



Call for Proposals: Nuclear Science at LANSCE 2024 Run Cycle

The WNR and Lujan Center call for nuclear science proposals is now open.

Deadline: Monday, April, 29, 2024, 5:00 pm (MDT)

The Los Alamos Neutron Science Center (LANSCCE) is issuing a Call for Proposals for Nuclear Science at the Weapons Neutron Research (WNR) Facility and Lujan Center for the upcoming run cycle September 3 – December 22, 2024.

The Weapons Neutron Research (WNR) facility and Lujan Center provide neutron and proton beams, and can provide detector arrays for basic, applied, and defense-related research depending on experimental requirements. Neutron beams with energies ranging from about 0.1 MeV to more than 600 MeV are produced at WNR from Target 4 (an unmoderated tungsten spallation source) using the 800 MeV proton beam from the LANSCE Linac. In the Target-2 area (Blue Room) samples can be exposed to the direct proton beam with energies up to 800 MeV. At Target 1 (Lujan Center) cold to epithermal neutrons (1 meV - 500 KeV) are produced. Information about the Nuclear Science instruments is available at <https://lansce.lanl.gov/facilities/wnr/index.php>.

Timeline

The deadline for proposal submission is Monday, April 29, 2024 at 5:00pm (MDT).

All non-proprietary proposals will be reviewed by the Nuclear Program Advisory Committee (NPAC) for scientific merit. The NPAC will meet the week of June 3, 2024. Nuclear science proposers are not expected to give a presentation, and PIs will be communicated with reviewers if there are any questions about the proposals prior to the NPAC meeting.

Instruments/Flight Paths Available in the Current Call for Proposals

Target 1 (Cold, Thermal, and Epithermal Neutron Source: 1 meV-500 keV):

*Due to the Lujan target replacement, there are uncertainties in flight path performance and availability; DANCE (flight path 14) will be accepting proposals for the CY24 LANSCE run cycle, but proposers are strongly encouraged to discuss experimental conditions with the Instrument Scientist (Aaron Couture, acouture@lanl.gov) prior to preparing and submitting a proposal. The flightpath is preparing for realignment to match the new Mark-IV spallation target, but CY24 experimental conditions will be impacted by the current mismatch. For DICER (flight path 13), only proposals to use the standard DICER configuration are encouraged to submit in the current run cycle. For flight path 12, before submitting proposals, contact Instrument Scientist.



| Flight Path | Description | Instrument Scientist | Email | Telephone |
|---------------------------------|--|--------------------------|--|---------------|
| Flight Path 12* | General purpose, SPIDER, LENZ | Sean Kuvin | kuvin@lanl.gov | 505-606-0990 |
| Flight Path 13* | Device for Indirect Capture Experiments on Radionuclides (DICER). Neutron total cross sections of radioactive nuclides | Athanasios Stamatopoulos | thanos@lanl.gov | 505-665-3114 |
| Flight Path 14* | Detector for Advanced Neutron Capture Experiments (DANCE). Neutron capture cross sections on small samples of stable, rare, or radioactive nuclides and measurements of gamma-ray emission spectra | Aaron Couture | acouture@lanl.gov | 505- 667-1730 |

Target 4 (High-Energy Neutron Source: 1-600 MeV):

| Flight Path | Description | Instrument Scientist | Email | Telephone |
|---------------------------------|--|----------------------|--|--------------|
| Flight Path 90L | Fission, SPIDER, SREFT, LENZ | Jack Winkelbauer | winkelba@lanl.gov | 505-606-0023 |
| Flight Path 15L | 20 m and 90 m stations,neutron outputs, Chi-Nu, CoGNAC | Matthew Devlin | devlin@lanl.gov | 505-665-0421 |
| Flight Path 15R | LENZ(n,z), detector testing and characterization | Hye Young Lee | hylee@lanl.gov | 505-665-7252 |
| Flight Path 60R | General purpose, High Energy Neutron Radiography | Kranti Gunthoti | kranti@lanl.gov | 505-551-4906 |

Target 2 (Blue Room) Proton Irradiations / Sole Use:

Radiation effects, proton-induced reaction cross sections, Lead Slowing-Down Spectrometer, Proton Storage Ring beam, Linac beam including beam energies other than 800 MeV, sole use.
Instrument Scientist: Kranti Gunthoti, kranti@lanl.gov, 505-551-4906

Proposal Submission and Selection

Proposal Submission and Required Documents

All proposals must be submitted using the LANSCE Experiment Management System (LEMS): <https://lems.lanl.gov/login> and include a proposal document. Please note that the proposal web-based form has not changed from last year. Please read it carefully and complete all sections.

The system requires users to create an account, complete a web-based form and upload of a proposal document. The proposal document should be formatted with fonts no smaller than 12 pt with a maximum of 5 text pages plus figures and appendices, and should contain the following technical information:



1. Research goals including background needed to place your proposal in the proper context, and the significance of the proposed work.
2. Experimental details sufficient for the PAC to determine the feasibility of your experiment: what you want to measure, estimates of signal and background including any assumptions, the total beamtime request for your experiment, and a justification for time request including any contingencies. Note: the request for beam time must include time you need to setup and take down your experiment. Thus, you will be expected to start setup on your first day of beam and be finished taking down your experiment by your last day.
3. If you require help in the form of specialized equipment (including user equipment shipped to LANL for the experiment), personnel expertise, or facility operations, discuss these needs. A plan for equipment used in your experiment and not provided by LANL, i.e., equipment brought for your experiment, must be made clear (e.g., ships back to home institution following experiment completion, maintain at LANL for future experiments, etc.).

