NSUF User Access Opportunities

Kathy Johns Swartz & Joanna Taylor
NSUF RTE Program Administrators

J. Derek Whipple
NSUF CINR Program Administrator

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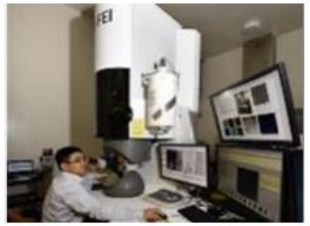
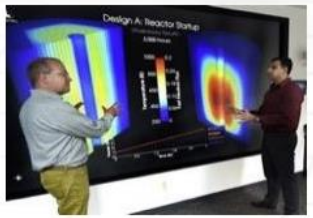
NSUF Nuclear Science User Facilities

INL/MIS-25-86020

Neutron Reactors		12 reactor facilities at national laboratories and universities including the Advanced Test Reactor at INL
Gamma & Ion Irradiation		7 gamma irradiation facilities and 7 ion beam facilities at national laboratories and universities
Post-Irradiation Examination		Multiple hot cell and broad post-irradiation examination facilities including advanced characterization methods
Beamlines		Synchrotron and neutron beamlines for nuclear fuel and materials studies
Computational Resources		Scientific high-performance computing capabilities for advanced modeling and simulation at INL

NSUF offers the best capabilities across the nation

Cutting-Edge Resources: Access to infrastructure and associated capabilities across 21 partner sites

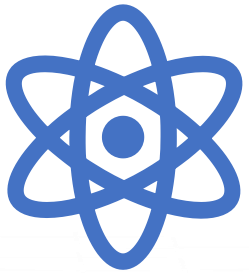
Open access: Available to industry, academia, and national labs for non-proprietary R&D

Education and training: Workshops, webinars, and hands-on skill development

Impact: Increase understanding to drive innovation across nuclear energy technologies

NSUF Objective

Offer an avenue for researchers to perform irradiation effects studies on nuclear fuels and materials



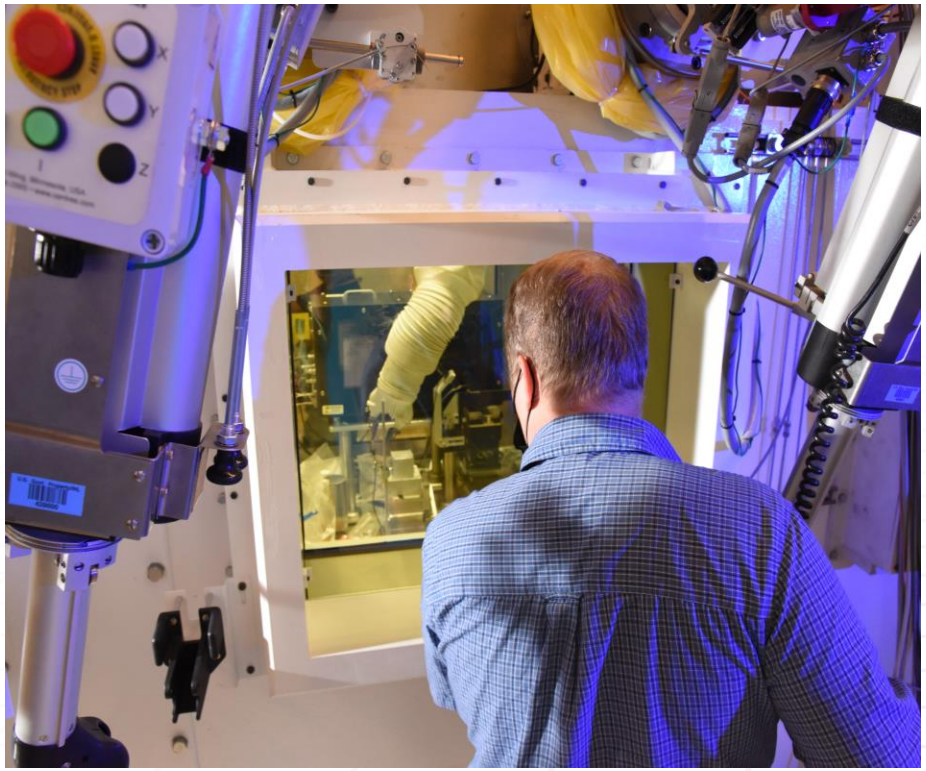
Access to NSUF capabilities is granted through competitive proposal processes:

1. Rapid Turnaround Experiments (RTEs)
2. Consolidated Innovative Nuclear Research (CINR) Notice of Funding Opportunity (NOFO) Announcement

