

## Fellowship Grant Awards

Institution	Amount	Title
University of Illinois	\$400,000	University of Illinois at Urbana-Champaign Nuclear Engineering Education Fellowship Program
Idaho State University	\$398,050	Idaho State University Nuclear Education Fellowship Program
University of Idaho	\$399,332	Graduate Fellowships in Nuclear Engineering at the University of Idaho
University of Massachusetts - Lowell	\$400,000	Fellowship in Nuclear Engineering and Health Physics at the University of Massachusetts Lowell
Oregon State University	\$400,000	Oregon State University Nuclear Science and Engineering Fellowship Program
Colorado State University	\$400,000	Colorado State University Health Physics Fellowship Program
University of South Carolina	\$400,000	University of South Carolina Next Generation Nuclear Engineering Fellowship Program
Kansas State University	\$400,000	Kansas State University (KSU) Nuclear Engineering Fellowship Program (NEFP)
Florida International University	\$399,389	FIU Nuclear Fellowship Program: Expanding the Radiochemistry Ph.D. Track
Purdue University	\$398,092	Graduate Fellowship Program in Nuclear Materials at Purdue
University of Florida	\$395,277	2020 NRC Graduate Fellowship Program at the University of Florida

## **University of Illinois at Urbana-Champaign Nuclear Engineering Education Fellowship Program**

### **Executive Summary:**

The objectives of this program are to attract and educate top US graduate students in nuclear engineering. This will be accomplished with the financial resources from the NRC and the academic and administrative resources from the Department of Nuclear, Plasma, and Radiological Engineering (NPRE) at the University of Illinois at Urbana-Champaign. This program will ensure that the best and brightest students are well prepared to join the nuclear workforce following a very strong, competitive graduate education in nuclear engineering. The NRC Fellowship resources will be used to attract, mentor and support at least three (3) graduate students each year for the four year duration of the award.

**Principal Investigator:** Rizwan Uddin, [rizwan@illinois.edu](mailto:rizwan@illinois.edu)

## **Idaho State University Nuclear Education Fellowship Program**

### **Executive Summary:**

The objective of the Idaho State University (ISU) Nuclear Education Fellowship Program is to provide financial support and professional development opportunities to graduate students in nuclear engineering and health physics. ISU is requesting from NRC funds for at least two, single-year graduate fellowships given over the four-year award period. The awards are designed to go to Master's (M.S.) and/or Doctoral (Ph.D.) degree students, and will be distributed among students in the nuclear engineering and health physics programs. Professional development opportunities may include technical tours, participation in professional technical conferences and publication in technical, peer reviewed journals. In addition to the obvious financial benefits experienced by the fellows themselves, this fellowship program will benefit the broad nuclear industry by contributing to the education and development of successful graduates who enter the nuclear work force. Previous NRC fellowship awards to Idaho State have been successfully administered and have played a significant role in attracting and retaining students in nuclear science and engineering at the graduate level.

**Principal Investigator:** Mary Lou Dunzik-Gougar, [mldg@isu.edu](mailto:mldg@isu.edu)

## **Graduate Fellowships in Nuclear Engineering at the University of Idaho**

### **Executive Summary:**

University of Idaho offers a graduate program in nuclear engineering (NE) leading to Masters (thesis-based Master of Science and non-thesis Master of Engineering) and Doctoral degrees. The NE program is the cornerstone of the mission of University of Idaho in Idaho Falls (UIIF) which administers advanced education and research programs addressing the energy needs of the State of Idaho and the Nation in partnership with Idaho National Laboratory (INL), industry and other universities. This fellowship program will award five MS-level fellowships to students for studies at the University of Idaho (UI) in one of the following programs: Nuclear Engineering, Mechanical Engineering, or Chemical Engineering. Anyone offered an NRC Fellowship, regardless of major, takes the NE Core of courses, which makes them knowledgeable about all aspects of Nuclear Engineering. Two Fellows will be named in year one, one in year two and two in year three of the 4-year program. The UI Nuclear Engineering Program Director will work with, and through, the Oversight Committee to conduct the program.

