FY 2014 Grant Program Faculty Development Grant Awards

Institution	Amount	Title
Georgia Institute of Technology	$300,000	Nuclear Engineering Faculty Development at the Georgia Institute of Technology
North Carolina State University	$430,000	Faculty Development Program in Nuclear Engineering at North Carolina State University
University of Puerto Rico Mayaguez	$449,600	The University of Puerto Rico at Mayagüez (UPRM) Faculty Development Program in Structural Engineering for Nuclear Facilities
Boise State University	$430,000	A “Materials for Nuclear Energy Systems” Faculty Development Program at Boise State University
University of Illinois	$430,000	University of Illinois Nuclear Engineering Faculty Development Program
University of Tennessee	$430,000	The Nuclear Engineering Faculty Development Program at the University of Tennessee
Purdue University	$430,000	Nuclear Faculty Development at Purdue University
University of Massachusetts-Lowell	$430,000	Faculty Development in Nuclear Science and Engineering at the University of Massachusetts-Lowell (UML)
Virginia Commonwealth University	$430,000	Faculty Development Program in Radiation Detection and Health Physics at Virginia Commonwealth University (VCU)
University of California Berkeley	$430,000	Faculty Development Program for University of California, Berkeley, Nuclear Engineering
Colorado School of Mines	$443,378	Colorado School of Mines (CSM) Faculty Development Program
	$367,022	Worcester Polytechnic Institute’s (WPI’s) Nuclear Science and Engineering (NSE) Program Faculty

Worcester Polytechnic Institute		Development Plan: Dosimetric Analysis of Neutron-Based Functional Imaging and Investigation of Yb-169 Brachytherapy Biological Equivalent Dose

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 the newly hired junior faculty to help create a strong foundation in research, teaching, and service. The faculty development grant will be used to support Dr. Anna Erickson, a tenure-track faculty member, to develop a research program in the field of nuclear safeguards and fast reactor design. The faculty development grant will greatly help in retention of the new faculty member by providing her 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 her academic career and to continue growing strong teaching and research foundations in nuclear engineering at Georgia Tech.

Principal Investigator: Dr. Farzad Rahnema, farzad@gatech.edu

Faculty Development Program in Nuclear Engineering at North Carolina State University

Executive Summary:

The Department of Nuclear Engineering at North Carolina State University (NCSU) has benefited from three faculty development awards so far and the results are a glaring success. The first cohort of three junior faculty supported by the first award won in 2008 are successfully advancing their academic careers: one earned his tenure as Associate Professor of Nuclear Engineering in 2012, one was promoted from Assistant Professor to tenured Associate Professor of Nuclear Engineering in 2013, and the third has cleared the Departmental and the College review levels this year with very strong support on both levels. His case now is under consideration by the University's Promotion and Tenure Committee expected to reach a final decision in May 2014. Given the strongly positive recommendations by the Department and College levels, we anticipate a positive decision to promote the candidate to Associate Professor of Nuclear Engineering with tenure. Similarly, the faculty development awards won in 2010 and in 2011 have been put to excellent use by two faculty members, one of whom has been reappointed very recently to a second 3-year term as Assistant Professor of Nuclear Engineering, the second is preparing for his tenure review as Associate Professor next academic year. The latter faculty member's case is going very strong. The funding provided by NRC's Faculty Development Program plays a pivotal role in the achieved success.

We take pride in our track record with these awards and in the great successes they yielded, and we propose to extend our productive engagement with this opportunity in this year's competition. Our proposal is motivated by our continuing search and urgent desire to hire a junior faculty member in the fission power reactors area and using the proceeds of this award for the benefit of motivating a pool of the highest caliber to apply and to successfully recruit the best individual from the pool to our faculty. Once hired, the award's funding, in addition to the regular start-up package we provide our new hires, and with proactive mentoring by the Department Head and senior faculty, will help the junior faculty develop their academic career on a solid foundation.

The benefit from this project to the junior faculty member will be realized when they eventually receive tenure, thus consolidating their academic career path and embarking on the next stage by preparing for promotion to a higher rank. The benefit to our Department is the ability to attract top talent to apply for the open position, and to retain them in an academic career once hired. The benefit to the fields of nuclear science and engineering is to replenish and rejuvenate the cadre of academicians who will shape the future of nuclear energy in the U.S., and globally, through their research and by educating a new generation of nuclear professionals essential to implementing the nation's nuclear agenda.

