Neutrons Canada

Request for Advice and Information

Overview

The Canadian neutron-beam community aims to secure Canadian government investment in a $20M/year national infrastructure program for research and development with neutron beams, of which an estimated 45% would be allocated to partnerships that leverage access to neutron sources in other countries. This national program would be operated by Neutrons Canada.

We ("Neutrons Canada") are seeking advice and updated information from you (a neutron source outside Canada) about modes in which Canada could invest at your neutron-beam facility and thereby integrate your facility into the proposed neutron beam infrastructure program.

On receipt of your advice and information, we will provide further information about Canadian needs and work with you to develop and document specific ideas for Canadian investment in activities, operations, or projects at your facility. Documentation of your ideas will then be reviewed and prioritized in fall 2023 by the Canadian neutron-beam community for inclusion in the Canadian Neutron Long Range Plan for 2025 to 2035.

Background

Canada is beginning to rebuild its neutron beam infrastructure following the closure of Canada's primary neutron source in 2018. Canadian universities have developed a national neutron strategy and created Neutrons Canada, which has 14 member universities. Members have already secured government support for a $47M project led by McMaster University: (1) to develop the neutron beam user laboratory at the McMaster Nuclear Reactor; and (2) to establish short-term partnerships with two foreign neutron sources. Members have also proposed a $55M project led by the University of Windsor to develop a prototype compact accelerator-based neutron source and to create further partnerships with three foreign neutron sources. These actions are the first steps towards a $20M/year infrastructure program for research and development with neutron beams, notionally to be allocated 45% for access to neutron sources in other countries, 45% to build on domestic capabilities and 10% to explore and develop new neutron sources for the long term.

The Neutron Long Range Plan is a consultative activity of the Canadian neutron-beam community. The resulting plan will recommend how Canada can best invest during the 2025 to 2035 period to advance the objectives of the national neutron strategy. A community-supported plan with specific investments identified is expected to help the community to secure the required government funding.

More Information

The following resources may provide further insight into the Canadian context:

- The National Neutron Strategy (https://neutrons.ca/national-neutron-strategy/)
- The Neutron Long-Range Plan 2025-2035 website (https://neutrons.ca/lrp2025/)
- Neutrons Canada Prospectus (https://neutrons.ca/wp-content/uploads/2022/11/Neutrons-Canada-Prospectus-2021.pdf)

March 2023

Requested Advice and Information

We are seeking advice and updated information concerning how we can best partner or otherwise engage with your facility. Please summarize the possible modes in which we could engage you in a brief note (e.g. 1-2 pages), containing the following:

- The possible modes of partnership with us that you would consider over the 2025 to 2035 time period (focusing on activities that begin before 2030), with your preferences identified. Modes of partnerships could include a formal membership acquired through contributions of cash to your facility, or contributions in other forms such as: upgrading or constructing new instruments; contributing to beamline operation and user support; or contributing to neutron technology development (including technology for new neutron sources).
- The scale of investment you could consider receiving from us for various activities that could fit comfortably within your operating framework. We are open to consider investments ranging from support for a few post-doc positions or an instrument scientist on the low end, to contributions valued in millions of dollars per year.
- The value that such modes of partnership would add to Canada and specifically to Canadian researchers who require access to your facility. Please include an estimate of your facility's full operating cost per instrument beam day to help us justify an eventual funding request.

All documents you share with us will be kept confidential and treated as non-binding drafts for discussion to be shared only with members of the Neutron Long Range Plan Panel.

We will only release final documents that you agree we can release for the purpose of supporting deliberations by the Canadian neutron-beam community of the Neutron Long Range Plan Panel's recommendations.

Next Steps

Please send us your note with the above information by April 30. All documents, questions and other communications regarding this request for information or regarding the Neutron Long Range Plan process should be directed to Daniel Banks (Daniel.Banks@neutrons.ca).