

UNIVERSITY CURRENTS

A Newsletter For and About the University Nuclear Engineering and Science Community

U. S. Department of Energy

Late Summer 1999

Howard University Cooperative Internship Program

On August 9, six Howard University summer interns in the Department of Energy's Office of Nuclear Energy, Science and Technology (NE) presented formal briefings of their summer experience at a ceremony held at the Department's headquarters hosted by William Magwood, Director, Office of Nuclear Energy, Science and Technology. James Lewis, Director, Office of Economic Impact and Diversity was in attendance and spoke of the importance of minority intern programs as well as Department-wide partnerships. Through this intern program the Department provides full scholarships and summer employment allowing the students to gain hands on experience while putting their education to work on various nuclear energy related projects. They also visited the Idaho National Engineering and Environmental Laboratory and nuclear power plants in Virginia and Maryland. The students selected for the internship program have exhibited superior academic performance and have maintained that performance throughout the duration of the grant. Since its establishment in 1995, the intern program has been successful in enabling DOE to be a positive force in



Howard University Cooperative Internship Program Participants with Office of Nuclear Energy, Science and Technology Director, William D. Magwood, IV

promoting science and engineering education for minority students.

Also in attendance were high school students from Baltimore City public schools who have participated in and completed the NE funded Morgan State University Summer Bridge Program. This program, in its second year, offers formal instruction in mathematics and physics as well as communications, computational, and self improvement skills. It

provides these students with the training and courses that assist them in gaining admission to college.

The 1999 Howard University Summer Interns who are graduating in the spring of 2000 are: Efosa Edobor, Jacquie Langworthy, Oluwaseun Olapade-Olaopa, and Lawrence Wilson. Linsey McDaniel and ShaTina Smith are juniors and eligible for another summer internship with the Department.

Matching Grants

The fiscal year 1999 Matching Grants Program has recently been completed with the awarding of 21 grants totaling \$863,200. While twenty-one university proposals is an increase from fiscal year 1998, some universities experienced the loss of one or more of their sponsors and had difficulty identifying new sponsors. In some cases, this impacted the level of funding they received. The good news is that four universities were added to the program: the University of Florida, the University of Maryland, Kansas State University and Georgia Institute of Technology. Several new sponsors were added including: Fisher Controls International, Florida Power & Light, Baltimore Gas & Electric and Southern Company. Our hats are off to all of our co-sponsors. Your contributions help maintain the nuclear engineering education infrastructure in the U.S.

Expert Working Group Meeting

The Office of Nuclear Energy, Science and Technology will be represented by John Gutteridge at the 4th Meeting of the Expert Working Group on the Survey and Analysis of Education in the Nuclear Field in Paris, France on October 18-19. The first two meetings of the Expert Group resulted in an agreed upon survey document that was mailed to the appropriate institutions in each of the 17 countries represented. The third meeting focused upon the writing and the proper presentation of the report. The October meeting will focus on the development of a strategic report for addressing the growing concern among many nations of the impending shortage of nuclear engineers required in the fields of electricity generation, environmental management, medical research etc. The report will be published by the end of the year or in early 2000.

Reactor Operations and Systems Experience Co-op Program Summer 1999

This article is a follow-on to the one in the Spring issue entitled “Reactor Operations and Systems Experience Co-op Program.” In June 1999, the University of Massachusetts Lowell started its Reactor Operations and Systems Experience (ROSE) cooperative education program. The program’s aim is to expose students from other engineering and science disciplines to the field of nuclear engineering. Interested students have the opportunity to continue their training during the Fall semester to pursue a reactor operator’s license, and possibly join the staff of the university’s research reactor.

The program combined classroom work and “hands-on” learning to teach the students a wide variety of topics associated with nuclear engineering. The research reactor’s operator training guide served as the program syllabus. As a result, topics included heat transfer systems, process instrumentation and control, water conditioning systems, electrical power distribution, ventilation (the reactor is inside a closed containment building), radiological safety, and basic nuclear engineering theory at the undergraduate level. A typical day included morning lectures and afternoons spent reinforcing the classroom discussions by system walkthroughs and participation in surveillances and calibrations. These topics were supplemented by periodic discussions of nuclear power in the context of American and international politics, and in terms of the global energy environment.