Principal Investigator: Dr. Yousry Azmy, yyazmy@ncsu.edu

The University of Puerto Rico at Mayagüez (UPRM) Faculty Development Program in Structural Engineering for Nuclear Facilities

Executive Summary:

This faculty development program is designed to provide two outstanding junior professors with the resources necessary to establish a strong foundation in research, teaching, and professional service related to the structural design and analysis of nuclear facilities. The solicited NRC funds will be used for faculty summer salary support; procurement of essential equipment and materials; graduate student support; and travel for conferences, training, and interaction with collaborating institutions. Matching funds provided by the University will be used for faculty time release and additional graduate student support. The proposed faculty development program is intended as an integrated element of a strategic plan at UPRM. The university is currently offering a Certificate Program in Nuclear Engineering and has recently been granted an NRC Fellowship Program in Nuclear Structural Engineering. With an almost 100% Hispanic enrollment (40% female), the College of Engineering at UPRM has a major responsibility of the education and training of U.S. Hispanic engineers. The successful implementation of the proposed faculty development program will perfectly complement current research and educational efforts in nuclear engineering at UPRM while enhancing the participation and education of students from underrepresented groups. Moreover, this proposal counts with the support from Brookhaven National Laboratory, which will provide technical support and guidance through its research staff to guarantee that the research performed is of actual relevance and benefits the nuclear industry broadly.

Principal Investigators: Dr. Jaime E. Ramirez-Vick, jaimee.ramirez@upr.edu; Dr. Aidcer L. Vidot-Vega, aidcer.vidot@upr.edu; and Dr. Luis A. Montejo, luis.montejo@upr.edu

A “Materials for Nuclear Energy Systems” Faculty Development Program at Boise State University

Executive Summary:

This proposal establishes a “Materials for Nuclear Energy Systems” Faculty Development Program within the Materials Science and Engineering (MSE) Department at Boise State University. The program will help Dr. Janelle Wharry, Assistant Professor of MSE, broaden her research capabilities and expertise, grow her professional network, develop nuclear science & technology (NS&T) related curriculum, and prepare students to enter the nuclear workforce. The program also includes an annual NS&T career fair, which will raise awareness and interest in employment in the nuclear industry. Success of this faculty development program will enable Dr. Wharry to cultivate a “Materials for Nuclear Energy Systems” research community at Boise State, ensuring long-term success and sustainability of her academic career, and allowing her to continually produce a qualified group of students aspiring toward nuclear careers. An advisory panel comprised of MSE Department, nuclear industry, and national laboratory representatives will evaluate success of this faculty development program. Boise State will leverage $50,000/year (for three years) cost share to enhance the educational benefits of this program.

Principal Investigators: Dr. Darryl Butt, darrylbutt@boisestate.edu and Dr. Peter Müllner, petermuller@boisestate.edu

University of Illinois Nuclear Engineering Faculty Development Program

Executive Summary:

This program is designed to help develop four recently hired junior faculty members and attract at least one additional new junior faculty member (hiring process for the new position started in August 2013; three junior candidates have been shortlisted; and on-campus interviews are to be held in April, 2014) in Nuclear Engineering at the University of Illinois at Urbana-Champaign. The most recently hired junior faculty member (joined the department in January, 2013) is an expert in the area of probabilistic risk assessment—a field identified by the NRC for this program and a very high priority for ongoing nuclear plant safety assessment activities. The resources from this program will be used to provide the foundation for these junior faculty members (assistant professors) to establish productive university careers in nuclear engineering education. The support and resources will permit the junior faculty members to each establish strong teaching, research, and professional service activities. The financial resources from the NRC will be used for: (1) faculty release time and summer salary support, (2) graduate student support associated with the new faculty members, (3) acquisition of critical research and teaching equipment and facilities, and (4) travel and conference attendance. Matching support provided by the Department and the University will be used for: primary support of graduate students to work with the faculty research and teaching efforts. In addition, the Department will provide other considerations to support the development of the junior faculty members, including mentoring, performance evaluation, teaching support, and research support. These resources will provide the necessary foundation for the successful development of junior faculty members in nuclear engineering at the University of Illinois.

