



Call for Proposals: Materials Science at LANSCCE 2022 Run Cycle

Proposal Submission Deadline: Thursday, **May 5th, 2022**, 5:00 pm (MDT)

The Los Alamos Neutron Science Center (LANSCCE) is issuing a Call for Proposals for Materials Science at the Lujan Center Facility for the upcoming run cycle anticipated August 1 – December 21, 2022.

The Lujan Center beam production operations are fully covered by NNSA programmatic sponsors. Approximately 10-20% of the beam time at Lujan Center is available for compelling scientific proposals from institutions with no programmatic sponsor. As LANSCCE is a NSUF ([Nuclear Science User Facilities](#)) partner facility, beam time may be requested for DOE/NE-related work that will be contingent on a successful NSUF funding proposal as an alternate path to the normal proposal process. Proposals that involve proprietary work or SPPs (Strategic Partnership Projects) will be considered using a full cost recovery model. The deadline for proposal submission is 5 p.m. (MDT) Thursday, May 5th, 2022. Scheduling of awarded proposals will be between August 1 (tentative), 2022 and December 21, 2022, where the start of the run cycle is contingent on the replacement of the LANSCCE 1L Target and subsequent beam delivery to the Lujan Center. Proposals for Nuclear Science research (on Flight Paths 12 and 14) are covered in the Nuclear Science Proposal call.

Lujan Center capabilities available for this call are: SMARTS and HIPPO diffractometers, Flight Path 5 for neutron radiography, as well as the Asterix neutron reflectometer and phase contrast imaging capability. More information about these capabilities can be found at <https://lansce.lanl.gov/facilities/lujan/index.php>.

For any questions, contact Don Brown (dbrown@lanl.gov or 505-667-7904) or the instrument scientist listed below.

Asterix: Neutron reflectometry and phase contrast imaging: Erik Watkins, ebw@lanl.gov, 505-667-4037

ERNI (Flight Path 5): Neutron imaging/tomography: Alex Long, alexlong@lanl.gov, 505-667-3600

HIPPO: Neutron time-of-flight powder diffractometer: Sven Vogel, sven@lanl.gov, 505-667-7016

SMARTS: Materials research of deformation under stress and temperature, Bjorn Clausen, clausen@lanl.gov, 505-667-2944

Lujan Center areas of research include the following:

- Microstructural evolution, including texture, phase composition, and dislocations, at ambient and non-ambient conditions (load, temperature, pressure etc.)
- Residual and induced stress, phase transformations
- In-situ phase transformations under P, T, H
- Surface and interfacial structure of materials
- Oxidation and hydriding phenomena at interfaces



- Neutron radiography and tomography, including energy-resolved neutron tomography for isotope mapping and phase contrast imaging
- All materials relevant to NNSA and DOE/NE work can be handled at the Lujan Center, including but not limited to actinides (uranium, Pu etc.), high explosives, and radioactive materials

Proposal Submission and Selection

Proposal Submission and Required Documents

All proposals must be submitted using the LANSCCE 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 the web-based form and upload the 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, and a justification for time request including any contingencies.
3. If you require special help in the form of specialized equipment (including user equipment shipped to LANL for the experiment), personnel expertise, or facility operations, discuss these needs.

Users should expect a conversation regarding the disposition of samples brought into the facility as part of the proposed experiment.

Please, contact the User Program Office, lansce-user-office@lanl.gov or 505-665-9967 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 scheduled**. 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 Don Brown (dbrown@lanl.gov, 505-667-7904).



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 use the proposal template, will not be reviewed and will not be recommended for beam time.

Proposals and their accompanying feasibility reviews will be sent to the Materials Program Advisory Committee (MPAC). 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 components ready? Have prior experiments or measurements been performed, analyzed, and reported? Where appropriate, are pre-shot calculations complete?
4. **The need for LANSCCE resources.** How appropriate are the LANSCCE diagnostics? 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 MPAC 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. MPAC 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 Don Brown (dbrown@lanl.gov) as early as possible to discuss how to do so.

Proprietary Proposals

Proprietary users planning full cost recovery experiments *must also submit a proposal*. Though these proposals are not reviewed by the MPAC. For questions regarding full cost recovery experiments and administrative questions regarding contracts for these experiments, please contact Nina Roelofs (nroelofs@lanl.gov, 505-665-9967).

Technical Questions

It is strongly encouraged that users work with the scattering science team when developing their proposals. For technical questions regarding details involved in fielding experiments, please contact Don Brown (dbrown@lanl.gov) or the instrument scientists listed in this call. Other questions may be directed to the LANSCCE User Office (lansce-user-office@lanl.gov).

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