data acquisition system. New efforts focus on developing analysis methods for high-temperature, gas-cooled reactors and improving best estimate analysis with PRA methodologies.

INTERPHASE TRANSPORT PHENOMENA LABORATORY

Dr. Frederick Best, 979.845.4108, fbest@tamu.edu

The ITP Laboratory conducts research in the area of interphase heat, mass and momentum transfer.

MICRO-BEAM CELL IRRADIATION FACILITY

Dr. John Ford, 979.845.6271, ford@ne.tamu.edu

Dr. Leslie Braby, 979.862.1798, labraby@tamu.edu

This facility provides specialized irradiation capabilities needed to implement radiation biology experiments to understand the cellular and molecular mechanisms controlling the risk of long-term health effects related to low doses of ionizing radiation.

NUCLEAR SCIENCE CENTER

Dr. Daniel Reece, 979.845.7551, w-reece@tamu.edu

The Reactor Laboratory maintains a 5-watt AGN-201M nuclear reactor for studies of nuclear reactor operations and interactions of neutrons with matter. In addition, the laboratory maintains a subcritical assembly for studying the neutron flux profile in a nuclear system and a graphite pile for examining the neutron thermalization process.

The centerpiece of the Nuclear Science Center is a one-megawatt TRIGA (Testing, Research, Isotopes, General Atomics) reactor, an open "swimming pool"-type research reactor operating with FLIP fuel. The core consists of cylindrical fuel elements reflected with graphite. The core is positioned about 26 feet below the surface of the water and cooled by natural convection.

NUCLEAR SECURITY SCIENCE AND POLICY INSTITUTE, TEES

Dr. William Charlton, 979.845.7092, wcharlton@tamu.edu

The Nuclear Security Science and Policy Institute (NSSPI) is a university-based entity that focuses on graduate education, research, and service on a variety of topics related to the safeguarding of nuclear materials and the reduction of nuclear threats.

RADIATION DETECTION MEASUREMENT LABORATORY

Dr. William Charlton, 979.845.7092, wcharlton@tamu.edu

The Radiation Detection Measurement Laboratory maintains instruments for studies of radiation and radioactive decay. The laboratory includes single-channel Geiger-Mueller stations, gas-flow proportional counters, alpha-spectrometers and a liquid scintillation counter. The laboratory also has 4000 channel Ge-Li solid-state detectors with computer control, which can be used for both time-domain and energy-spectra measurements.

SPACECRAFT TECHNOLOGY CENTER (FORMERLY COMMERCIAL SPACE CENTER FOR ENGINEERING), TEES

Dr. Frederick Best, 979.845.4108, fbest@tamu.edu

A NASA commercial space center, STC helps industry transform ideas into space-engineered hardware and assists industry in using the International Space Station, NASA Space Shuttles or other orbital platforms as testbeds for engineering and validating advanced space technology.

TANDEM ACCELERATOR LABORATORY

Dr. Leslie Braby, 979.862.1798, labraby@tamu.edu

A 2-MeV Pelletron accelerator provides charged particle beams for radiation biology and dosimetry studies

AFFILIATED CENTERS

CYCLOTRON INSTITUTE

This facility has an 88-inch single-D, variable energy cyclotron capable of accelerating protons and deuterons to 60 MeV, alpha particles to 135 MeV, and heavier ions to energies of 300 MeV.

NATIONAL CENTER FOR ELECTRON BEAM FOOD RESEARCH (FORMERLY FOOD IRRADIATION CENTER)

Researchers in the National Center for Electron Beam Food Research, which has been recently designated as a National Research Center, use high- and low- energy electron beams to reduce the number of bacteria and other pathogens in and on food and other materials. The work is primarily directed at spontaneous, food-borne illness but is also relevant to bioterrorism issues.

