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Title: Call for Proposals: Proton Radiography 2027 Run Cycle

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Call for Proposals: Proton Radiography 2027 Run Cycle

Optional Letter of Intent Deadline: November 16, 2026

Full Proposal Deadline: 5:00 pm (Mountain Time), January 7, 2027

Program Advisory Committee Review with PI presentations: Early February 2027

Final Schedule Publication: Early March 2027

Issued by: Los Alamos Neutron Science Center (LANSCE)

The Los Alamos Neutron Science Center (LANSCE) invites proposals for experiments at the Proton Radiography (pRad) Facility during the 2027 run cycle. The pRad Facility uses 800 MeV protons from the LANSCE accelerator to diagnose dynamic and static experiments in support of national-security programs and other research that benefits from the unique capabilities of proton radiography.

The 2027 run cycle will include separate operating periods for plutonium (Pu) and non-plutonium (non-Pu) experiments. The dates and beamtime allocations for these periods are still being determined. This call is for non-Pu experiments only; Pu experiments are planned through a separate process. Only high-explosively driven (vessel) and static experiments will be considered. No gun or PHELIX experiments will be reviewed or scheduled.

Key Considerations for 2027

- The proposal deadline is earlier this year. All proposal materials must be submitted by January 7, 2027 to be considered for the 2027 run cycle.
- All proposers must submit new or updated proposals, including experiments awarded beamtime in previous years. This allows the Program Advisory Committee (PAC) and program managers to assess current demand and experimental readiness.
- New experiment concepts are encouraged, particularly those addressing emerging scientific needs or new diagnostic capabilities. Scheduling will depend on available beamtime, programmatic priorities, and experimental readiness.
- This call will also be used to assess future demand and inform facility and program planning beyond 2027.
- Proposers should indicate whether their experiment supports or develops a future actinide experiment at pRad.
- For help with the proposal process or assignment of a Point of Contact (POC), contact Mary Sandstrom at msandstrom@lanl.gov.

Proposal Requirements

All proposals must be registered in the LANSCE Experiment Management System (LEMS). The online questionnaire must be completed to obtain a proposal number and is intended to improve review efficiency and help assess experimental readiness. Written proposals must be submitted according to the instructions in the Proposal Submission section.

The written proposal provides the technical and programmatic information needed for PAC review. Proposers should address the following topics and provide justification if a section is not applicable. New this year, proposers may submit an optional letter of intent to request POC assistance before submitting a full proposal; see Letters of Intent below.

1. **Background and Scientific Objective** – Summarize the scientific problem, the need for experimental data, and previous experiments and findings, including references to archived data or publications when applicable. Explain why proton radiography at pRad is needed to meet the experimental objectives.
2. **Programmatic Impact** – Identify sponsoring programs and data stakeholders. Describe how the experimental results will be used and what programmatic or mission needs they address.
3. **Simulations and Model Validation** – Describe the status of pre-shot simulations, the physics models being tested or validated, and the required spatial, temporal, or diagnostic data. Confirm that simulation data are archived in CMF or an equivalent repository, when applicable.
4. **Experimental Setup and Requested Scope** – Describe the devices, configurations, number of experiments, and requested beamtime. Include any pre-shot material or component characterization needed to support the experiment, along with special equipment or facility support requirements.
5. **Readiness and Schedule** – Describe current parts availability, design status, supporting tests, and critical milestones needed for execution. Identify scheduling constraints and risks to readiness, along with mitigation strategies.
6. **Feasibility, Security, and Safety** – Describe the suitability of the experiment for pRad, including diagnostic and facility requirements. Identify technical, operational, security, and safety considerations, required approvals, and known risks with proposed mitigations.
7. **Analysis and Reporting** – Identify planned analysis, reporting, and publication activities. Data generated at pRad will be archived and managed through the facility's established National Security Data Service (NSDS) process.

Complete proposals must be received by the stated deadline. Incomplete or late proposals will not be accepted.

