

Submission Instructions:

Email the completed form to: beamtime@cins.ca

NON-PROPRIETARY RESEARCH PROPOSAL

Discuss any proposed experimental work with a local contact before submitting this form. For a list of local contacts, and guidance on completing this research proposal, please see <http://www.cins.ca/>.

| | | |
|--|--|---|
| PROPOSAL NUMBER: (to be filled in by NRC) <input style="width: 95%;" type="text"/> | DATE RECEIVED: (to be filled in by NRC) <input style="width: 95%;" type="text"/> | REVIEW committee: (to be filled in by NRC) <input type="radio"/> Materials Science and Engineering <input type="radio"/> Soft Materials <input type="radio"/> Thin Films and Surfaces <input type="radio"/> Structures and Dynamics <input type="radio"/> Quantum Materials |
|--|--|---|

EXPERIMENT TITLE:

PROPOSERS (list principal investigator (PI) first; **red** indicates **required fields** for other names, if different from PI):

| | | | | | | | | | | | | | | | | | | | |
|----------------------|--------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|-------------|----------------------|----------------------|----------------------|------|----------------------|----------------------|----------------------|--|--|
| Attending | <input type="checkbox"/> | Salutation | <input type="text"/> | First Name | <input type="text"/> | Last Name | <input type="text"/> | Initial | <input type="text"/> | Citizenship | <input type="text"/> | Business Phone | <input type="text"/> | Ext. | <input type="text"/> | Fax | <input type="text"/> | | |
| Position | | Department | | Organization | | Email Address | | | | | | | | | | | | | |
| <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | | | | | | | | | | | | |
| Address | | | | City | | | | Prov/State | | | | Country | | | | Postal/Zip Code | | | |
| <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | |

☐ Proposers will be automatically become a CINS member (www.cins.ca). Please indicate if you **DO NOT** want to become a member.

| | | | | | | | | | | | | | | | | | | | |
|----------------------|--------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------|----------------------|----------------------|----------------------|------|----------------------|------------------------|----------------------|--|--|
| Attending | <input type="checkbox"/> | Salutation | <input type="text"/> | First Name | <input type="text"/> | Last Name | <input type="text"/> | Initial | <input type="text"/> | Citizenship | <input type="text"/> | Business Phone | <input type="text"/> | Ext. | <input type="text"/> | Fax | <input type="text"/> | | |
| Position | | Department | | Organization | | Email Address | | | | | | | | | | | | | |
| <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | | | | | | | | | | | | |
| Address | | | | City | | | | Prov/State | | | | Country | | | | Postal/Zip Code | | | |
| <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | |

☐ Proposers will be automatically become a CINS member (www.cins.ca). Please indicate if you **DO NOT** want to become a member.

| | | | | | | | | | | | | | | | | | | | |
|----------------------|--------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------|----------------------|----------------------|----------------------|------|----------------------|------------------------|----------------------|--|--|
| Attending | <input type="checkbox"/> | Salutation | <input type="text"/> | First Name | <input type="text"/> | Last Name | <input type="text"/> | Initial | <input type="text"/> | Citizenship | <input type="text"/> | Business Phone | <input type="text"/> | Ext. | <input type="text"/> | Fax | <input type="text"/> | | |
| Position | | Department | | Organization | | Email Address | | | | | | | | | | | | | |
| <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | | | | | | | | | | | | |
| Address | | | | City | | | | Prov/State | | | | Country | | | | Postal/Zip Code | | | |
| <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | |

☐ Proposers will be automatically become a CINS member (www.cins.ca). Please indicate if you **DO NOT** want to become a member.

| | | | | | | | | | | | | | | | | | | | |
|----------------------|--------------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|--------------------|----------------------|----------------------|----------------------|------|----------------------|------------------------|----------------------|--|--|
| Attending | <input type="checkbox"/> | Salutation | <input type="text"/> | First Name | <input type="text"/> | Last Name | <input type="text"/> | Initial | <input type="text"/> | Citizenship | <input type="text"/> | Business Phone | <input type="text"/> | Ext. | <input type="text"/> | Fax | <input type="text"/> | | |
| Position | | Department | | Organization | | Email Address | | | | | | | | | | | | | |
| <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | <input type="text"/> | | | | | | | | | | | | | |
| Address | | | | City | | | | Prov/State | | | | Country | | | | Postal/Zip Code | | | |
| <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | | <input type="text"/> | | | |

☐ Proposers will be automatically become a CINS member (www.cins.ca). Please indicate if you **DO NOT** want to become a member.

☐ If there are more than 4 proposers please indicate and "attach a file as a comment" with the required information for each additional proposer.

PROPOSAL DETAILS

LOCAL NRC CONTACT:

DESIRED DATES:

INSTRUMENT PREFERRED:

ESTIMATED MEASURING TIME:

IMPOSSIBLE DATES:

DESCRIPTION OF SAMPLE:

NAMES AND FORMULAE:

NUMBER OF SAMPLES:

VOLUME:

N/A for thin films

WEIGHT:

N/A for thin films

DIMENSIONS:

(or substrate size)

SAMPLE IS:

- ☐ Liquid ☐ Amorphous ☐ Powder
☐ Single Crystal ☐ Thin Film ☐ Polycrystalline
☐ Other (specify)

SAMPLE DISPOSITION:

- ☐ CNBC arranges for safe disposal
☐ CNBC stores specimen until _____
☐ CNBC returns specimen to user

SAMPLE ENVIRONMENT:

SAMPLE MOUNT/CONTAINER TO BE SUPPLIED BY NRC?

