

FY 2016 Fellowship Grant Program

Institution	Amount	Title
Jackson State University	\$400,000	Training of a diverse radiochemistry professionals at Jackson State University
Colorado State University	\$400,000	Colorado State University Environmental Radiochemistry Fellowship Program
Idaho State University	\$347,943	Idaho State University Nuclear Education Fellowship Program
University of Idaho	\$399,000	Graduate Fellowships in Nuclear Engineering at the University of Idaho
Virginia Polytechnic Institute and State University	\$400,000	Nuclear Engineering Fellowship at Virginia Tech
Rensselaer Polytechnic Institute	\$400,000	Nuclear Engineering Fellowship Program at Rensselaer
University of California - Berkeley	\$400,000	Training the Next Generation of Nuclear Engineers: Graduate Fellowships at the University of California, Berkeley
University of Nevada Reno	\$399,762	The University of Nevada, Reno Fellowship Program in Materials and Thermal Science for Nuclear Energy
Louisiana State University and A&M College	\$400,000	LSU Fellowships Program in Nuclear Science and Engineering
North Carolina State University	\$400,000	North Carolina State University's Graduate Fellowship In Nuclear Engineering (NCSU-GFINE)
Texas A&M University Engineering Experiment Station	\$398,310	Texas Nuclear Engineering Graduate Fellowship Program
University of Florida	\$339,149	2016 Graduate Fellowship Program at the University of Florida
University of Virginia	\$400,000	Jump Start in Nuclear Materials Education and Research Fellowship Program at the University of Virginia
Florida International University	\$399,914	FIU Nuclear Fellowship Program: Supporting the new FIU Radiochemistry Ph.D. track
University of Wisconsin Madison	\$307,135	University of Wisconsin-Madison Graduate Fellowship Program in Nuclear Engineering

Training of a diverse radiochemistry professionals at Jackson State University

Executive Summary:

With the concern for global warming caused by increased greenhouse gas emission mostly from fuel energy production, nuclear energy has become increasingly important to meet the needs for sustainable energy supply and at the same time, to mitigate greenhouse effects. Thus, an eminent need has emerged for the nation to train and educate the next generation radiochemists. There has been a significant decrease in teaching of radiochemistry globally in the past decades. Jackson State University (JSU), one of the nation's 115 Historically Black Colleges and Universities (HBCU) with a Carnegie classification of "Research University with High Research Activities" who has established a radiochemistry program, is ideally positioned to fill this gap. This project proposes a 4-year fellowship/scholarship program to enhance the newly established first-of-its-kind radiochemistry and nuclear waste safety science program to train and educate the next generation radiochemists and nuclear waste safety specialists, especially underrepresented African American undergraduate and graduate students. We develop the novel team approach: Faculty-Graduate- Undergraduate Student in a small group for maximal engagement and mutual training of both graduate and undergraduate students in radiochemistry at JSU. Undergraduate students will work closely in pair with graduate students in both course study and research project, while graduate students with the faculty member. These fellowship/scholarship students will be recruited from the pool of students from both the chemistry and environmental science programs and relevant STEM at JSU. They will take at least three formal courses in radiochemistry and nuclear waste science, attend career workshops on nuclear chemistry and summer internships at Department of Energy Pacific Northwest National Laboratory and carry out research directly related to radiochemistry. This project will also strengthen programs in the Department of Chemistry and Biochemistry and the interdisciplinary Environmental Science Ph.D. program

Principal Investigator: Fengxiang Han, Fengxiang.han@jsu.edu

Colorado State University Environmental Radiochemistry Fellowship Program

Executive Summary:

The objective of the Colorado State University Environmental Radiochemistry Fellowship program is to support four students over four years through their education and training in the MS or PhD program in Environmental Radiochemistry. The Nuclear Regulatory Commission (NRC) will benefit from this program through the creation of a pool of environmental radiochemists that are comprehensively educated in environmental analysis, environmental remediation, accident preparedness and response, radioanalytical techniques and instrumentation for hiring into the NRC, as well as national laboratories and industry. Graduates employed in industry will help to ease the regulatory burden by virtue of their understanding of nuclear sciences, especially radiochemistry, and the underpinnings of the regulations promulgated by the NRC.