The inaugural participants included students from a wide variety of backgrounds: mechanical and chemical (nuclear option) engineering, as well as physics and radiological sciences. If student interest serves as a reasonable gauge of program success, then ROSE 99’ has exceeded expectations; all of the students have opted to continue toward their operator’s licenses, and one has amended his course of study at Umass Lowell to include a chemical (nuclear option) minor. Several of the students have expressed interest in participating in the reactor sharing/outreach program, as well. For more information about the program, contact Dr. Gilbert Brown at (978)934-3166 or at gilbert_brown@uml.edu.

National Organization of Test Research and Training Reactors Holds Annual Conference

In spite of hurricane Floyd, the 1999 TRTR conference held at the National Institute of Standards and Technology was a huge success. There were over 250 participants — the largest of any previous TRTR conference. The conference, held September 15 - 17, dedicated one day each to Department of Energy sessions, Nuclear Regulatory Commission sessions, and TRTR technical sessions. The highlights of the conference included the many distinguished speakers providing keynote addresses to the attendees.

The Honorable Ernest J. Moniz, Under Secretary of Energy, provided the keynote address on the day devoted to DOE sessions. William D. Magwood IV, Director, Office of Nuclear Energy, Science and Technology chaired the DOE sessions and provided the opening address for that day. In their addresses, both Under Secretary Moniz and Director Magwood emphasized DOE commitment to maintaining U.S. leadership in nuclear technologies and education. *(continued on page 4)*

Doctoral Research Supported by NEER Grant Receives the Mark Mills Award

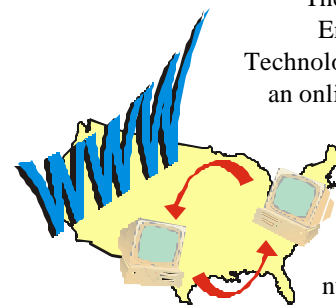


Douglas E. Peplow, a May 1999 Ph.D. graduate in the Department of Nuclear Engineering at North Carolina State University is the winner of this year’s Mark Mills Award of the American Nuclear Society (ANS) for his paper entitled “Differential Sampling Applied to Mammography Image Simulation”. It was co-authored by Kuruvilla Verghese, his dissertation advisor. The Mark Mills Award is presented to “the graduate student author who submits the best original technical paper contributing to the advancement of science and engineering related to the atomic nucleus”, according to the ANS. The award will be presented at the ANS Winter Meeting at Long Beach, CA, in November where Dr. Peplow has been asked to present a summary of the Mark Mills paper. The dissertation research was funded by a two-year NEER grant from the Department of Energy. Dr. Peplow has accepted a staff scientist position in the Nuclear Analysis and Shielding section within the Computational Modeling and Simulation Division at Oak Ridge National Laboratory.

Establishment of the Gamma Research User Facility at the Advanced Test Reactor

The Idaho National Engineering and Environmental Laboratory (INEEL) has established the Gamma Research User Facility (GRUF) at the Advanced Test Reactor (ATR). This initiative provides a national facility for secondary and post-secondary educators/researchers to perform basic experiments to study the effects of gamma radiation on a wide variety of materials and processes. The facility will be available to educators/researchers throughout the United States and could also be used by international groups with U.S. participation. Collaborative partnerships between the GRUF and minority students and supported in part, by the Office of Nuclear Energy, Science and Technology, will be encouraged. Placing the facility in Idaho optimizes the use of existing facilities and infrastructure and keeps costs to a minimum.

Campus Engineering Connection



The Office of Nuclear Energy, Science and Technology soon will have an online message board available for nuclear engineering students. This site will provide nuclear engineering students the opportunity to share information and communicate with others throughout the United States and enable them to contact the Office of Nuclear Energy, Science and Technology.

Radiochemistry Education Award Program

The U.S. Department of Energy's Office of Nuclear Energy, Science and Technology (NE) is pleased to announce that the Radiochemistry Education Award Program has been implemented with three awards for FY 1999. This program, is designed to enhance radiochemistry education in the United States. The universities and academic departments receiving awards include Washington State University, Chemistry Department; University of Missouri, Departments of Chemistry and Nuclear Engineering; and Clemson University, Environmental Systems Engineering. These awards are for a three-year period not to exceed \$100,000 per year and will support the education infrastructure in the development and maintenance of radiochemistry educational programs.