**Principal Investigator:** Richard N Christensen, [rchristensen@uidaho.edu](mailto:rchristensen@uidaho.edu)

## **Fellowship in Nuclear Engineering and Health Physics at the University of Massachusetts Lowell**

### **Executive Summary:**

The University of Massachusetts Lowell (UML) Graduate Fellowship Program in Nuclear Engineering (NE) and Radiation Science (RS) will be used to strength and grow the graduate programs by attracting students with career goals specific to the nuclear industry. Support from this application will allow UML to continue its successful Graduate Fellowship Program, originally funded by the NRC in 2010. The student applications and enrollments in the graduate programs have grown sustainably to increase to about 30 students in the program. NRC fellowship has funded about half of all the students who graduated from UML in last 10 years. The primary target audience for fellowship consideration will continue to be prospective and entering graduate students in the College of Engineering and in the Sciences Division of the College of Arts and Sciences. The programs of study in these two colleges that are eligible for fellowships are the Nuclear Engineering Program and the Radiological Sciences Program. The nuclear programs have grown substantially in the past decade: (1) hired new faculty - 7 in engineering and 4 in physics; (2) redesigned the curriculum and (3) upgrade our nuclear research facilities – advance computing lab, detector lab, process control lab. Addition of new faculty and facilities coupled with NRC fellowship has enabled a 47% growth in the graduate enrollments. The NRC fellowship recipient will have an opportunity to work on research projects with established and new faculty members in the areas of nuclear reactor safety, radiation dosimetry, radiation detection, radiation shielding, radiochemistry, nuclear security and safeguards, reactor physics and radiation protection.

**Principal Investigator:** Sukesh Aghara, [Sukesh.Aghara@uml.edu](mailto:Sukesh.Aghara@uml.edu)

## **Oregon State University Nuclear Science and Engineering Fellowship Program**

### **Executive Summary:**

The School of Nuclear Science and Engineering (NSE) at Oregon State University (OSU) is submitting this proposal to request NRC funding to assist in the administration of fellowship awards to attract and retain highly qualified graduate students within the disciplines surrounding nuclear science and engineering. The program will be administered by an Assistant Professor of nuclear engineering in NSE. The program will provide eight graduate students with tuition assistance and monthly stipends for a twelve-month period during their pursuit of a graduate degree in a nuclear related discipline (nuclear engineering or radiation health physics). The program will focus on recruiting highly deserving students into the department and will incorporate metrics to track student performance and evaluate program effectiveness. The tenured and tenure-track faculty, as a part of the annual admission process, will jointly select recipients of the OSU NSE Fellowship. The total requested funds from the Nuclear Regulatory Commission for the implementation of the Oregon State University Fellowship Program is \$400,000 over a four-year period.

**Principal Investigator:** Samuel Briggs, [samuel.briggs@oregonstate.edu](mailto:samuel.briggs@oregonstate.edu)

## **Colorado State University Health Physics Fellowship Program**

### **Executive Summary:**

The objective of the Colorado State University Health Physics Fellowship program is to support a total of four students over four years through their graduate program in health physics. The benefit to the NRC will be the availability of a pool of health physicists that are comprehensively educated in radiation safety for hiring into the NRC and nuclear industry. Should the graduates be employed in industry, they would help to ease the regulatory burden by virtue of their understanding of health physics and the underpinnings of the regulations promulgated by the NRC.

**Principal Investigator:** Thomas E. Johnson, [tj@colostate.edu](mailto:tj@colostate.edu)

## **University of South Carolina Next Generation Nuclear Engineering Fellowship Program**

### **Executive Summary:**

A fellowship program for two concurrent graduate students pursuing degrees in nuclear engineering (NE) at the MS or PhD level is proposed. Individual awards would cover a monthly stipend along with insurance, tuition, fees, and travel support. Partial support for tuition and fees would be supplied by the NRC funds and the remainder would come from the advising faculty member or leveraged funding. No support is provided for the PI or Co-PI or other personnel to administer this project. All support is directed for the advancement of the selected Fellows. The Fellow's faculty advisor would act as a resource for the students to guide them in pursuit of a nuclear related career path. Interactions with many of the nearby nuclear industrial concerns would also be promoted to give students a robust understanding of nuclear related careers and opportunities in the nuclear engineering field.

