

## 2017 Faculty Development Grant Awards

Institution	Award Amount	Title
University of New Mexico	\$450,000	Proposal to Establish a Faculty Development Program in Nuclear Engineering at the University of New Mexico
Purdue University	\$450,000	Nuclear Faculty Development at Purdue University
Kansas State University	\$450,000	Nuclear Engineering Faculty Development Project at Kansas State University
Georgia Institute of Technology	\$419,881	Nuclear Engineering Faculty Development at The Georgia Institute of Technology
North Carolina State University	\$450,000	Faculty Development Program in Nuclear Engineering at North Carolina State University, 2017
University of Tennessee	\$450,000	The Nuclear Engineering Faculty Development Program at the University of Tennessee
Rensselaer Polytechnic Institute	\$450,000	Junior Faculty Development: Loading Fresh Fuel into Our Nuclear Engineering Academic Core
University of Houston Downtown	\$230,071	Junior Faculty Development - University of Houston-Downtown Structural Analysis and Design Option in Engineering Technology
University of Maryland	\$300,000	Faculty Development for Human Reliability and Performance Modeling and Experimentation
Florida International University	\$450,000	Faculty Development for Ph.D. Radiochemistry Track
Oregon State University	\$449,970	Sustained Impactful Growth of Nuclear Academic Leaders (SIGNAL): A Faculty Development Program in Nuclear Science and Engineering at Oregon State University
University of Notre Dame	\$450,000	Sustaining Excellence in Nuclear Science at the University of Notre Dame
University of California Berkeley	\$450,000	Fuel Cycle, Waste Management and Nuclear Chemistry at UC Berkeley: Building for the Future
University of Texas - San Antonio	\$450,000	Faculty Development Program at the University of Texas at San Antonio: Probabilistic Risk Assessment of Stress Corrosion Cracking in Nuclear Facilities
University of California Los Angeles (UCLA)	\$450,000	Research and Education Program Towards a Probabilistic Resilience Assessment Model for Nuclear Facilities
Virginia Commonwealth University	\$450,000	Faculty Development Program in Nuclear Engineering at VCU

## **Proposal to Establish a Faculty Development Program in Nuclear Engineering at the University of New Mexico**

### **Executive Summary:**

The program will be designed to support the development, and ultimate retention through successful integration into the department, of a new junior faculty in Nuclear Engineering who joined the department in Fall 2016. The new faculty will develop novel research and educational opportunities in nuclear materials and fuels, by building state-of-the-art research laboratories, designing and teaching new undergraduate and graduate courses, engaging in student mentorship, and developing research collaborations. The goal is to develop a research thrust and an educational focus in nuclear structural and fuels materials in the department that will be nationally recognized. An evaluation plan will be set up that will consist of success metrics and annual reviews with external input. Regular feedback will be provided and action plans developed for trajectory correction when necessary. Key success measures will include the faculty achieving reappointment at the mid-probationary point and attaining promotion and tenure.

**Principal Investigator:** Anil K. Prinja, [prinja@unm.edu](mailto:prinja@unm.edu)

## **Nuclear Faculty Development at Purdue University**

### **Executive Summary:**

Support under the NRC Faculty Development Grant Program is requested for two probationary, tenure-track faculty members in the Schools of NE and MSE at Purdue University. This proposal outlines a faculty development program for these new faculty members that takes advantage of the initiatives in the College of Engineering at Purdue and provides mentoring by senior faculty and assistance in the creation and expansion of research, teaching and engagement opportunities.

**Principal Investigator:** Klod Kokini, [kokini@purdue.edu](mailto:kokini@purdue.edu)

## **Nuclear Engineering Faculty Development Project at Kansas State University**

### **Executive Summary:**

The objective of this project is to help establish the nuclear engineering (NE) graduate program at Kansas State University (KSU) as a top-15 program in the country. Consistent with KSU's goal to become a top-50 public research university by 2025, the proposed effort will (1) increase the breadth and visibility of our research faculty, (2) lead to greater enrollment in our graduate and undergraduate programs, and (3) enhance the quantity and quality of research in nuclear engineering at KSU. The NE program at KSU has grown substantially over the past four years with the hiring of four tenure track, assistant professors. The funds requested will enable these existing and potential future faculty members to recruit top-level graduate students through travel and student support, to augment research supported by start-up funding, and to engage the discipline more broadly through focused mentorship via internal and external personnel.