Principal Investigator: Thomas E. Johnson, Thomas.E.Johnson@colostate.edu

Idaho State University Nuclear Education Fellowship Program

Executive Summary:

Idaho State University (ISU) is requesting grant funding for two, single year graduate fellowships given over the four-year award period. The awards are designed to go to Master's (M.S.) and Doctoral (Ph.D.) degree students, and will be distributed between students in the Department of Nuclear Engineering and Health Physics.

The ISU Nuclear Engineering Program and Health Physics Program are well suited to successfully recruit, select and mentor students that will receive NRC fellowships because of the close ties to the INL and the participation in the Center for Advanced Energy Studies (CAES). Through the development of a Fellowship Program, a selection and management committee will assure that only the most qualified students will receive a fellowship award. The committee will also track the progress of the fellows both in school and after. The ISU administration and the state of Idaho are committed to effectively support nuclear science and engineering education in the state of Idaho. This has been evidenced by recent state funding to CAES to supplement faculty at the three universities. Specifically at ISU, five new faculty positions were created and two were hired in 2015 in the department. The search continues for filling the other three positions. A strong partnership with Idaho National Laboratory (INL) has resulted in the development of programs specifically designed to educate students to serve in the nuclear energy profession. Ultimately, ISU believes that this program will help develop successful graduates that will become an integral part of the nuclear workforce.

Principal Investigator: Mary Lou Dunzik-Gougar, mldg@isu.edu

Graduate Fellowships in Nuclear Engineering at the University of Idaho

Executive Summary:

This proposal outlines a program to award six (6) MS level fellowships to students eligible for studies at the University of Idaho (UI) in one of the following programs: Nuclear Engineering, Mechanical Engineering, Materials Science, Chemical Engineering or Computer Science. Two Fellows will be named in year one, year two and year three of the 4 year program. During the summer between their first and second years, these NRC fellows will receive INL internships (see letter of support from INL). At INL's discretion, recipients may receive an additional internship before their first year at UI. Fellowship awardees will have out of state tuition waived and in state tuition and fees will be split equally by the University of Idaho and NRC. Each recipient will receive funding for a maximum of two years. In addition to traditional Nuclear Engineering coursework, fellows will take two additional courses which form the foundation of UI's Technology Management Master's Degree, giving them training and experience in leadership. Fellowship recipients will choose a research topic related to nuclear engineering and work with a faculty member in the Nuclear Engineering Program of UI.

Principal Investigator: Richard N Christensen, rchristensen@uidaho.edu

Nuclear Engineering Fellowship at Virginia Tech

Executive Summary:

The objective of this proposal is to offer graduate fellowships to students who are enrolled in the Virginia Tech (VT) Nuclear Engineering Program (NEP), and are pursuing graduate education in Nuclear Engineering with focus areas of nuclear power, nuclear security, nonproliferation and safeguards. The Principle Investigator will be responsible for planning, directing and executing of this proposal.

This fellowship program will enable VT-NEP to recruit and train highly qualified nuclear engineers and scientists. These graduates will support the United States' nuclear industry and government and, more specifically, the State of Virginia's nuclear power industry and its various government agencies.

It is expected that this fellowship program will support two fellows per year over four years, one at the Blacksburg campus and one at the Northern Virginia campus.

Principal Investigator: Alireza Haghighat, haghighat@vt.edu

Nuclear Engineering Fellowship Program at Rensselaer

Executive Summary:

The project will offer fellowship support for graduate students to pursue education and careers in the nuclear engineering field. Students who are awarded Fellowship will receive a full tuition waiver and a competitive graduate student stipend per calendar year. Up to two fellowships shall be awarded per year, over four years. The project is intended to develop and maintain the nuclear workforce by promoting two important goals. First, by supporting new graduate students, the fellowship will encourage advanced training and experience for those entering the nuclear field. Second, the fellowship opportunities will increase the interest in nuclear engineering graduate study, leading to a greater number and diversity of those being trained in nuclear energy and technology.