Principal Investigator: Dr. James Stubbins, jstubbins@illinois.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 will support two junior, tenure-track faculty members in the Department of Nuclear and Radiological Engineering. One of the faculty members has been hired (start date of August 2013), and the search for the second faculty member will conclude by May 2014. The project will be administered by Dr. J. Wesley Hines, Professor and Department Head in the Nuclear Engineering Department. Dr. Lawrence Heilbronn will assist Dr. Hines through writing of reports required by the NRC. The requested funding from the NRC includes the support for new course development, developing research proposals, participation in professional society meetings and summer courses, preparation of research papers, travel, graduate student support, equipment, materials, and other costs. The objective of this program is to develop the targeted faculty members to achieve excellence in both research and teaching, and then to retain them. The benefit of this program to the University and to the nation will be an enhanced capability of the Nuclear Engineering Department to meet the nation's need to train a new generation of nuclear engineers and health physicists.

Principal Investigators: Dr. J. Wesley Hines, jhines2@utk.edu and Dr. Lawrence Heilbronn, lheilbro@utk.edu

Nuclear Faculty Development at Purdue University

Executive Summary:

Support under the NRC Faculty Development Grant Program is requested for three probationary, tenure-track faculty members in the Schools of Nuclear Engineering and Health Sciences at Purdue University. Professor Bean came to Purdue from the Idaho National Laboratory and will be establishing research programs in safeguards and nonproliferation with an emphasis on radiation detection. Professor Garner came to Purdue from GE Global Research Center, and his research interests include pulsed power, plasma physics, and the biomedical applications of these technologies. Professor Nie performs research on radiation dosimetry and characterization of radiation dose. This proposal outlines a development program for these new faculty members that provides mentoring by senior faculty and assistance in the creation and expansion of research and teaching opportunities.

Principal Investigators: Dr. Robert Bean, bean@purdue.edu; Dr. Allen Garner, algarner@purdue.edu; and Dr. Linda Nie, hnie@purdue.edu

Faculty Development in Nuclear Science and Engineering at the University of Massachusetts-Lowell (UML)

Executive Summary:

The University of Massachusetts-Lowell (UML), with an ongoing Nuclear Science and Engineering Initiative, anticipates adding two new faculty positions to its Nuclear Engineering Program by 2015, supported entirely from UML funds. This proposal requests start-up funds to launch their careers. Our objective is to build sustainable and cohesive Nuclear Science and Engineering (NSE) academic and research programs, substantially improve and unify the current NSE curricula to reflect the changed needs and new initiatives in the nuclear science and engineering industries and at UML, and leverage existing strengths in our NSE programs. A new senior faculty member was hired in 2010, and a tenure-track faculty was added in 2012, and another in 2013 as part of the UML initiative. This brought stability to our program. At this time, in order to maintain our present quality and momentum we request support for start-up funds for two new faculty members. This will enable us to grow and become more competitive both in our educational and research components. The funds will be used to attract and retain highly qualified faculty, who will play an integral role in maintaining and advancing the UML Nuclear Science and Engineering Initiative, and will collaborate with existing faculty in the College of Science and in the College of Engineering. In addition, we are engaging industry representatives and academic peers to aid the selection of the new hires and assess the progress of the new faculty as well as that of the program. The total requested funding is leveraged by substantial UML institutional support.

Principal Investigators: Dr. Erno Sajo, Erno_Sajo@uml.edu and Dr. Gilbert Brown, Gilbert_Brown@uml.edu

Faculty Development Program in Radiation Detection and Health Physics at Virginia Commonwealth University (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 in the areas of Radiation Detection and Health Physics 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.

