Department of Energy Nuclear Science User Facilities awards 11 Consolidated Innovative Nuclear Research proposals, three General Scientific Infrastructure awards

IDAHO FALLS -- The U.S. Department of Energy (DOE) Nuclear Science User Facilities (NSUF) has selected 11 new Consolidated Innovative Nuclear Research (CINR) projects, totaling over $9 million. These projects will advance research in nuclear fuels and help extend the lifetime of structural components in nuclear systems. NSUF is also providing over $1 million in infrastructure support to three national laboratories for further materials and instrumentation research.

The NSUF, first established at Idaho National Laboratory (INL), is the nation's only designated nuclear energy user facility. NSUF provides research teams with no-cost access to reactor, post-irradiation examination, high performance computing, and beamline capabilities at a diverse mix of affiliated partner facilities in university, national laboratory and industry institutions across the country.

NSUF competitively selected these projects from high-quality proposals submitted during the solicitation period. Each proposal was evaluated based on a variety of factors including feasibility, programmatic relevance and scientific-technical merit.

Research teams from Boise State University, University of Michigan, Colorado School of Mines, Oak Ridge National Laboratory, Idaho State University, University of Florida, GE Hitachi Nuclear Energy, Vanderbilt University, and Oregon State University will work with the NSUF on their proposed experiments. The newly awarded CINR R&D projects are:

PI Name	Institution	Title
Wharry, Janelle	Boise State University	Effects of High Dose on Laser Welded, Irradiated AISI 304SS
Jiao, Zhijie	University of Michigan	Feasibility of Combined Ion-Neutron Irradiation for Accessing High Dose Levels
Gao, Fei	University of Michigan	Fission Product Transport in TRISO Fuel
King, Jeffrey	Colorado School of Mines	Irradiation Performance Testing of Specimens Produced by Commercially Available Additive Manufacturing Techniques
Gerczak, Tyler	Oak Ridge National Laboratory	Radiation Enhanced Diffusion of Ag, Ag-Pd, Eu and Sr in Neutron Irradiated PyC/SiC Diffusion Couples
Katoh, Yutai	Oak Ridge National Laboratory	Radial Heat Flux – Irradiation Synergism in SiC ATF Cladding

Wen, Haiming	Idaho State University	Enhancing Irradiation Tolerance of Steels via Nanostructuring by Innovative Manufacturing Techniques
Yang, Yong	University of Florida	Understand the phase transformation of thermally aged and neutron irradiated duplex stainless steels used in LWRs
Horn, Ronald	GE Hitachi Nuclear Energy	Irradiation Testing of LWR Additively Manufactured Materials
Sanchez, Florence	Vanderbilt University	Effect of Gamma Irradiation on the Microstructure and Mechanical Properties of Nano-modified Concrete
Tucker, Julie	Oregon State University	Role of minor alloying elements on long range ordering in Ni-Cr alloys

NSUF is also awarding approximately $1 million to three national laboratories to support general scientific infrastructure improvements, ensuring that they have the best equipment and tools available to strengthen U.S. competitiveness in nuclear R&D.

Institution	Equipment Description
Oak Ridge National Laboratory	ORNL will acquire a MEMS-based high-temperature, high mechanical stability in situ experimental system for TEM, as well as an on-axis tomography TEM holder for atom probe specimens. The project will also procure and install an advanced inventory tracking and laboratory information management system for irradiated materials.
Pacific Northwest National Laboratory	PNNL will procure and install a multi-capability atomic force microscope for enabling atomic force, magnetic force, and piezo force microscopy.
Argonne National Laboratory	ANL will make two enhancements to the IVEM-Tandem Facility: 1) establish dual-beam irradiation capability to enable the study of synergistic effects of heavy ion induced cascade damage and helium produced in nuclear environments; and 2) acquire an in situ heating stage dedicated to radioactive samples to meet the increased demand in nuclear fuel studies and high-dose irradiation of neutron-irradiated samples, permitting safe specimen handling and experimentation.

For user guides and more information about submitting proposals, visit the NSUF website at http://nsuf.inl.gov.

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