Over the past decade there has been an increasing demand throughout the U.S. Department of Energy (DOE) laboratories and facilities for individuals educated and trained in nuclear and radiochemistry. During the same time period, the universities, which have historically supported DOE research and development activities in radiochemistry have been in decline regarding the number of academic programs committed to the discipline of radiochemistry. As a consequence, the numbers of faculty members and students involved in the study of radiochemistry have shown significant decreases. Currently, there is a serious shortage of radiochemists, who are U.S. citizens and available for employment at DOE facilities.

Radiochemistry remains linked to several national priorities. The importance of radiochemistry in medicine, energy and national defense will remain with us for many years. In medicine, radiochemists are needed in the production and use of radioisotopes, neutron capture therapy, positron emission therapy, as well as many other aspects of nuclear medicine. In energy-related occupations, radiochemists are needed in the maintenance and support of current and next generation reactors, space reactor programs, and in spent nuclear fuel processing. In national nuclear defense programs, radiochemists are involved in materials deposition, stockpile stewardship, nuclear waste management, and in the new fuel conversion programs.

The awards will be used to support faculty salaries, postdoctoral students, graduate students, laboratory and equipment improvements, coursework and other academic program enhancements in working with DOE facilities in radiochemical areas.

For more information about this program, please contact John Gutteridge, (301) 903-1632 John.Gutteridge@hq.doe.gov or Craig Williamson, South Carolina Universities Research and Education Foundation at (864) 656-0954.



Whiz Kid Quiz

The Office of Nuclear Energy, Science and Technology soon will be offering an internet game called the Whiz Kid Quiz. The quiz will be comprised of 10 multiple choice questions on nuclear topics and offered every two weeks on the NE Home Page, www.ne.doe.gov. The quiz is open to students in grades 5 through 12. The quiz will be "graded" by computer and the first student to answer all 10 questions correctly will receive a plaque as will the school he/she attends. Their name also will be displayed on the Whiz Quiz Winners Page. To participate students will register with their e-mail address. Students will be notified about their test results by e-mail, and may take each quiz only once. Once begun, the Whiz Quiz will be offered during the ten months of the typical school year.



University of Michigan Celebrates the 50th Anniversary of the Phoenix Project and the Ford Nuclear Reactor

In commemoration of the 50th anniversary of the Michigan Memorial Phoenix Project (MMPP), a symposium will be held at the University of Michigan (UM) October 21-22, 1999. The Phoenix Project, which operates the 2.0-MW Ford Nuclear Reactor (FNR), was established as a World War II memorial in 1948 and the FNR achieved initial criticality in 1957. In recognition of broad scientific and technical contributions of the MMPP and FNR, the symposium will feature more than 30 presentations centered around four basic themes: (1) historical perspectives on the MMPP and FNR, (2) utilization of research and test reactors, (3) nuclear power technology, and (4) applications of nuclear science and technology. Alumni, friends, and current users of the FNR and associated facilities are expected to attend the symposium. In addition, the symposium is expected to attract a large number of graduate and undergraduate students as well as faculty members from a broad spectrum of academic disciplines at the Ann Arbor campus.

The symposium will naturally include a number of presentations on MMPP/FNR specific research programs, but the majority of the program will emphasize future directions in applications of nuclear techniques and radiation science in industry and medicine as well as in energy production. The symposium will feature presentations by leaders in industry, national laboratories, and academia, within and outside the UM, in diverse fields of nuclear science and related technology. Those interested in attending the symposium should contact Program Committee Chair, Jacob I. Trombka [(301) 286-5941, u1jit@lepvox.gsfc.nasa.gov] or MMPP Director, John C. Lee [(734) 764-6215, jcl@umich.edu]. The symposium program and other related information may be accessed at www.umich.edu/~mmpp.

Nuclear Energy/Health Physics Fellows/Scholars

The U.S. Department of Energy's, Office of Nuclear Energy, Science and Technology is announcing the graduate fellowships and undergraduate scholarships in nuclear engineering and health physics for the 2000 - 2001 academic year. Application materials for the program will be sent to all currently participants and over 500 colleges and universities throughout the United States in September.