Principal Investigators: Dr. Sama Bilbao y León, sbilbao@vcu.edu; Dr. Gary Tepper, gctepper@vcu.edu

Faculty Development Program for University of California, Berkeley, Nuclear Engineering

Executive Summary:

The Department of Nuclear Engineering (NE) at the University of California (UC), Berkeley, proposes a Faculty Development Program to support a new faculty member appointed as a Tenure-Track, Assistant Professor, Rachel Slaybaugh, as a result of our recent faculty search. The proposal request for grant funding will be matched with $150,000 in start-up funds provided by the Department and College at the University of California, Berkeley. This funding will ensure that the new faculty member has sufficient funds to begin developing her independent research program and new courses, with funded graduate students and summer salary. Furthermore, we have established a deep and comprehensive mentoring program for Prof. Slaybaugh. In addition to the Principal Investigator (PI) and co-PIs as resources for general guidance as a new faculty member, another senior NE faculty member will provide mentoring in her subject area of neutronics and reactor design. Additionally, two highly accomplished female UC faculty members will meet with her regularly on broader research, teaching, and University service matters, one of whom is a distinguished scientist and senior manager at Lawrence Berkeley National Laboratory, in High Performance Computing, Prof. Slaybaugh's own area of expertise. All funds from this award will be made available to the Assistant Professor and no administrative or personnel funds have been budgeted for mentoring activities within this proposal. The new faculty member will be asked to provide her yearly self-assessment that describes the support of graduate students and postdoctoral researchers, research activities, publications and presentations, and service to the University and research community. This yearly self-assessment will be discussed with her departmental mentors, and assist the new faculty member in preparing for her merit, mid-career, and tenure reviews.

Principal Investigators: Dr. Karl van Bibber, karl.van.bibber@berkeley.edu; Dr. Jasmina Vujic, vujic@nuc.berkeley.edu; and Dr. Joonhong Ahn, ahn@nuc.berkeley.edu

Colorado School of Mines (CSM) Faculty Development Program

Executive Summary:

The Colorado School of Mines (CSM's) Nuclear Science and Engineering Program (NSEP) was established in 2007. The program holds the distinction of being the only nuclear engineering program in the state of Colorado and it specializes in the nuclear fuel cycle. In the past seven years, the NSEP has seen significant growth of its faculty, now numbering five, and in the number of graduate degrees awarded, now totaling 11 M.S. and four Ph.D. degrees. The proposed CSM Faculty Development Program will be a key ingredient in the success and retention of two tenure track assistant professors in the NSEP. Nuclear Regulatory Commission (NRC) funding would be supplemented with a $150,000 ($50,000 per year for three years) match from CSM. The proposed joint funding with the NRC will enhance the opportunities for our two tenure track assistant professors to build their research programs, fund high achieving graduate students, make strong industry connections, and build the academic reputation of the NSEP.

Principal Investigators: Dr. Tom Boyd, tboyd@mines.edu; Dr. Douglas Van Bossuyt, dvanboss@mines.edu, and Dr. Cory Ahrens, cahrens@mines.edu

Worcester Polytechnic Institute's (WPI's) Nuclear Science and Engineering (NSE) Program Faculty Development Plan: Dosimetric Analysis of Neutron-Based Functional Imaging and Investigation of Yb-169 Brachytherapy Biological Equivalent Dose

Executive Summary:

The specific goal of this proposal is to support and enrich the research scholarship of a tenure-track Nuclear Science and Engineering (NSE) program junior faculty and enhance his ability to obtain tenure. To accomplish this, the directors of the NSE program will use data from the WPI Faculty Support Program to implement a strong set of scholarship-based metrics for an advanced, average, and below-average tenure-track candidate. The goal of these metrics is to provide clear and manageable benchmarks, which will augment their scholarship output and quality. The funding requested through this solicitation would be used by our candidate towards scholarship development in accordance with these developed metrics. This powerful proposed combination of direct guidance and monetary support will provide an important and substantial boost to his scholarship for tenure at WPI. We strongly believe that, in addition to helping retain our junior NSE faculty, achieving the goals of this solicitation will significantly grow our revitalized program, help justify new tenure-track faculty hires, lead to the enrichment of our students' education, and will better position our graduates to thrive in the NSE field. Ultimately, we believe that these benefits will provide greater long-term stability to our NSE program and will enhance the NSE field as a whole.

Principal Investigators: Dr. Germano Iannacchione, gsiannac@wpi.edu; Dr. David Medich, dcmedich@wpi.edu; and Dr. Richard Sisson, sisson@wpi.edu