**Principal Investigator:** William Dunn, [dunn@ksu.edu](mailto:dunn@ksu.edu)

## **Nuclear Engineering Faculty Development at The Georgia Institute of Technology**

### **Executive Summary:**

The Nuclear and Radiological Engineering (NRE) program in the Woodruff School at Georgia Tech is proposing to create a Nuclear Engineering Faculty Development program to supplement the startup package of a newly hired junior faculty to help creating a strong foundation in research, teaching, and service. The faculty development grant will be used to support a tenure-track faculty member to develop a research program in the field of computational reactor physics and reactor design. The faculty development grant will greatly help in retention of the new faculty member by providing him with resources to supplement summer salary, to develop research proposals, participate in professional society meetings, develop new curriculum, and publish in refereed journals. The overall intent of the proposed faculty development program is to assist in the developing and retention of a highly qualified faculty member in his academic career and to continue growing strong teaching and research foundation in nuclear engineering at Georgia Tech.

**Principal Investigator:** Nolan Hertel, [nolan.hertel@me.gatech.edu](mailto:nolan.hertel@me.gatech.edu)

## **Faculty Development Program in Nuclear Engineering at North Carolina State University, 2017**

### **Executive Summary:**

NRC faculty development grants previously awarded to the Department of Nuclear Engineering at North Carolina State University (NCSU) have been extremely beneficial to the development and success of our tenure-track faculty to advance in their academic careers. We hired a new faculty in the area of nuclear materials and we are recruiting and interviewing new entry-level faculty in one of the respective areas of dosimetry and nuclear assay, fission power reactors, thermal hydraulics, and related subjects. The NRC faculty development program will help us supporting the newly hired faculty and the recruiting of new faculty by encouraging recently graduated PhDs of the highest caliber to apply to our program. Upon hiring, and with the NRC award plus what we provide as a startup package, the hired junior faculty will be supported and helped to establish their academic career with the help of the senior faculty mentorship. A measure of the NRC faculty development award will be realized when the tenure-track faculty successfully advances towards tenure and promotion to higher ranks, and earning a reputation within the nuclear engineering institutions. For our department of nuclear engineering, it is a great benefit to hire top talent young faculty in the open positions and to retain recently hired tenure-track faculty with our expansion in all nuclear engineering main thrust research areas.

**Principal Investigator:** Kostadin Ivanov, [knivanov@ncsu.edu](mailto:knivanov@ncsu.edu)

## **The Nuclear Engineering Faculty Development Program at the University of Tennessee**

### **Executive Summary:**

The Nuclear Engineering Faculty Development Program (NEFDP) at the University of Tennessee-Knoxville (UTK) has a well-established and successful relationship with the US Nuclear Regulatory Commission's (US NRC's) Nuclear Education Grant Program that dates back to its inception. This synergistic relationship has supported several junior faculty members at UTK, of which 3 have already successfully acquired the rank of tenured Associate Professors, while 5 additional individuals are currently making significant progress toward their future promotion and tenure. Therefore, the impact of the US NRC's grant program upon our NEFDP is evident, as these 8 individuals represent educators and researchers who will play key roles in the development of our future nuclear workforce and thus supporting the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials for years to come. As the UTK department of nuclear engineering continues on a path of unprecedented growth, the NEFDP at UTK seeks to continue this successful alliance with the US NRC to provide faculty developmental support toward a new assistant professorship for which we have already begun the process of advertising and selection, aiming for this position to start in the fall of 2017.

**Principal Investigator:** J. Wesley Hines, [jhines2@utk.edu](mailto:jhines2@utk.edu)

## **Junior Faculty Development: Loading Fresh Fuel into Our Nuclear Engineering Academic Core**

### **Executive Summary:**

- Develop a new core of Nuclear Engineering faculty – target junior faculty by hiring to strategic research thrust areas that uniquely define Rensselaer in the nuclear engineering community.
- Enable growth and sustainability of the Nuclear Engineering program by supporting new junior faculty.
- Maintain a strong and large undergraduate and graduate Nuclear Engineering programs.

**Principal Investigator:** Yaron Danon, [danony@rpi.edu](mailto:danony@rpi.edu)

## **Junior Faculty Development - University of Houston-Downtown Structural Analysis and Design Option in Engineering Technology**

### **Executive Summary:**

This proposal aims to enhance the career of a new faculty member in the Structural Analysis and Design Program of the Department of Computer Science & Engineering Technology (CSET) at the University of Houston-Downtown. This academic program serves a diverse population of undergraduate students, the majority of which are Hispanic. The participation of undergraduate students in high impact research activities is a core value in the strategic plan of the CSET. The funding of this proposal by the NRC will allow the continuation of the research work for the faculty and will make significant contribution to other requirements needed for tenure in the following years, namely teaching and service to the Profession and University. The program will benefit the nuclear sector broadly and prepare a workforce able to work in the nuclear industry. Our academic program will be enhanced and UHD's core value of providing students with high impact research experience empowered.