The graduate fellowship program has been a part of DOE's university activities since 1982. Many of its graduates are currently employed at DOE facilities throughout the United States. This year the eligibility criteria for fellowship awards has been changed to include any graduate student, who has at least one year of graduate work remaining at the time the appointment begins. In addition, the stipend has been increased from \$1,200 to \$1,400 per month. The fellowship appointees for the 1999 - 2000 academic year include the following:

William Bird, University of Tennessee
James Brown, Penn State University
Chris Culbertson, Purdue University
Jeffrey Densmore, University of Michigan
Bradley Eccleston, Oregon State
Daniel Evans, University of Tennessee
Eduardo Farfan, University of Florida
Michael Folkert, Massachusetts Institute of Technology
Marc Garland, University of Maryland
Holly Gersch, University of Michigan
Greg Gibbons, Idaho State University
Reza Gouw, University of Florida

Carol Lehner, University of Michigan
Heather MacLean, Massachusetts Institute of Technology
Brian Miller, University of New Mexico
Scott Mosher, Georgia Institute of Technology
Jennifer Parsons, University of Tennessee
William Prucka, University of Michigan
Todd Smith, Purdue University
Rebecca Steinman, University of Michigan
Andrew Tate, University of Illinois
Benjamin Wilson, Purdue University

Department of Energy's Utility Matching Grant & Reactor Sharing Programs

The Department of Energy's Utility Matching Grant & Reactor Sharing Programs are administered within the Office of Nuclear Energy, Science and Technology. Matching grants are available to universities with nuclear engineering departments while universities with research reactors can participate in the reactor sharing program. Each fall solicitation letters are sent to all university nuclear engineering departments announcing the request for renewals and first time applicants. Universities are then given 45 days to submit their application. Once received, the proposals are reviewed by a 3 person panel followed by final award recommendations to management. Final awards are processed through the Department's Chicago and Oakland Operations Offices procurement organizations.

Important Dates To Remember



November 14-18 1999

ANS Winter Meeting
Long Beach, CA

November 18, 1999

NEER Proposals Due

December 8, 1999

University Research
Instrumentation (URI)
Proposals Due

Nuclear Engineering Education Research

The Department of Energy's NEER program provides funding to U.S. universities' nuclear engineering departments for the conduct of innovative research in eight specific areas. The NEER program solicitation for FY 2000 was posted on the Internet on September 16, 1999 with a due date for proposals of November 18, 1999. Details concerning the solicitation and guidelines can be found at <http://www.id.doe.gov/doiid/PSD/proc-div.html> under Current Solicitations. The Federal Register Notice was posted September 20, 1999. The Federal Register Notice is located at <http://www.access.gpo.gov/sudocs/aces/aces140.html>.



FOR ADDITIONAL INFORMATION PLEASE CONTACT:

John Gutteridge, U. S. Dept. of Energy, NE-20
 19901 Germantown Road, Germantown, MD 20874
 e-mail: john.gutteridge@hq.doe.gov

University Reactor Instrumentation (URI)

In it's third year, the URI program enhances the performance, control and operational capabilities of university research reactors, as well as expanding the research and training capabilities of the reactor. The URI solicitation for FY 2000 will be posted on the Internet by October 12, 1999 with a due date for proposals of December 8, 1999. Details concerning the solicitation and guidelines can be found at <http://www.id.doe.gov/doiid/PSD/proc-div.html> under Current Solicitations.

The Federal Register Notice will also be posted by October 12, 1999. The Federal Register Notice is located at <http://www.access.gpo.gov/sudocs/aces/aces140.html>.

TRTR Conference continued

The Honorable Greta Joy Dicus, USNRC Chairman, provided the opening address for conference. Dr. Dicus presented the ongoing efforts and changes associated with the regulation of non-power reactors. The transcript of the address may be found at the NRC website: <http://www.nrc.gov/OPA/gmo/nrarcv/s99-27.htm>. The Honorable Nilz J. Diaz, USNRC Commissioner, provided the keynote address at an evening banquet held on the Potomac. Dr. Diaz addressed the changes affecting nuclear industry regulation which also affect non-power reactors.

Many thanks go to all the speakers and to outgoing TRTR Chairman Tawfik Raby, Deputy Director NIST Center for Neutron Research, for a successful conference.

The next TRTR conference will be held in October 2000 at North Carolina State University. Pedro B. Perez, Associate Director, NSCU Nuclear Science Center, is the new TRTR Chairman.