THE UNIVERSITY OF TEXAS AT AUSTIN

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<http://www.me.utexas.edu/~nuclear>

| | NRE Graduates | | |
|---------|----------------------|------------------|-------------------|
| | <u>7/04-6/05</u> | <u>7/05-6/06</u> | <u>7/06-12/06</u> |
| Masters | 5 | 9 | 4 |
| Ph.D. | 2 | 0 | 3 |

Graduate Student Enrollment: 10 Masters/21 Ph.D.
[B.S. Mechanical Engineering, Nuclear Radiation Engineering Option,
M.S. and Ph.D. Mechanical Engineering, Nuclear and Radiation Engineering Option]

Steven R. Biegalski, Director Nuclear Engineering Teaching Lab,
Associate Professor of Mechanical Engineering (512-232-5380); biegalski@mail.utexas.edu,
Ph.D. University of Illinois 1996; Nuclear instrumentation, neutron radiography, analysis of
environmental media with nuclear methods, modeling of environmental pathways, reactor
operations and reactor safety analysis.

Sheldon Landsberger, Coordinator of Nuclear and Radiation Engineering Program, Professor of
Mechanical Engineering (512-232-2467); s.landsberger@mail.utexas.edu; Ph.D. University of
Toronto 1982; Radioactive and solid waste management, neutron activation analysis,
Compton suppression low-level counting, air pollution, long distance air transport of heavy
metals, radiation exposure, materials damage.

Erich Schneider, Assistant Professor (607-227-1414)
eschneider@mail.utexas.edu; Ph.D. Cornell University 2002; nuclear systems engineering,
nuclear reactor technologies, nuclear fuel, sustainability of nuclear power; nonproliferation and
neutron transport.

Dale Klein, Professor of Mechanical Engineering (512-471-4709);
dklein@utsystem.edu; Ph.D. University of Missouri-Columbia 1977; Thermal-hydraulics,
radioactive waste disposal, dismantlement of nuclear weapons. (On leave Chairman of Nuclear
Regulatory Commission)

Other Research and Teaching Faculty

Kendra Foltz, Research Engineer, (512-418-0157); kmfb@mail.utexas.edu;
Ph.D. University of Illinois 1998; non-proliferation, atmospheric radionuclide identification and
analytical modeling.

Ofodike Ezekoye, Professor of Mechanical Engineering, Thermal Fluids Area, (512-471-3085);
dezekoye@mail.utexas.edu; Ph.D. University of California at Berkeley 1991; combustion, heat
transfer, and aerosols.

John Howell, Professor of Mechanical Engineering, (512- 471-3095) [jhowell@mail.utexas.edu]; Ph.D. Case Institute of Technology (now Case Western Reserve University) 1962; thermal radiative transfer, Monte Carlo methods; inverse analysis techniques.

Arumugam Manthiram, Professor of Mechanical Engineering, 5(512-471-1791); [rmant@mail.utexas.edu]; Ph.D. Indian Institute of Technology, 1980; fuel cells, lithium ion batteries, and supercapacitors including nanomaterials.

UNIVERSITY OF UTAH

Nuclear Engineering Program
122 S. Central Campus Drive
Salt Lake City, UT 84112-0561
TEL: (801) 581-4188 FAX: (801) 585-5477
<http://www.nuclear.utah.edu>

NE Graduates

| | <u>7/03-6/04</u> | <u>7/04-6/05</u> |
|---------|------------------|------------------|
| Masters | 2 | 1 |
| Ph.D. | 1 | 1 |

Graduate Student Enrollment: 5 Masters/3 Ph.D.
[M.E., M.S., Ph.D.]

ABET Accreditation: B.S. Engineering Degrees in
Chemical, Civil and Environmental & Electrical, Mechanical with Nuclear Option

Melinda P. Krahenbuhl, Chair of Nuclear Engineering Program Associate Professor (R) of Civil and Environmental Engineering and Chemical Engineering (801-585-0683); [mpk@eng.utah.edu]; Ph.D. University of Utah 1998; Plutonium chemistry and bioassay, dose reconstruction and fission track analysis.

Dong Ok Choe, Assistant Professor (R) of Civil and Environmental Engineering (801-587-3066); [dongokchoe@hotmail.com]; Ph.D. University of Utah 2000; Reactor physics, dose reconstruction, fission track analysis, Computer modeling.