**Principal Investigator:** Kenneth Oberhoff, [oberhoffk@uhd.edu](mailto:oberhoffk@uhd.edu)

## **Faculty Development for Human Reliability and Performance Modeling and Experimentation**

### **Executive Summary:**

The Department of Mechanical Engineering at the University of Maryland, College Park is proposing to create a Faculty Development program to supplement the startup package of a tenure-track junior faculty member. The Department also administers the undergraduate minor in Nuclear Engineering and is actively involved and has a number of nuclear engineering related PhD students. The funds will help to broaden her research capabilities in the area of human reliability and performance assessment, which is a field identified by NRC as high priority for nuclear plant safety assessment activities. The grant will also be used to support a graduate student under her advisement, and build a foundation to produce qualified students aspiring towards careers in human reliability. The grant will be administered by Professor of Nuclear Engineering and director of the Center for Risk and Reliability which is a well-known center for probabilistic risk assessment of nuclear power plants expertise.

**Principal Investigator:** Mohammad Modarres, [modarres@umd.edu](mailto:modarres@umd.edu)

## **Faculty Development for Ph.D. Radiochemistry Track**

### **Executive Summary:**

Support the development of an early career PhD professor (ECP) to support the growing Radiochemistry Ph.D. Track launched August 2015. The ECP will help train, educate and mentor radiochemistry and organic Ph.D. students and develop grant funding. In turn, Radiochemistry Ph.D. graduates will support the nuclear industry, national labs, gov., and academia. This grant complements FIU's current NRC grants for FIU Nuclear Research Fellowships and Scholarships.

**Principal Investigator:** Yong Cai, [cai@fiu.edu](mailto:cai@fiu.edu)

## **Sustained Impactful Growth of Nuclear Academic Leaders (SIGNAL): A Faculty Development Program in Nuclear Science and Engineering at Oregon State University**

### **Executive Summary:**

NSE is searching now for a new tenure-track faculty member as an element of our implementation of the OSU College of Engineering's (COE's) Strategic Plan. We have the secured the support of the COE Dean to add a second tenure track faculty member to our ranks during this academic year, should we receive the NRC Faculty Development Award. Funds from the NRC will be used for the academic-year salary for two years, and half an academic-year salary in year three. COE will provide the remaining half academic-year salary in year three, and assume the full financial burden for the academic-year salary going forward. COE will also provide startup funds for this second hire, which is the source of the cost share for this award. In this proposal, we describe a faculty development program that supports both currently-planned NSE faculty hires, and all future new tenure-track hires, in their achievement of a favorable mid-tenure review at the three-year mark, and ultimately to be promoted with indefinite tenure.

**Principal Investigator:** Todd S. Palmer, [palmerts@enr.orst.edu](mailto:palmerts@enr.orst.edu)

## **Sustaining Excellence in Nuclear Science at the University of Notre Dame**

### **Executive Summary:**

This proposal seeks support for four junior faculty in the Department of Physics at the University of Notre Dame. As a result of the recent expansion of the Nuclear Science Laboratory at Notre Dame, there are currently 4 faculty members that do research in experimental nuclear science and who are 3 – 4 years away from their tenure decision. At this critical time in their careers, the objective is to provide support in 3 different areas: (a) part-time post-doctoral support to assist in the research lab with experiments and student supervision, (b) 1 semester of teaching release and 1 month of summer support to develop a new inquiry-based undergraduate lab in nuclear science that can also be used to train first- and second-year graduate students, and (c) a structured mentoring program with senior nuclear scientists with expertise in nuclear science applications to help develop future research initiatives across a broad spectrum of nuclear science, and to guide the curriculum development efforts. If tenured as a result of this support, the result will be a core of young experimental nuclear scientists likely to keep the University of Notre Dame active in experimental nuclear science research and education for decades to follow.

