



Call for Proposals: Proton Radiography 2021 Run Cycle

Deadline: 5:00 pm (MST) Friday, January 29, 2021

Program Advisory Committee Review with PI presentations: mid-February

The Los Alamos Neutron Science Center (LANSCE) is issuing a Call for Proposals for experiments for the 2021 pRad Run Cycle <https://lansce.lanl.gov/facilities/pRad/index.php>. This year a new proposal process is being implemented, so please read the proposal instructions carefully. No previous proposals, even those awarded beam time, will be scheduled for 2021. All must reapply for beam time. If your experiment will be ready for the 2021 Run Cycle (approximately June – December 2021), apply to this call. If your experiment will not be ready to shoot in that time frame, please apply instead to the 2022 call for 2022 beam time.

Contact the pRad Project Leader, Kathy Prestridge at kpp@lanl.gov, to be assigned a Point of Contact (POC) from the pRad Team. Your POC will help you with any questions you may have about the proposal process. Accepted experiments will be scheduled from approximately **early July through December 17, 2021**. The proton radiography facility uses 800 MeV protons, provided by the LANSCE accelerator facility at Los Alamos National Laboratory (LANL), to diagnose dynamic and static experiments in support of national and international weapons science and stockpile stewardship programs and other research that benefits from the unique capabilities of proton radiography.

The pRad facility has high explosive, pulsed power (PHELIX), and 40mm powder gun drivers available for experiments, although all drivers and imaging lenses may not be available in a given year. We anticipate that three imaging systems will be available for dynamic experiments, 1X, 3X, and 7X. The x7 magnifier will not be available for powder gun experiments. If your experiment would benefit from a pre-shot sample characterization using neutron diffraction, address the requirement in your proposal. If feasible, we will use the available instruments (SMARTS and HIPPO) at the Lujan Center to perform the sample characterization. See <https://lansce.lanl.gov/facilities/lujan/index.php> for instrument details.

pRad Facility Scope and Costs

pRad beam production operations are covered by NNSA programmatic sponsors.

Approximately 10% of the beam time at pRad is available for compelling scientific proposals from institutions without programmatic sponsors, and proprietary work or SPP (Strategic Partnership Project) agreements. For all experiments, costs for personnel not on the pRad team and unique experimental costs, including fabrication and assembly of the experimental package, must be borne by the user.

Proposers should work with their POC when developing their proposals. It is expected that pRad experiments will have had extensive testing at other facilities before coming to pRad.



Known technical, operational, and safety risks specifically associated with the proposed experiment must be identified in the proposal. Proposers should specify how the pRad measurements will inform theory, modeling, or validation work.

Proposal Required Documents

All proposals must use the new pRad proposal preparation application (a standalone Java program). The application can be downloaded when you log into the LEMS system (see instructions below, and both the source code and the executable are provided). Proposals not using this template, or incomplete proposals, will not be given to the pRad PAC for consideration. The proposal submission requires detailed information that was not required in past years, including signed engineering drawings for high-explosive experiments. Please complete all sections.

Program Advisory Committee Review

Proposals will be sent for an initial quality screening. Proposals that are complete will then be sent to their point-of-contact (POC) 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 Program Advisory Committee (PAC). The PAC is an advisory committee to the LANSCE User Facility Director (LUFD) that is composed of representatives from funding programs and 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 LANSCE resources.** How appropriate are the LANSCE 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 proposal template has been designed to help you answer these questions, and technical discussions with your POC should help you ensure that your proposal is as strong as possible.



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

The proposal template has been designed to help you answer these questions, and technical discussions with your POC should help you ensure that your proposal is as strong as possible. The more detailed information, including figures, photos or data from previous shots, etc. that can be provided, the stronger the proposal will be. The PAC will provide a preliminary ranking of proposals along with recommendations for which proposals should not be awarded beam time. The LUF and representatives from the programs sponsoring experiments at LANSCE will then finalize the rankings. PAC feedback will be provided for all proposals in a timely manner, no later than the beginning of the LANSCE run cycle.

Proposal Scheduling

Once the LANSCE block schedule for a run cycle is finalized, the pRad Project Leader 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 shot within the constraints of the LANSCE operating schedule. Because of the complexity of the LANSCE 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 that 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.

Proposal Submission

Part 1: Log into the LANSCE Experiment Management System

1. Log in to <https://lems.lanl.gov/login>.
2. Create an account (contact the pRad User Office if you have problems, prad-uo@lanl.gov).
3. Answer the questions in LEMS.
4. Download the Java application via the link in LEMS.
5. Your proposal number will be emailed to you.



Part 2: Submit Full Proposal to LANSCE

Unclassified and OUO/Export Controlled Proposals

1. Complete the proposal Java application, including all required attachments.
2. Submit your proposal to trouw@lanl.gov, nroelofs@lanl.gov and kpp@lanl.gov using the <https://transfer.lanl.gov> website (accessible from outside LANL, no account necessary).

Classified Proposals

Submit your classified proposal to Valorie Allison and Kathy Prestridge on the secure network (vallison@lanl.gov and kpp@lanl.gov) via email or transfer. Classified proposals must also use the proposal application, but please complete the shot metadata portion and send via the unclassified network. If this transmission method is not available to you, contact Valorie for alternatives. Classified proposals should be appropriately marked and include your LEMS proposal number. For proposals containing sigma 15 or 20 information, please contact Tamsen Schurman (tamsen@lanl.gov) for information on how to proceed.