David M. Slaughter, Professor (R) Civil and Environmental Engineering [slaughter@eng.utah.edu]; Ph.D. University of Utah 1986; Reactor physics and operations, radioactive and hazardous materials, environmental radiochemistry,.

Gary M. Sandquist, Professor of Mechanical Engineering; [gmsand@mech.utah.edu]; P.E., CHP, SRO, Ph.D. University of Utah 1964; Reactor physics, radioactive waste management, health physics, risk assessment, quality assurance.

Scott Miller, Professor (R) of Radiology and Radiobiology and Director of Radiobiology Division (801-581-5638); [scmiller@msscc.med.utah.edu]; Ph.D. University of Utah 1974; Internal effects, metabolic pathways, deposition and excretion of radionuclides.

Fred W. Bruenger, Associate Professor (R) of Radiology and Radiobiology (801-581-6379); [fred.bruenger@m.cc.utah.edu]; M.S. Frankfurt University, Germany 1954; Fission track analysis, neutron activation analysis, health effects, metabolic pathways, deposition and excretion of radionuclides.

Ray D. Lloyd, Professor (R) of Radiology and Radiobiology (801-581-6810); [r.lloyd@hsc.utah.edu]; Ph.D. University of Utah 1974; Applications of radioactive tracers, gamma-ray spectrometry, dosimetry-internal emitters, radionuclide toxicity and metabolism, design and application of radiation detectors, environmental radioactivity, radiation effects and

dose response models, decorporation therapy of heavy metals poisoning, local dosimetry in skeleton to detect Pu²³⁹ and other alpha emitters.

Geoffrey Silcox, Associate Professor of Chemical and Fuels Engineering (801-581-7101); [geoff@tempest.che.utah.edu]; Ph.D. University of Utah 1985; Experimental and analytical studies in heat and; mass transport, computational modeling.

Philip J. Smith, Professor of Chemical and Fuels Engineering (801-585-3129); [smith@opus.utah.edu]; Ph.D. Brigham Young University 1979; Transport phenomena, thermodynamics, kinetics, and computational modeling.

Other Faculty

James I. Thompson, Adjunct Professor in Civil and Environmental Engineering and Director of the Radiological Health Department (505-845-8829); [jjthomp@sandia.gov]; Ph.D. Purdue University, 1972; Bionucleonics, environmental chemistry, applied health, health and environmental protection, hazardous chemical and radioactive waste management.

John Hoffman, Adjunct Professor in Civil and Environmental Engineering, Professor of Radiology and Neurology (with tenure) Director of Nuclear Medicine Department of Radiology Director: Molecular Imaging Program Huntsman Cancer Institute, Medical Director: Utah Center for Advanced Imaging Research (UCAIR) Department of Radiology University of Utah School of Medicine

David Tripp, Adjunct Professor in Civil and Environmental Engineering, Clinical Associate Professor – Radiology Department- Utah Center of Advanced Imaging Research (UCAIR), and University of Utah School of Medicine. Teach graduate students in medical imaging Ph.D. program, 2nd and 3rd year Radiology Residents, and research in medical imaging physics and radiation dosimetry. Staff Medical Physicist, Radiology Department, University of Utah Health Sciences Center.. Conduct calibration and testing of diagnostic x-ray equipment in capacity as Qualified Expert for the Utah St. Division of Radiation Control. Also responsible for ACR and FDA accreditation programs in Mammography and MRI. Serve as resource in equipment acquisitions, and teach radiation safety in hospital.