**Principal Investigator:** Tan Ahn, [tan.ahn@nd.edu](mailto:tan.ahn@nd.edu)

## **Fuel Cycle, Waste Management and Nuclear Chemistry at UC Berkeley: Building for the Future**

### **Executive Summary:**

The Nuclear Engineering Department seeks to appoint an Assistant Professor in the area of Fuel Cycle, Waste Management and Nuclear Chemistry, by Fall 2017, to help rebuild the Department's competency in this area. Berkeley has an outstanding record of recruiting and retention of junior faculty members in Nuclear Engineering, through a long and successful partnership with the NRC. This award would enable the new faculty member to establish a productive research program right away, by supporting a postdoctoral research associate, a graduate student, necessary equipment and travel for him or her. The PI and Co-PI along with a select group of others would represent the mentoring team for the new faculty member. Promotion to tenure at UC Berkeley is awarded for excellence in all three roles of University of California professoriate, i.e. teaching, research, and service to students, the university, the profession and society. Our faculty development program has played a demonstrable and essential role in the professional growth of the most recent members of our Department.

**Principal Investigator:** Karl van Bibber, [karl.van.bibber@berkeley.edu](mailto:karl.van.bibber@berkeley.edu)

## **Faculty Development Program at the University of Texas at San Antonio: Probabilistic Risk Assessment of Stress Corrosion Cracking in Nuclear Facilities**

### **Executive Summary:**

The objective of this project is to support two tenure-track professors to become leading scholars in evaluating the risk of stress corrosion cracking (SCC) in nuclear facilities. The proposed project is structured to enrich the tenure-track professors' portfolio in the three areas that are used to evaluate faculty performance: a) Research, b) Teaching and c) Service. The young investigators will be provided resources to: a) develop a pioneering research program on SCC testing and modeling, b) create an educational program focused on the fundamentals of corrosion with applications to nuclear safety issues and c) engage in external service activities to ensure that research findings are incorporated into practices or policies. In addition, the young investigators will be under a mentoring plan established between the Associate Dean for Research for the College of Engineering, Department Chairs, and senior personnel from the Environmental Performance of Materials Section of Southwest Research Institute. The potential outcomes of the program (research exposure, publications, student advising and collaborations) will foster an ideal environment for achieving tenure, and consequently assure the professors' long-term contributions to the nuclear industry.

**Principal Investigator:** Harry Millwater, [Harry.Millwater@utsa.edu](mailto:Harry.Millwater@utsa.edu)

## **Research and Education Program Towards a Probabilistic Resilience Assessment Model for Nuclear Facilities**

### **Executive Summary:**

The overall objective of the proposed Faculty Development Program is to establish complementary research and educational programs towards resilience-based assessment of nuclear facilities. The research program will actively involve undergraduate and graduate students to address fundamental questions related to the ability of communities to minimize the long-term effects of radioactive material release. The findings from this research will serve to advance educational components including new curricula that prepares students and future decision-makers to address complex risk- and resilience-management problems. The program will support the development of an Undergraduate Technical Breadth Area and PhD minor field in Resilience Engineering. Upon completion, the integrated Faculty Development Program will serve to propel the faculty recipient into an active leadership role in the risk modeling community and launch a self-sustaining research and education program within the B. John Garrick Institute for the Risk Sciences at UCLA.

**Principal Investigator:** Ali Mosleh, [mosleh@ucla.edu](mailto:mosleh@ucla.edu)

## **Faculty Development Program in Nuclear Engineering at VCU**

### **Executive Summary:**

The primary objective of VCU's Nuclear Engineering Faculty Development Program is to attract, retain and successfully mentor a new highly-qualified tenure track Nuclear Engineering Faculty member and to facilitate their continued success in research, teaching and service at VCU. The program seeks to continuously enhance the qualifications and the expertise of our recently hired tenure-track faculty so that they can pursue innovative and multidisciplinary research and develop new course offerings in related areas of nuclear science and technology currently unavailable in VCU's curriculum. VCU offers an ABET accredited BS in Mechanical Engineering with a separately ABET accredited Major Concentration in Nuclear Engineering, and MS and PhD degrees in Mechanical and Nuclear Engineering. VCU is currently the only university in Virginia offering a full suite of undergraduate and graduate degrees in nuclear engineering. Approximately 100 students (sophomores and above) are enrolled in the undergraduate nuclear engineering major concentration and approximately 75 graduate students are enrolled in the mechanical and nuclear engineering MS and PhD programs. NRC Faculty Development support is particularly important for new nuclear engineering programs still with low name recognition, such as the almost 10 year-old program at VCU, to help attract top tenure-track faculty members.

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