NSUF RTE Overview

- Rapid Turnaround Experiments (RTEs) offer researchers the opportunity to perform irradiation effects studies of *limited* scope on a *small* number of samples.
- Completion of RTE projects is expected within 9 months of award.
- RTE solicitations typically run on a 4-month cycle from the opening of the call to announcement of awards. Calls are typically opened 3 times per year.
- https://nsuf.inl.gov/Page/rte

NSUF Super RTE Overview



- Super Rapid Turnaround Experiments (RTEs) offer researchers the opportunity to perform irradiation effects studies of *limited* scope on nuclear fuels and materials of interest utilizing NSUF facilities.
- Completion of RTE projects is expected within 12 months of award.
- Super RTE solicitations typically solicited and are awarded annually.
- https://nsuf.inl.gov/Page/super_rte

FY 2025 RTE Calls

- 1st RTE Call
  - October ~June
- 2ND RTE Call
  - June ~ October

RTE Rules Highlights

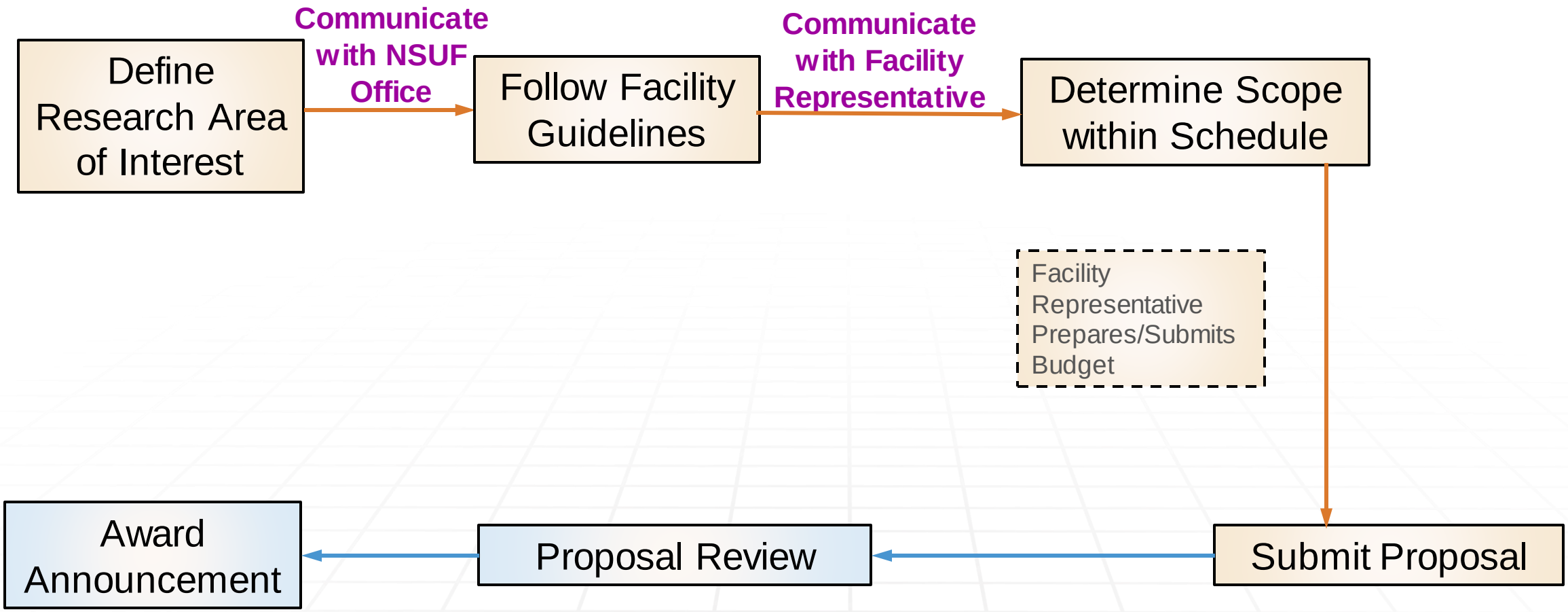
- A PI may only submit one proposal per call
- A PI may have only two active RTE projects at any given time
- Universities, industries, national laboratories are eligible
- Content cannot duplicate other funded work
- Produced data will lead to scientific or engineering outcomes that are suitable for publication and will be attributed to the NSUF
- Studies focused on irradiated materials
- Three partner institutions may be requested
  - Sample preparation/shipping
  - Irradiation
  - PIE
- Completion report summarizing work completed and data obtained is required

Facility Guidelines for RTE Experiments

- Requests for NSUF facilities should remain within Facility Guidelines to ensure appropriate scope and budget.
  - Facility Guidelines for RTE Experiments https://nsuf.inl.gov/Page/rte
  - Facility Guidelines for SuperRTE Experiments https://nsuf.inl.gov/Page/super_rte

