Wednesday, September 10, 2025

Low-Temperature Plasma Collaborative Research Facility External Collaboration Template

Use this template to prepare your proposal by addressing each of the following sections and questions. The entire text with references is limited to four pages. You can remove all instructional text in italics but leave the headings in bold. Use a font no smaller than 10 points.

The proposal will be evaluated according to the following criteria: 1) Scientific and Technical Merit of the Project; 2) Appropriateness of the Proposed Method or Approach; 3) Qualification of the PI's Team and Availability of Facility. Specific questions under each criterion are given below.

1. **Scientific/Intellectual Merit:** Prospects for fundamental advance, new approach, understanding, or valuable results? Uniqueness, originality, and scientific merit compared with other efforts? Impact on the field?
2. **Proposed Method/Approach:** How well developed is the idea? Logical and/or feasible and/or innovative? Well thought out? Likelihood of valid conclusion or success? Potential problems recognized and alternative strategies considered?
3. **Qualification of PI's Team and Facility Readiness**: How well prepared are the PI and team? Necessary skills represented amongst proponents? Collaborative Research Facility (CRF) research environment and available resources adequate? What level of technical support is needed from the CRF team? What are the needs for additional diagnostic or equipment?

For questions regarding your proposal to Princeton Collaborative Research Facility (PCRF), please use the contact information provided at the end of this document (in Section III).

Section I: Proposal Information

(1) Proposal Title

(2) Principal Investigator

Provide name of the proposals point of contact, Home institution, email address, and phone number.

(3) Proposed Research Goal

Provide a meaningful summary of the proposal indicating main research goals. If this proposal is approved, its abstract, title and PI's name will be posted on the facility website. *Limit: 300 words*

(4) Background and Motivation

This section should address the scientific and/or technical merit of the project. Briefly describe the current status in the field. Explain the proposed research's scientific, technical, and/or industrial

importance. Include the main scientific question(s) being addressed in this project including the connection to plasma science. Limit: 200 words

(5) Potential Impact

Briefly describe what is (are) the expected impact(s) of this user project. How would the project impact the direction and the thinking in the field? What is the anticipated broader impact? Limit: 200 words

(6) The need for the facility and dissemination of results

Explain why the Facility is needed for the proposed research. How the PI is planning to disseminate the results of the research (e.g. publications, presentations, outreach) Limit: 200 words

(7) Qualification of PI/PI team

Briefly describe the expertise and experience of the PI and PI team (if applicable) relevant to the proposal and research tools proposed for use in the proposal. Limit: 100 words

(8) Previous Facility Use

Applicants who have previously been allocated Facility access and are seeking a new allocation to continue the same project should provide a status report on the results of the prior effort. Provide references to any presentations or publications that have resulted from the previous effort. These references should be included in Reference section of the proposal. Limit: 200 words

(9) References

Section II: Site Specific Information

Proposed Facility Project

Use this section to (i) confirm that your proposal is to the PCRF at PPPL (ii) very briefly describe the proposed work (experimental or computational), (iii) indicate anticipated deliverables (e.g., peer-reviewed publications, proprietary intellectual property), (iv) indicate a preferred and an alternate period of performance for the project to occur, and (v) address the questions pertaining to specific scope of work below.

Target Facility	
Nature of work (Experimental/Computational)	
Anticipated deliverable	
Preferred period of performance	
Alternate period of performance	

What experimental hardware/computational resources will be brought by the applicant to the Facility for the project?

For experimental projects, (i) provide details on the experimental setup including overall dimensions and weight, input parameters (e.g. gas, pressure, voltage, current), (ii) highlight potential hazards and safety concerns associated with the equipment and the proposed experiment, including EMI, and explain the mitigation methods for these issues, (iii) indicate if electrical equipment is UL certified and, if it is not, explain how this issue will be addressed in experiments at the PCRF (consult with PCRF before submitting user proposal), (iv) list the required utilities (e.g. power, water cooling, etc.) for the operation of the setup which will need to be provided by the Facility.

For computational and experimental projects, (iv) provide the list of the applicant's software which will need to be on Facility computers or will be installed on applicant computers linked to the Facility computer network and (v) identify the requirements for the data storage associated with the project.

What diagnostics/computational capabilities/ theory support are needed for the project?

For experimental projects, describe the plasma parameters that will be measured as well as the temporal and spatial resolution required. Use the list of diagnostics available at the selected facility to indicate the desirable diagnostic tool/s for these measurements. Is any other equipment needed (e.g., plasma sources, RF amplifiers)?

For computational projects, please identify the capabilities (codes, post-processors, data analysis) you anticipate using.

A description of available diagnostic tools, equipment, plasma sources, numerical codes, and computational resources are available at the PCRF website.

What specific work will need to be performed at the specified facility and/or collaborator's home institution, in preparation for, or in support of, the proposed project?

Use this section to describe, for example, mechanical or electrical adapters that would need to be made in order to integrate your experimental hardware with the selected Facility diagnostic setup (e.g. place and fix it on the optical table), safety requirements, or shipping. Indicate the anticipated total expenses (US$) associated with these preparations at the Facility.

What specific tasks will be performed by the applicant at the selected Facility?

For each task, include task duration, expected task outcome, requested diagnostic/code/theory support and Facility staff engagement.

Indicate anticipated challenges with using the diagnostic or computational methods in the proposed tasks. Can you suggest potential ways to mitigate\overcome those challenges?

Personnel

List the name/s of researchers, who will be working on this project at the Facility. Very briefly describe their role in the project, experience, and skills. Also, indicate if the visitors have U.S. Citizenship.

Section III: Contact information

Dr. Yevgeny Raitses (PPPL)

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