**Principal Investigator:** Travis W. Knight, [twknight@sc.edu](mailto:twknight@sc.edu)

## **Kansas State University (KSU) Nuclear Engineering Fellowship Program (NEFP)**

### **Executive Summary:**

Kansas State University (KSU) proposes to establish a Nuclear Engineering Fellowship Program (NEFP) to provide financial support and mentoring for at least three KSU Nuclear Engineering PhD students who will perform research in Nuclear Regulatory Commission areas of interest. Fellows will gain a deeper understanding of the present challenges facing nuclear engineering and contribute to solutions for these challenges by researching topics such as advanced reactor safety and design, low-dose radiobiology, and novel neutron transport methods. The NEFP will serve priorities of the State of Kansas by incentivizing nuclear engineering graduate study at KSU while providing students with an educational experience that will prepare them for careers in the nuclear engineering sector, thus helping replenish the national nuclear workforce. Expected beneficial outcomes of this program include diversification of the nuclear engineering graduate student body at KSU; student completion of doctoral degree programs; publications and conference proceedings; and employment of KSU graduates in nuclear industry, government agencies, and academia. The NEFP will be administered by four KSU nuclear engineering faculty members with expertise in radiation protection, nuclear reactor physics, advanced detection systems, and reactor safety research.

**Principal Investigator:** Amir A. Bahadori, [bahadori@ksu.edu](mailto:bahadori@ksu.edu)

## **FIU Nuclear Fellowship Program: Expanding the Radiochemistry Ph.D. Track**

### **Executive Summary:**

Expand our developing FIU Nuclear Fellowship (FNF) Program by supporting 2 PhD students for our PhD Radiochemistry Track for Y1 and Y2, and 3 students for Y3 and Y4. These radiochemistry Ph.D. graduates will support the nuclear industry, DOE National Labs and academia.

**Benefits:** FIU's nuclear program and Ph.D. Radiochemistry Track (17 students) have been expanding with support from NRC, US-DOE, and industry. FIU's Nuclear Scholars and Fellows programs have increased student interest in nuclear & radiochemistry careers. Collaboration with University of Houston-Downtown (UHD) will ensure a pipeline of strongly qualified applicants for our program. Efforts to provide career opportunities for Ph.D students will expand beyond NRC and DOE to include nuclear companies (see Niowave and SRNL letters). Nuclear Fellows will receive support of \$24,164/y plus a tuition waiver (cost-shared by FIU). Students will be recruited internally (e.g., from our Nuclear Scholars Program) and nationwide, with emphasis to targeted institutions with strong bachelor programs. With >54,000 students (>60% Hispanic, >13% African-American) and >\$116M in grants, FIU is a public Hispanic-Serving Institution classified as an R1 Research University/Highest Research Activity. The Nuclear Fellows' research and future careers will benefit the nuclear sector in Florida and the nation.

**Specific research areas of NRC interest:** Our current Nuclear Fellows' research focusses mainly on characterization, handling, and disposal of waste streams from nuclear power plants. We aim in further expansion to other areas of NRC interest, such as nuclear detection.

**Principal Investigator:** Konstantinos Kavallieratos, [kavallie@fiu.edu](mailto:kavallie@fiu.edu)

## **Graduate Fellowship Program in Nuclear Materials at Purdue**

### **Executive Summary:**

The **objective** of this proposal is to support a Nuclear Energy Materials Graduate Fellowship Program at Purdue University. The NRC has outlined specific challenge areas of interest – including material degradation, non-traditional fuel concepts, accelerated fuel qualification, and advanced manufacturing – which underscore the critical need for a highly-trained nuclear workforce with expertise in Materials Science & Engineering. This fellowship program will prepare 12 graduate students to enter the nuclear workforce by providing them with a tailorable nuclear materials graduate education, research, and training program. The primary **benefit** will be a sustainable research and education program that generates a pipeline of graduate students who will take their materials expertise to careers in the nuclear workforce. The program outcome is also aligned with institutional investments in nuclear materials, and leverages previous NRC Faculty Development Grant support at Purdue. This fellowship program will be a significant component enabling Purdue to become the national leader in broad-scope nuclear materials research.

**Principal Investigator:** Janelle P. Wharry, [jwharry@purdue.edu](mailto:jwharry@purdue.edu)

## **2020 NRC Graduate Fellowship Program at the University of Florida**

### **Executive Summary:**

The objective of the 2020 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 multiple new fellowships. The program will be administered and managed by the Director of the Nuclear Engineering Program. He will coordinate different functions, including marketing, 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:** Andreas Enqvist, [enqvist@ufl.edu](mailto:enqvist@ufl.edu)