Institution	Facility	Irradiated Sample Preparation	Irradiation	PIE	Beamline	Allowed Time
Argonne National Laboratory Proposals that request irradiation and PIE at IVEM or APS should assume approximately one week of irradiation access and one week of PIE access to remain within the suggested guidelines.	Activated Materials Laboratory at the Advanced Photon Source	Yes		Yes	X-ray	72 hours
	Intermediate Voltage Electron Microscopy - Tandem Facility		Ion	Yes		80 hours
	Irradiated Material Laboratory	Yes		Yes		80 hours
Brookhaven National Laboratory	NSLS II X-ray Powder Diffraction (XPD) Beamline				X-ray	24 hours
Center for Advanced Energy Studies	Microscopy and Characterization Suite	Yes		Yes		120 hours
Idaho National Laboratory	Analytical Laboratory			Yes		80 hours
	Electron Microscopy Laboratory* **Restricted access facility: U.S. citizenship required for on-site access.*	Yes		Yes		80 hours

Summary of RTE Proposal Preparation and Review



Tips for Success

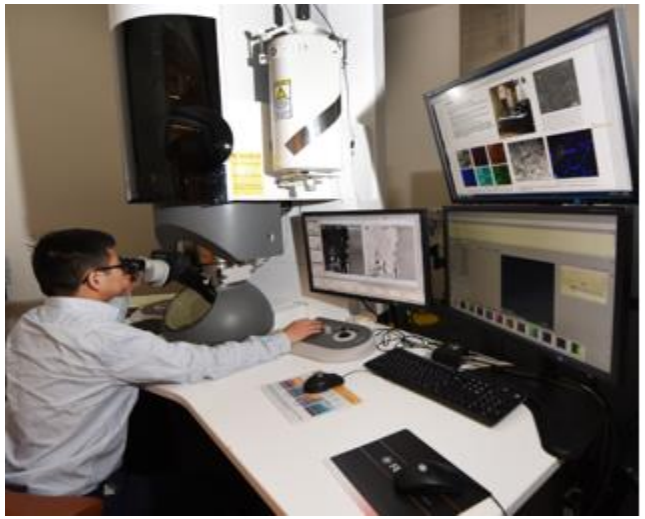
- Plan ahead and start application early
- Work with facility representative(s) *before* submitting proposal
- Ensure sample readiness
- Request samples from the NSUF Nuclear Fuels and Materials Library when possible
- Read RTE or SuperRTE Rules for Proposal Submission (https://nsuf.inl.gov/Page/rte or https://nsuf.inl.gov/Page/super_rte)
- Seek feedback

RTE FY 2025 2nd Call Schedule

Proposal Submittal & Review Schedule	
Solicitation period opens	6/18/2025
Proposal due date	7/16/2025 4:00 p.m. MDT
Selection review	TBD
Proposals awarded	TBD

NSUF CINR Overview

- In close coordination with the Nuclear Energy University Program, Nuclear Science User Facilities (NSUF) seeks proposals that will utilize NSUF irradiation, post-irradiation examination and beamline capabilities through the Consolidated Innovative Nuclear Research (CINR) Notice of Funding Opportunity (NOFO) formerly called the Funding Opportunity Announcement (FOA).
- Through the NSUF CINR topic areas, NSUF provides no-cost access to world class capabilities to facilitate the advancement of nuclear science and technology. In addition to access to state-of-the-art facilities, NSUF provides technical assistance including the design and analysis of reactor experiments.



FY 2025 CINR NSUF Topic Areas

NSUF-1: NSUF Access with R&D

- U.S. University-led
- R&D support is only permitted for tasks associated with the execution of the requested NSUF capabilities
- Up to $1,000,000 per award

NSUF-2: NSUF Access Only

- U.S. University-, National Laboratory-, or Industry-led
- This topic does NOT provide R&D support
- Access value determined by NSUF office

Proposals with NSUF access can include:

- Ion, neutron, and gamma irradiation
- X-ray synchrotron beam or neutron beam interrogation
- Post-irradiation examination
- Advanced materials characterization
- High-performance computing

How to find RTE and CINR information at NSUF website

- Guidance:
  - https://nsuf.inl.gov/Page/cinr
  - https://nsuf.inl.gov/Page/rte
  - https://nsuf.inl.gov/Page/super_rte
- Previously awarded projects:
  https://nsuf.inl.gov/Home/Projects
- More information

Questions?

Contact Information

Kathy Johns Swartz kathryn.johnsswartz1@inl.gov

Joanna Taylor Joanna.taylor@inl.gov, 208-526-9854

J. Derek Whipple j.Whipple@inl.gov

NSUF Nuclear Science User Facilities