

# **Nuclear Science User Facilities**

Offering unparalleled opportunities for nuclear energy researchers

uclear energy is a vital resource for meeting our nation's energy, environmental, and national security needs. Continued research is needed to accelerate nuclear power research to address nuclear technology applications. The Nuclear Science User Facilities (NSUF) offers opportunities for researchers to understand how radiation affects existing and proposed reactor materials over time.

Through the NSUF, users are provided access to world-class nuclear research facilities, technical expertise from experienced scientists and engineers, and assistance with experiment design.

#### The Value of the NSUF

- As the Department of Energy Office of Nuclear Energy's first and only user facility, the NSUF merges the national nuclear research infrastructure with intellectual capital to pair the best ideas with the needed capability.
- The program integrates national laboratory, university, and industry research to achieve goals that benefit the nation.
- Access can be provided to extensive state-of-the-art nuclear research capabilities that are typically beyond reach.

### **Accessing Capabilities**

Access is awarded through two competitive peer-reviewed processes.

#### Major irradiation and post irradiation examination projects (CINR)

- One opportunity annually
- Up to seven years in duration
- For experiments that are complex in nature
- Applications are submitted through the Department of Energy Office of Nuclear Energy Consolidated Innovative Nuclear Research (CINR) Funding Opportunity Announcement

#### Rapid Turnaround Experiments (RTE)

- Up to three opportunities annually
- An avenue for researchers to perform irradiation effects studies of limited scope on nuclear fuels and materials utilizing NSUF facilities





### **Capabilities at NSUF Facilities**

Idaho National Laboratory - NSUF Capabilities

#### Advanced Test Reactor Complex

#### Netron Irradiation

Gamma Irradiation

#### **NSUF Partner Capabilities**

#### **Argonne National Laboratory**

- Ion Beam Irradiation,
- Post Irradiation Examination

#### Belgian Nuclear Research Centre (SCK/CEN)

- \*\*Limited Access\*\*
- Neutron Irradiation
- Post Irradiation Examination

#### Brookhaven National Laboratory

Characterization Beamline

#### Center for Advanced Energy Studies

Post Irradiation Examination

#### Lawrence Livermore National Laboratory

Ion Beam Irradiation

#### Los Alamos National Laboratory

Characterization Beamline

# Massachusetts Institute of Technology (MIT)

- Neutron Irradiation
- Characterization Beamline

ENERGY

#### **Materials & Fuels Complex**

- Post Irradiation Examination
- Characterization Beamline

#### North Carolina State University

- Neutron Irradiation
- Characterization Beamline

#### **Oak Ridge National Laboratory**

- Neutron Irradiation
- Post Irradiation Examination
- Gamma Irradiation

#### The Ohio State University

- Neutron Irradiation
- Gamma Irradiation

#### Pacific Northwest National Laboratory

Post Irradiation Examination

#### Pennsylvania State University

- Neutron Irradiation
- Gamma Irradiation
- Characterization Beamline

#### **Purdue University**

Ion Beam Irradiation

#### **Sandia National Laboratories**

- Neutron Irradiation
- Post Irradiation Examination
- Gamma Irradiation

**Nuclear Energy** 

#### Ion Beam Irradiation

#### Texas A&M University

Ion Beam Irradiation

#### University of California, Berkeley

• Post Irradiation Examination

**High Performance Computing** 

#### **University of Florida**

Post Irradiation Examination

#### **University of Michigan**

- Ion Beam Irradiation
- Post Irradiation Examination

#### University of Texas, Austin

Characterization Beamline

#### University of Wisconsin, Madison

- Ion Beam Irradiation
- Post Irradiation Examination

#### Westinghouse

Post Irradiation Examination



## NSUF





#### High Performance Computing

Battelle Energy Alliance manages INL for the U.S. Department of Energy's Office of Nuclear Energy.

Nuclear Science User Facilities 995 MK Simpson Boulevard Idaho Falls, ID 83401-3550 Staff: nsuf@inl.gov Users Org: nsuf-users@inl.gov nsuf.inl.gov