Steven Howe, Adjunct Professor in Civil and Environmental Engineering, Director of Center for Space Nuclear Research, Idaho National Laboratory

Harold McFarland, Adjunct Professor in Civil and Environmental Engineering Deputy Associate Laboratory Director for Nuclear Programs, Idaho National Laboratory and Director, Space Nuclear Systems and Technology Division, Idaho National Laboratory

Valentin F. Khokhryakov, Adjunct Professor of Chemical Engineering;

Sergey Romanov, Adjunct Professor of Chemical Engineering;

Evgenii K. Vasilenko, Adjunct Professor of Chemical Engineering;

UNIVERSITY OF WISCONSIN, MADISON

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| | NE Graduates | | |
|---------|------------------|------------------|------------------|
| | <u>7/03-6/04</u> | <u>7/04-6/05</u> | <u>7/05-6/06</u> |
| B.S. | 8 | 15 | 18 |
| Masters | 12 | 8 | 12 |
| Ph.D. | 2 | 10 | 4 |

Graduate Student Enrollment: 15 Masters/44 Ph.D.
[B.S., M.S., Ph.D.]
ABET Accreditation: B.S.(N.E.)

Michael L. Corradini, Department Chair and Wisconsin Distinguished Professor of Engineering Physics and Mechanical Engineering; (608-263-1648); [corradin@engr.wisc.edu]; Ph.D. Massachusetts Institute of Technology 1978; Two-phase flow and heat transfer, nuclear safety analysis, waste-disposal analysis.

Todd R. Allen, Assistant Professor of Engineering Physics (608-265-4083); [allen@engr.wisc.edu]; Ph.D. University of Michigan 1997; Materials science, radiation damage of materials, corrosion science.

Vicki M. Bier, Professor of Industrial Engineering and Engineering Physics (608-262-2064); [bier@engr.wisc.edu]; Ph.D. Massachusetts Institute of Technology 1983; Deregulation and risk analysis, decision analysis, game theory, operations research.

James P. Blanchard, Professor of Engineering Physics (608-263-0391); [blanchard@engr.wisc.edu]; Ph.D. University of California, Los Angeles 1988; Fission plant life extension, fusion reactor design and mechanics of coatings, composites, microstructures.

Riccardo Bonazza, Associate Professor of Engineering Physics and Mechanical Engineering (608-265-2337); [bonazza@engr.wisc.edu]; Ph.D. California Institute of Technology 1992; Experimental fluid mechanics, shock-wave phenomena and interface interactions, X-ray diagnostics.

James D. Callen, D. W. Kerst Emeritus Professor of Engineering Physics and Professor of Physics (608-262-1370); [callen@engr.wisc.edu]; Ph.D. Massachusetts Institute of Technology 1968; Theory of magnetic confinement and heating of plasmas for controlled thermonuclear fusion.

Robert W. Carpick, Associate Professor of Engineering Physics (608-263-4891); [carpick@engr.wisc.edu]; Ph.D. University of California, Berkeley 1997; Nanotribology and nanomechanics, coupling of optical, electronic and tribo-mechanical responses of novel materials, scanning probe microscopy techniques, atomic structure of surfaces, molecular films, organic materials.

Wendy C. Crone, Associate Professor of Engineering Physics (608-262-8384); [crone@engr.wisc.edu]; Ph.D. University of Minnesota 1998; Experimental mechanics of materials, plasticity, fracture mechanics, shape-memory alloys.

Paul DeLuca, Professor of Medical Physics (608-265-0523); [pmdeluca@facstaff.wisc.edu]; Ph.D. University of Notre Dame, Indiana; Radiation transport in radiation dosimetry research.

Walter J. Drugan, Professor of Engineering Physics (608-262-4572); [drugan@engr.wisc.edu]; Ph.D. Brown University 1982; Non-linear fracture mechanics, advanced materials, plasticity theory, shock waves in solids, continuum mechanics, applied mathematics.

Gilbert A. Emmert, Emeritus Chair and Professor of Engineering Physics (608-262-0764); [emmert@engr.wisc.edu]; Ph.D. Stevens Institute of Technology 1968; Fusion plasma physics, fusion system studies, plasma-surface interactions, plasma-aided manufacturing.

Raymond J. Fonck, Professor of Engineering Physics (608-263-7799); [fonck@engr.wisc.edu]; Ph.D. University of Wisconsin-Madison 1978; Experimental plasma physics, tokamaks, high temperature plasma diagnostics, atomic physics and applied optics.