When submitting your requested beam days make your request on the assumption that WNR intends to run at approximately 4 μA at 100 pulses per second and the Lujan Center nominally operates at 100 μA at 20 pulses per second. Delivery of lower-than-nominal beam is possible during scheduled run time, so planning for contingencies is advised.

If your proposal requires specialized facility operations (e.g. Target 2 / sole use or non-standard operation of the Proton Storage Ring), be aware that the proposal will face additional scrutiny due to potential consequences (i.e. loss of beam) for other experiments.

Proposers should expect conversations regarding sample disposition and other safety related issues as part of the proposed experiment.

Please, contact the User Program Office, lansce-user-office@lanl.gov or 505-667-6797 for assistance with the proposal process or the instrument scientist for technical questions. **Note:** The Department of Energy (DOE) requires users of any LANSCCE Facility to have a User Agreement (UA) in place between Los Alamos National Laboratory and the user's home institution **before the experiment can be run**. The description and list of existing UA can be found at <https://lansce.lanl.gov/users/become-a-user/user-agreements.php>. If your institution does not have a valid UA in place, please contact the User Office at lansce-user-office@lanl.gov to start the process as early as possible.

Note: the LANSCCE cost model can now be found at <https://lansce.lanl.gov/users/become-a-user/user-agreements.php> where experiments are separated into three categories. If you have questions regarding which category your experiment would be, please contact Jack Winkelbauer (winkelba@lanl.gov, 505-606-0023).



Important:

- All visiting US citizen users need to register the visit three weeks before the scheduled experiment. Non-US citizens must register at least 60 days before their visit.
- DOE requires that all personnel associated with each experiment (including citizenship) are listed in the proposal.
- DOE requires additional information to grant non-US citizens access to Los Alamos National Laboratory (LANL). Foreign national visitors must have an approved visit request, present a valid passport and documentation of US legal status and work authorizations. (<https://www.lanl.gov/community/visitors/badging/index.php>).

Program Advisory Committee Review

Proposals will be sent for an initial quality screening. Proposals that are complete will then be sent to their Instrument Scientist (IS) for a feasibility review. Those that are incomplete or that did not follow the guidelines, will be asked to update accordingly. PAC reviewers might communicate via emails with PIs for any questions or clarifications about proposals.

Proposals and their accompanying feasibility reviews will be sent to the Nuclear Program Advisory Committee (NPAC). The PAC is an advisory committee to the LANSCCE User Facility Director (LUFD) that is composed of technical experts in the relevant field. It judges the proposals based upon the criteria stated below. Submitted proposals will be ranked on the following criteria, listed from most to least important:

1. **The quality of the science or measurement being proposed.** What problem is being addressed? Why are these experiments being proposed?
2. **The impact of the science or measurement being proposed,** to programs, milestones, graduate student work, postdoctoral research, staff development, or other priorities. How will the data be used? (Note that as an NNSA-sponsored facility, NNSA priorities will be weighted more heavily, but proposals from other sponsors are welcome.)
3. **The feasibility and readiness of the proposed experiments.** Are samples and detector systems ready? Have prior experiments or measurements been performed, analyzed, and published? Where appropriate, are pre-experiment calculations complete?
4. **The need for LANSCCE resources.** How appropriate are the LANSCCE experiment setups? Why can't these experiments be done somewhere else? How much beam time, staff time, etc. will be required to execute these experiments?

The more detailed information, including results from previous experiments or tests, that can be provided, the stronger the proposal will be.

The NPAC will provide a preliminary ranking of proposals along with recommendations for which proposals should not be awarded beam time. The LUFD and representatives from the programs



sponsoring experiments at LANSCCE will then finalize the rankings. NPAC feedback will be provided for all proposals in a timely manner, no later than the beginning of the LANSCCE run cycle.

Proposal Scheduling

Once the LANSCCE block schedule for a run cycle is finalized, the Instrument Scientist for each flight path will combine the block schedule with the finalized rankings in order to develop an experimental schedule for each area or beam line. These schedules will be communicated to experiment proposers as soon as possible so that arrangements for the shipment of parts, user travel, etc. can be made. To maximize the efficiency of operations, feasibility, readiness, and resource usage may be weighted more highly during proposal scheduling than they were during proposal review.

Final scheduling of ranked proposals depends upon the feasibility of fielding the experiment within the constraints of the LANSCCE operating schedule. Because of the complexity of the LANSCCE accelerator and experimental system, the operating schedule typically changes over the course of the run cycle, and thus particular experimental dates cannot be guaranteed.

In the event that proposals which were recommended for beam time are not executed in a given run cycle, those proposals must be resubmitted for a later run cycle. The PAC will note the previous recommendation and accordingly weight them more highly.

Classified Proposals Submission

If you plan to submit a classified proposal, please contact Jack Winkelbauer (winkelba@lanl.gov 505-606-0023) as early as possible to discuss how to do so.

**We look forward to your submissions,
Nuclear Science User Program**