Principal Investigators: Wei Ji, Associate Professor, jiw2@rpi.edu

Training the Next Generation of Nuclear Engineers: Graduate Fellowships at the University of California, Berkeley

Executive Summary:

The Department of Nuclear Engineering at the University of California, Berkeley (UCB) offers one of the best Graduate Program in the Nation and worldwide. Students graduating from our program are highly sought out by industry, national laboratories, and academia. The number of highly qualified students that apply to join our program is steadily increasing. However, due to limited funding, we have not been able to admit as many of the qualified applicants as we would like. The proposed fellowship program will award two 3-year graduate fellowships for Ph.D. students and two 1-year graduate fellowships for M.S. students to support a total of four students, and will be leveraged to create a long-term sustainable strategy for growing our Graduate Program. Utilizing the existing opportunities and systems readily available in the College of Engineering and the Nuclear Engineering Department at UCB, we will establish an effective system for recruitment, selection, monitoring/mentoring, and feedback. The Principal Investigator and co-PIs will serve as mentors for the graduate students, in addition to the research advisor(s) to provide additional support to the selected students and facilitate their success.

Principal Investigator: Peter Hosemann, peterh@berkeley.edu

The University of Nevada, Reno Fellowship Program in Materials and Thermal Science for Nuclear Energy

Executive Summary:

Faculty members at the University of Nevada, Reno (UNR) have conducted externally-funded research on the performance and reliability of materials in advanced nuclear power applications and the safety of packaging used for transfer, storage and transport of nuclear materials for over 20 years. This work has been funded by the NRC, DOE, NEUP, National Laboratories, the State of Nevada and industry. The proposed grant will continue a Fellowship Program in Materials and Thermal Science for Nuclear Energy that supports outstanding students to earn graduate degrees at UNR. The aim is to increase the number and quality of students earning MS and Ph.D. degrees at UNR who are able to support the design, construction, operation, and regulation of nuclear facilities, and the safe handling of nuclear materials. Fellows will be encouraged to spend one summer at the NRC, a National Laboratory, or an industrial nuclear facility in order to gain work experience and develop professional contacts that will help them find an appropriate nuclear related professional placement after graduation.

Principal Investigator: Dev Chidambaram, dcc@unr.edu

LSU Fellowships Program in Nuclear Science and Engineering

Executive Summary:

The proposed Graduate Fellowships Grant in Nuclear Science and Engineering at Louisiana State University (LSU) will be utilized to attract highly qualified and motivated graduate students that will be specifically prepared through their studies and research for careers within the nuclear industry to support the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials. Existing nuclear science and engineering courses and dual-level courses developed under a NRC curriculum development grant which established a Nuclear Power Engineering (NPE) Minor in Mechanical Engineering will be leveraged for the professional preparation of the graduate fellows. Two new tenure-track faculty members (Gartia, Lu) have been hired through a current NRC Faculty Development grant to sustain the NPE program and to develop research in nuclear science and engineering. The proposed fellowship program will enable faculty members in nuclear science and engineering at LSU to recruit high quality graduate students, which is very important for the development of a strong research and education nuclear program at LSU, for the development of their careers, and ultimately for the training of next generation nuclear energy workforce. The graduate fellows will be given the opportunities to do experimental and computational research in areas such as nuclear thermal-hydraulics, nuclear waste management, and nuclear materials. The required facilities equipped with high-performance computational and experimental tools are available to successfully complete relevant projects at LSU. The graduate fellows will also be able to participate in collaborative projects at the national and international level, through faculty collaborations, contacts and partnerships with national labs (e.g. Argonne National Lab), and will acquire skills necessary for careers in the nuclear power and related industries. The two important objectives of this proposal are: (1) to produce engineers with advanced training in nuclear science and engineering to augment the nuclear workforce; (2) to arouse interest in nuclear engineering graduate study among greater number of students at LSU leading to a larger pool of trained personnel for the sector. The graduate fellows will also have opportunities for industry internships through regional industry partners such as Entergy, who has supported the development of the NPE program, and who is still actively engaged in it, as well as new industry partners such as ILD Inc. and Zachary Nuclear Engineering, Inc. A collaboration with Southern University in Baton Rouge (largest HBCU in LA) will make these fellowship opportunities available to minority students and contribute to the diversity of the nuclear field and profession. The proposed program is directly aligned with LSU's strategic areas of Energy and Materials, also emphasis areas in the College of Engineering and MIE Department.

