

FY2023 MINORITY SERVING INSTITUTIONS GRANTS AWARDS

Institution	Grant Type	Title	Amount
University of Nevada, Las Vegas	Fellowship	Radiochemistry Fellowship for Nuclear Workforce Development (RFND)	\$400,000
University of Nevada, Las Vegas	Fellowship	UNLV Diverse Nuclear Workforce Fellowship Program (Mechanical and Nuclear Engineering)	\$400,000
North Carolina A&T State University	Scholarship & Fellowship	Participation in Nuclear Engineering (PINE): Research and Education Concentration of Mechanical Engineering Emphasizing Cooling, Safety, Radiation Shielding, Protection and Reliability	\$600,000
University of Houston- Downtown	Scholarship	UHD Scholarships Supporting Nuclear-related Radiochemistry, Engineering Technology, Chemical Sensors, and Cybersecurity for Minority STEM	\$188,281
South Carolina State University	Scholarship	South Carolina State University – Nuclear Engineering Program Scholarship Support 2024	\$199,938

Title of Project: UNLV Diverse Nuclear Workforce Fellowship Program

Principal Investigator: Professor Alexander Barzilov, alexander.barzilov@unlv.edu

Executive Summary: The graduate Nuclear Engineering programs (Ph.D. and M.S.) at the University of Nevada Las Vegas (UNLV), Carnegie *Research 1 (R1)* and *Minority Serving Institution (MSI)*, train students to be fully prepared with the knowledge and skills necessary to join the nuclear workforce. The program's faculty have a strong background, research and teaching record related to preparing graduate students for employment in the nuclear sector.

We propose to establish the ***Diverse Nuclear Workforce Fellowship Program*** at UNLV. The project's objective is to fund and graduate *two Ph.D. Fellows* and *two M.S. Fellows* over four years who will be the next generation workforce capable of supporting the design, construction, operation, and regulation of nuclear facilities and the safe handling of nuclear materials. The Fellowship Program will strive to recruit talented and motivated students in Nevada and nationally focusing on recruiting students from underrepresented groups, particularly those of low socioeconomic status who satisfy the program conditions. We will seek internships and jobs for the graduate fellows in the nuclear industry and laboratories. Overall, the proposed Fellowship Program will pipeline students' training into employment for the benefit of the nuclear sector, while enhancing the education of the U.S. 21st century workforce. Benefits of the Program include contributions to the Net-Zero initiative to accelerate global energy system decarbonization, to the engagement of underrepresented groups into the nuclear professional community benefiting the NRC and the nuclear sector broadly for both the near term and the long term.

Title of Project: Radiochemistry Fellowship for Nuclear Workforce Development (RFND)

Principal Investigator: Dr. Matthew V. Sheridan, matthew.sheridan@unlv.edu

Co-PIs: Dr. Artem V. Gelis
Dr. Kenneth Czerwinski

Executive Summary: The University of Nevada, Las Vegas (UNLV) is prepared to establish the Radiochemistry Fellowship for Nuclear Workforce Development (RFND), a pioneering initiative addressing nuclear sector workforce needs while promoting diversity and excellence in education and research. The RFND program aims to empower talented students with skills essential for excelling in radiochemistry and supporting the nuclear energy industry.

The RFND's core objective is to recruit, support, and graduate dedicated PhD students advancing radiochemistry, as well as, develop new graduate coursework in the area of radiochemistry. Through comprehensive fellowships covering tuition, health insurance, and stipends, the program attracts top-tier students and furnishes resources for their studies and research. It aims to elevate UNLV's status as a leading radiochemistry institution, aligning with the university's strategic vision of becoming a top 100 research institution. The program's inclusivity emphasis encourages underrepresented groups' participation in the nuclear workforce.

Additionally, RFND will forge strong ties between UNLV and key nuclear sector institutions, facilitating research opportunities and job placements for students. Rigorous evaluation metrics encompass diversity, application numbers, research output, academic achievements, and career placements. Proactive recruitment, including conference participation, will further amplify program visibility and attract top talent.

The RFND program epitomizes a strategic investment in nuclear science's future. By fostering diversity, cultivating strong industry connections, and offering comprehensive support, it advances both UNLV's reputation and the expertise shaping radiochemistry and nuclear science's future.