Evaluation Criteria

The Program Advisory Committee (PAC) will evaluate and rank proposals based on the following criteria:

1. **Science** – Quality of the proposed science, the need for experimental data, and the justification for using proton radiography.
2. **Programmatic Impact** – Relevance to sponsoring programs and how the experimental results will be used.
3. **Readiness** – Status of experimental design, hardware, supporting tests, documentation, and critical milestones needed for execution.
4. **Feasibility** – The ability to execute the proposed experiment at pRad, considering facility capabilities and limitations, available resources and beamtime, diagnostic and operational requirements, security, safety, and required approvals.

Program Advisory Committee Review

Following receipt of a letter of intent or full proposal, a pRad Point of Contact (POC) will be assigned to coordinate an initial technical review with the appropriate subject matter experts. The review will identify concerns regarding experimental readiness, facility capabilities, diagnostics, security, and safety. The findings, including any unresolved issues, will be documented and provided to the Program Advisory Committee (PAC).

The PAC, an advisory body to the LANSCE User Facility Director, will evaluate and rank proposals based on the outlined criteria. Principal investigators will present their proposals during the review. The PAC will consider scientific merit and programmatic relevance, including program priorities and milestones. The pRad operations team will provide assessments of experimental readiness and technical feasibility. PAC recommendations and documented technical assessments will inform final scheduling decisions.

Scheduling and Change Control

The final experiment schedule will consider PAC recommendations, programmatic priorities, experimental readiness, technical feasibility, and available beamtime and facility resources.

Changes to the scope or schedule of an approved experiment require review by the pRad Change Control Board (CCB). Requests should be coordinated through the assigned pRad Point of Contact (POC) and include justification for the change, the impact of executing a partial scope, the minimum scope needed to obtain sufficient mission-relevant data, and any additional beamtime required. Factors affecting execution, including hardware delays,

beam availability, or pending safety approvals, should also be identified. The CCB will provide a recommendation through the LANSCE User Facility Director to the Associate Laboratory Director for Physical Sciences (ALDPS) for final approval.

Proposal Submission

Step 1: Register Proposal in LEMS

Create an account in the LANSCE Experiment Management System (LEMS) and complete the required questionnaire to obtain a proposal number. Include this number on your written proposal. Submission instructions for unclassified, CUI/export-controlled, and classified proposals are provided in Step 2.

LEMS login: https://lems.prod.cc.lanl.gov/login

This is a new LEMS system requiring you to create an account even if you have submitted a proposal previously. If you do not receive an email when you click on "Create an account," contact lems-help@lanl.gov or bwhite8@lanl.gov.

Step 2: Submit Full Proposal to LANSCE

Unclassified Proposals: Upload your written proposal in LEMS. If you have difficulty uploading the document, submit it by email or through transfer.lanl.gov to Mary Sandstrom (msandstrom@lanl.gov), Brandon White (bwhite8@lanl.gov), and Pat Harding (jpharding@lanl.gov).

CUI/Export-Controlled Proposals: Do not upload these proposals into LEMS. Submit separately to the contacts listed above using an approved transfer method appropriate for the information markings.

Classified Proposals: Do not upload classified proposals into LEMS. Submit through the approved classified network to the same contacts. For proposals containing Sigma 15 or 20 information, contact James Wernicke (wernicke@lanl.gov) for instructions.

All required proposal materials must be received by January 7, 2027, 5:00 p.m. Mountain Time.

Letters of Intent

Proposers who need early assistance from a pRad Point of Contact (POC) may submit a letter of intent to Mary Sandstrom at msandstrom@lanl.gov by November 16, 2026. The letter should briefly describe the scientific objective, sponsoring program, proposed experimental approach, and areas where pRad input is needed.

Letters of intent are optional and do not replace the full proposal or reserve beamtime.

pRad Facility Scope and Costs

Beam production operations at pRad are funded by NNSA programmatic sponsors. User costs may include personnel support outside the pRad team as well as experimental setup, fabrication, and assembly.