Principal Investigator: Manas Ranjan Gartia, mgartia@lsu.edu

North Carolina State University's Graduate Fellowship In Nuclear Engineering (NCSU-GFINE)

Executive Summary:

The primary objective of NCSU-GFINE is to enhance the ability of NCSU's Department of Nuclear Engineering to recruit and retain outstanding individuals and to provide incentive to the sponsored graduate students to maintain high academic performance. In addition, the selection formula will promote minorities, women, and persons with disabilities in order to further promote diversity in the department's graduate student population. Ultimately, the collective effort by US educational institutions to raise the admission standards and to diversify their graduate student populations, as proposed here for NCSU, will translate into a highly competent and diverse cadre of leaders for the nuclear engineering endeavor at large. The benefit to the nation from NCSU-GFINE is that it will contribute to the production of a highly competitive group of advanced-degree nuclear engineers capable of assuming leadership positions in their area of specialization within the field of nuclear engineering. The diverse profile of NCSU-GFINE fellows will be reflective of the US's population and supportive of the nation's goals of achieving social justice and economic equity for underprivileged groups. The developed in this way workforce will be best positioned to lead the nation's charge to reinvigorate its nuclear industry, and will shepherd the design, construction, operation, and regulation of new and innovative nuclear facilities, while maintaining the safety and security of processes for the handling of requisite nuclear materials. The commitment by NCSU's Department of Nuclear Engineering and College of Engineering to the success of NCSU-GFINE is evidenced by a cost-sharing contribution.

Principal Investigator: K. Linga (KL) Murty, murty@ncsu.edu

Texas Nuclear Engineering Graduate Fellowship Program

Executive Summary:

The Department of Nuclear Engineering at Texas A&M University (TAMU) proposes to establish eight Texas A&M Nuclear Engineering Graduate Fellowships, 2 fellows per year for four year. This program will provide two fellowships per year for students pursuing Ph.D. or M.S. degrees in Nuclear Engineering within the Department of Nuclear Engineering at TAMU. The fellowships will cover tuition, fees, stipends, and some small amount for textbook supplies. The fellowship program has an integrated structure that promotes the fellowship recipients' academic and professional success from recruitment to employment in the nuclear sector. The following components will be combined into an efficient and effective program: (1) Recruiting program, (2) Fellowship recipient selection process, (3) Retention program, and (4) Employment program.

The program will continue to attract top-ranked graduate applicants to our department, while promoting participation of minorities, and will foster student creativity and allow for student initiated research.

Principal Investigator: Jean C. Ragusa, jean.ragusa@tamu.edu

2016 Graduate Fellowship Program at the University of Florida

Executive Summary:

The objective of the 2016 University of Florida Nuclear Engineering Graduate Fellowship Program is to produce high quality engineers and scientists who benefit various sectors of the nuclear industry. The goal of this proposal is to augment the current University of Florida Nuclear Engineering Graduate Fellowship Program within the Nuclear Engineering Program (NEP) at the University of Florida (UF) for students pursuing a graduate education in Nuclear Engineering with two new 4-year fellowships.

The Principal Investigator will coordinate different functions, including advertisement, recruitment, review of fellowship proposals, and selection of recipients. The selection process will be conducted using a set of parameters with appropriate weighting for consistency and transparency, and use a committee to select the fellowship recipients. The Committee will meet annually to select (or renew) fellows from the pool of new fellowship applicants and existing recipients. The Committee, with assistance from each student's Ph.D. advisor, will monitor the educational program of each fellow, and prepare and submit an annual report to the NRC Project Manager electronically.

Principal Investigator: James E. Baciak, jebaciak@mse.ufl.edu

Jump Start in Nuclear Materials Education and Research Fellowship Program at the University of Virginia

Executive Summary:

This fellowship program more financially attractive to the students, commensurate with the honor of receiving it and the requirement to “pay it back” by working in the nuclear sector for 6 months per year of fellowship received. Additionally, we insure that all tuition expenses incurred by the student fellows are paid on their behalf. The fundamental goals of the fellowship program are to increase the number of talented, domestic graduate students pursuing research in nuclear materials-related fields of study and thereby improve the quantity and quality of such research performed at the University of Virginia. The students will work in areas of nuclear research already established at the university (see full project description) or in areas which faculty are seeking to develop new funded nuclear research projects. The potential to leverage existing funding or to aid in the development of new funding in the area of nuclear materials research will benefit the university and faculty participants. Such newly funded research projects would provide high level scientific challenges for MS/PhD students in a critical technology area, with strong implications for national security and energy independence. In parallel with the focused research, the faculty participants are concurrently developing a nuclear materials “minor” curriculum. This curriculum will benefit students involved in this fellowship program while serving as a demonstration of our commitment to both research and education in the area of nuclear materials at both the undergraduate and graduate levels. Finally, through this program the university is deepening their engagement with the Virginia Nuclear Energy Consortium (VNEC), comprised of local nuclear industry and other universities, which has a common goal of developing the nuclear energy workforce in Virginia.

Principal Investigator: Sean Agnew, agnew@virginia.edu

FIU Nuclear Fellowship Program: Supporting the new FIU Radiochemistry Ph.D. track

Executive Summary:

Objective: Expand the FIU Nuclear Fellowship (FNF) Program by supporting 3 additional PhD students for our PhD Radiochemistry Track, which has been launched in Fall 2015. These radiochemistry Ph.D. graduates will support the nuclear industry, national labs and academia. This grant will complement FIU's current NRC grants for FIU Nuclear Research Fellowships, Scholarships, and Faculty Development. A total of 10 fellowships annually will be funded on this grant for 4 years.

Benefits: FIU's nuclear program has expanded with extensive research and infrastructure support from Dept. of Energy Office of Environmental Management, DOE National Labs, and Industry. FIU's Nuclear Scholars and Fellows programs have increased our students' interest in nuclear & radiochemistry careers. The number of awarded Nuclear Scholars and Fellows has grown to 21, and 6 respectively, with increasing demand. Efforts to provide career opportunities for Ph.D students in this program will expand beyond NRC and DOE (labs, feds, & contractors) to include several nuclear companies. Nuclear Fellows will receive mentoring and fellowship support of \$25,417/yr for Ph.D. plus a tuition waiver (entirely cost-shared by FIU). Students will be recruited internally (e.g., through FIU's Nuclear Scholarship Program) and externally through FIU's recruiting efforts from targeted undergraduate institutions with strong bachelor's programs, in our partnership with our NSF-REU Program. FIU's 55,000 students are 61% Hispanic; 15% white/non-Hispanic; 13% Black; 4% Asian; and 7% other minorities. The fellows' research and careers will support and benefit the nuclear sector in Miami-Dade County and in South Florida.

Principal Investigator: Konstantinos Kavallieratos, kavallie@fiu.edu

University of Wisconsin-Madison Graduate Fellowship Program in Nuclear Engineering

Executive Summary:

The Nuclear Engineering and Engineering Physics Program (NEEP) in the Engineering Physics (EP) Department at the University of Wisconsin-Madison (UW-Madison) requests support for two fellowships for its Graduate Fellowship Program in Nuclear Engineering (NE), in support of outstanding doctoral students interested in nuclear power systems engineering and a career and employment in nuclear power related fields. Recipients will serve six months for each year of academic support. Employment may be with the U.S. Nuclear Regulatory Commission, other Federal agencies, State agencies, Department of Energy laboratories, nuclear-related industry, or academia in their sponsored fields of study. The fellowship program has and will continue to recruit and enroll top-notch, diverse students from all engineering disciplines, and award two doctoral fellowships to obtain a Ph.D. degree in Nuclear Engineering and Engineering Physics. The recruitment, selection and program administration of the students and the assessment of their progress will use proven techniques from the EP department and the GERS program. The expected time duration to obtain a Ph.D. degree will be about 48 months. Depending on the students' background, the NEEP and GERS programs will supplement the fellowships if additional time is required for degree completion. Evaluation of program success will be accomplished in two ways. First, Prof. Henderson, the EP department chair, will utilize EP faculty to provide an ongoing review of each student's progress toward their degree, and second, the program will be reviewed by GERS program faculty annually as part of the UW-Madison Graduate School requirements for program quality and outcome assessment. The program will recruit students into the NE program from majority institutions and from our traditional minority serving institutional partners through the GERS program and the South Carolina State University program articulation agreement.

Principal Investigator: Douglass Henderson, dlhender@wisc.edu