Title of Project: Participation in Nuclear Engineering (PINE): Research and Education Concentration of Mechanical Engineering

Principal Investigator: Dr. John Kizito, jpkizito@ncat.edu

Co-PIs: Dr. Ajit Kelkar
Dr. Sun Yi
Dr. Mookesh Dhanasar
Dr. Paul Akangah

Executive Summary:

(1) PINE will support two cohorts of undergraduate students for the scholarship program where the first cohort will graduate after 2 years, and the second cohort will start in year 3 and finish in year 4 of the program.

(2) PINE will support one cohort of graduate students for the fellowship program. Graduate cohort will graduate after a maximum of 4 years depending on whether the students are MS or PhD students. These students will be recruited after completing the first year in the graduate program.

(3) PINE activities will lead to the development of the undergraduate concentration in Nuclear Engineering within the Mechanical Engineering Department.

Project's Benefits:

- (1) Catalyst for a self-sustaining nuclear program developed for HBCU University.
- (2) Increased URM joining the nuclear programs.

Title of Project: UHD Scholarships Supporting Nuclear-related Radiochemistry, Engineering Technology, Chemical Sensors, and Cybersecurity for Minority STEM

Principal Investigator: Dr. Mary Jo Parker, parkerm@uhd.edu

Co-PIs: Drs. Maria Benavides
Mian Jiang
Dr. Janusz Grebowicz
Dr. Weining Feng
Dr. Erme Yilmaz

Executive Summary: The University of Houston-Downtown (UHD) in cooperation with Texas A & M University (TAMU) Nuclear Engineering Department (NEUN), TAMU Nuclear Power Institute (NPI), the University of Texas-Houston Graduate School of Biomedical Sciences (UTH GSBS), the South Texas Project Nuclear Operating Company (STP NOC), and Comanche Peak Nuclear Power Plant (CP NPP) (long-time partners on former UHD NRC awards #NRC-27-10-1121; #HQ-84-14-G-0028; and a closed out #NRC-HQ-12-G-38-0006), propose to reestablish a two-year nuclear-related STEM undergraduate scholarship program that will provide a total of 6 scholarships of approximately \$6500 per year to each student entitled "Scholarships Supporting Nuclear-related Radiochemistry, Engineering Technology, Chemical Sensors, and Cybersecurity for Underrepresented STEM Majors." This project's objectives are to: 1) provide minority undergraduate scholarships to complete a science, technology, engineering, and mathematics (STEM) baccalaureate degree with emphasis in related nuclear sciences, 2) provide extensive exposure to nuclear-related graduate/ workforce programs through broadening experiences/mentored research encouraging entrance into nuclear sciences; and 3) provide limited mentored nuclear-related research experiences in radiochemistry, physics, computational radiochemistry, cybersecurity, and control and process engineering.

This proposal will motivate and support minority students by increasing the number of undergraduates who complete the baccalaureate and enter graduate studies in nuclear-related STEM including radiochemistry, nuclear engineering, cybersecurity. Project's Products and Benefits: The scholarships will support tuition, books, and academic year research stipends. The exact scholarship amount for each student will vary based on financial need levels, with at least 12 hours of credit-bearing coursework (considered full-time), for 6 students. This approach supports on-time graduation, thus qualifying graduates for nuclear studies at TAMU or other graduate programs or for immediate employment at partnering nuclear power plants or in other nuclear-related/STEM-related jobs in industry. The impact of the project is anticipated to re-established nuclear studies at UHD for all undergraduates.

Title of Project: South Carolina State University - Nuclear Engineering Program Scholarship Support 2024.

Principal Investigator: Joseph Boffie, Ph.D, jboffie@scsu.edu

Co-PIs: Musa B. Danjaj
Kenneth C. Okafor, Ph.D.

Executive Summary: South Carolina State University's Nuclear Engineering Program (SCSU-NEP) is applying for the grant of about \$199,938 to fund scholarships for its undergraduate nuclear students from the U.S. Nuclear Regulatory Commission (NRC). The grant will be used to provide tuition, book and travel scholarship support in the amount of no more than \$10,000 per year for undergraduate students majoring in Nuclear Engineering for a two-year period. The support will include boarding and travel to and from the North Carolina State University (NCSU) or the University of Wisconsin (UW) for the nuclear engineering seniors who are required to complete a few of their senior courses (nuclear laboratory, senior design, and a technical elective course) at either school. Other need and merit-based nuclear engineering students will also be eligible for support through this scholarship. Through this program, the financial burden experienced by the increasing rise of tuition on minorities, such as students in the NEP at SCSU will be reduced. The scholarship will also help attract more prepared minority students to the SCSU-NEP.