Chris C. Hegna, Associate Professor of Engineering Physics (608-263-0810); [hegna@cptc.engr.wisc.edu]; Ph.D. Columbia University 1990; Theory of magnetic confinement, hydrodynamic instabilities and heating of plasmas for controlled thermonuclear fusion.

Douglass L. Henderson, Professor of Engineering Physics, Associate Dean of Diversity, College of Engineering; (608-263-0808); [henderson@engr.wisc.edu]; Ph.D. University of Wisconsin-Madison 1987; Computational methods in transport and medical physics, radioactivity inventory analysis, neutron source development.

Noah Hershkowitz, Irving Langmuir Professor of Engineering Physics; (608-263-4970); [hershkowitz@engr.wisc.edu]; Ph.D. Johns Hopkins University 1966; Experimental plasma research on tokamaks and tandem mirrors, RF effects, plasma potential effects, basic plasma physics and plasma-aided manufacturing.

Daniel C. Kammer, Professor of Engineering Physics (608-262-5724); [kammer@engr.wisc.edu]; Ph.D. University of Wisconsin-Madison 1983; Dynamics, stability and control of flexible structures, system identification, nonlinear dynamics.

Gerald L. Kulcinski, Grainger Professor of Engineering Physics, Associate Dean of Research, College of Engineering; (608-263-2308); [kulcinski@engr.wisc.edu]; Ph.D. University of Wisconsin 1965; Nuclear materials, fusion reactors, radiation damage, fusion technology.

Roderic S. Lakes, Wisconsin Distinguished Professor of Engineering Physics (608-265-8697); [lakes@engr.wisc.edu]; Ph.D. Rensselaer Polytechnic Institute 1975; Experimental mechanics, composite materials, biomechanics.

Thomas 'Rock' Mackie, Professor of Medical Physics and Engineering Physics (608-262-7538); [mackie@macc.wisc.edu]; Ph.D. University of Alberta 1984; Radiation therapy, Megavolt computed tomography technologies, X-ray imaging.

David S. Malkus, Emeritus Professor of Engineering Physics (608-262-4515); [malkus@engr.wisc.edu]; Ph.D. Boston University 1976; Finite element methods for fluids, solids and structures, theory of finite element methods, visco-elastic fluids.

Gregory A. Moses, Professor of Engineering Physics (608-263-1600); [moses@engr.wisc.edu]; Ph.D. University of Michigan 1976; Inertial confinement fusion, computational science and engineering.

John M. Pfothauer, Professor of Mechanical Engineering and Engineering Physics (608-263-4082); [pfot@engr.wisc.edu]; Ph.D. University of Oregon 1984; Applied superconductivity, multiphase flow and heat transfer, cryogenics, heat transfer in liquid helium.

Michael Plesha, Professor of Engineering Physics (608-262-5741); [plesha@engr.wisc.edu]; Ph.D. Northwestern University 1982; Finite element and numerical methods, structural dynamics, contact-friction problems.

Leslie Smith, Professor of Mathematics(Chair) and Engineering Physics (608-263-2760); [lsmith@math.wisc.edu]; Ph.D. Massachusetts Institute of Technology, 1989; Computational turbulence.

Carl Sovinec, Assistant Professor of Engineering Physics; (608-263-5525); [sovinec@engr.wisc.edu]; Ph.D. University of Wisconsin 1991; Computational plasma physics, 3D-MHD computational analysis.

Bruce Thomadsen, Associate Professor of Medical Physics and Engineering Physics (608-263-4183); [bthomad@facstaff.wisc.edu]; Ph.D. University of Wisconsin, Madison; Radiation transport applied to brachytherapy.

Ray Vanderby Jr., Affiliate Associate Professor Medical Science and Engineering Physics (608-263-9593); [vanderby@surgery.wisc.edu]; Ph.D. Purdue University 1975; Connective tissue mechanics, orthopedic biomechanics.

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Dennis Whyte, Assistant Professor of Engineering Physics (608-262-4845); [white@engr.wisc.edu]; Ph.D. Universite du Quebec, Montreal; Experimental fusion energy research, plasma spectroscopy, plasma diagnostics and plasma-material.

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