(Preferred containers are of aluminum or vanadium) ☐

SPECIMEN ENVIRONMENT

- ☐ Closed Cycle ☐ Cryostat ☐ Furnace ☐ Water Bath ☐ Horizontal Field
☐ Vertical Field ☐ 3 He Stick/CCR ☐ Ice Cell (Peltier) ☐ Other

SPECIMEN ORIENTATION

- ☐ Goniometer ☐ Eulerian Cradle ☐ C-Cradle ☐ Rotary Table ☐ XYZ Translation
☐ Other

SPECTROMETER ACCESSORIES

- ☐ Multidetector ☐ Neutron Velocity Selector ☐ Polarized Beam ☐ Stress Rig
☐ Other

TEMPERATURE RANGE:

MAGNETIC FIELD STRENGTH:

RANGE IN ENERGY OR WAVELENGTH:

ENVIRONMENT SUPPLIED BY USER:

(more details may be requested)

SPECIAL REQUIREMENTS:

(cryogrinding, pressure cell, etc.)

DECLARATIONS

I understand that:

- ☐ I am responsible to identify all abnormal hazards associated with my proposal, and have disclosed these hazards to the best of my knowledge on the Safety page of this proposal form.
- ☐ I shall send at least one member of my research team to participate in the proposed research. Otherwise, I am prepared to pay an invoice for \$1500 per week of beam time or part thereof.
- ☐ I am responsible to provide a short experimental report within six months of the experiment being conducted. Experimental reports may be collated together for the CNBC annual report and may be published online.
- ☐ Funds may be available from the Canadian Institute of Neutron Scattering toward travel to the CNBC for graduate students and post-doctoral fellows who participate in the proposed research (www.cins.ca/travel.html).
- ☐ The proposed research is non-proprietary, and results are intended to reside in the public domain. A fraction of the beam time allocated for my project may be devoted to proprietary research if that business is arranged in advance through a separate Agreement for Standard Services. The breakdown of public versus proprietary beam time should be indicated clearly in the body of this proposal.
- ☐ I will require the assistance of a CNBC staff member to fully complete this application. I have completed the form to the best of my ability at this time.

DESCRIPTION OF PROPOSED RESEARCH

You must attach the description of your proposed research to this form. To attach a document in Adobe Reader, use the **"Attach a file as a comment"** command to attach a Word and PDF file. **PDF format is preferred.**

A good proposal that can be reviewed easily by external reviewers will include information to address each of these 6 items below:

- 1). Provide the scientific or engineering case for the proposed work. For example, what is the context of the work and how will it advance the subject. Include the latest references to the open literature.
- 2). Describe prior or related work for this project (yours or that of others) and explain why you wish to use neutron scattering. For example, you could provide relevant computer modeling, theory or other experimental work.
- 3). Propose an experimental plan, including such facts as number of samples, history of samples, rationale for selection of experimental parameters (e.g. temperature, field, stress). Objectives should be related to the background presented in parts 1 and 2.
- 4). Estimate the beam time requirements and identify any technical/scientific support that needs to be provided by CNBC.
- 5). To the extent you are able, please also indicate the full range of conditions (energies wavelengths, stresses, pressures, or temperatures) that you may require.
- 6). Other points to be considered.

List publications, including conference proceedings and theses, within the last 3 years arising from neutron scattering experiments performed by you or your group at Chalk River, using full reference details: Journal, Volume (Year), Pages.

NOTES:

1. We have to perform a safety assessment for each experiment. If you fully describe all the variables in your proposal, in most cases we will only have to do this once per proposal, irrespective of the number of continuations. If you do not do this, and wish to expand the range of compositions or physical variables at a later date, we will have to perform additional safety assessments that may slow down your access.
2. Certain samples require special permission before they can be brought or shipped to Chalk River Laboratories. These include:
 - fissile materials or any form of uranium (even depleted U)
 - radioactive material
 - heavy water or salt solutions made from heavy water

Please ask your CNBC Local Contact for help to arrange shipping of these materials to our lab.



I will require the assistance of a CNBC staff member in fully completing this application. I have completed the form to the best of my ability at this time.



SAFETY

We need to be aware of hazards for our safety, your safety, and that of others surrounding the experiment.

Sample Hazards

Materials Safety Data Sheet (MSDS)

- ☐ There are pre-existing MSDSs for some or all of my materials, and I am attaching all relevant MSDSs.* ☐ There are no pre-existing MSDSs.

*To attach the MSDS, use the method described on the previous page for attaching the description of your proposed research.

Are you aware of any foreseeable hazards related to the sample(s)? If yes, you must place an "X" in the boxes that describe hazards that are associated with the sample irrespective of whether you include an MSDS, and you must place an "X" in at least one box in order that the proposal be given further consideration.

- ☐ No. I know of no hazards related to the sample.
- ☐ Yes. Hazards related to my sample exist. Sample(s) are or may be:
- ☐ Radioactive ☐ Bioactive ☐ Toxic ☐ Flammable ☐ Explosive ☐ Corrosive ☐ Other

Please give further details if any hazard is identified above. For example, if it is corrosive, is it basic or acidic? Is it incompatible with certain metals? Is it an oxidizer? If you selected "other," please specify the hazard.

What precautions should be taken handling or storing your sample(s) in our laboratory?

Sample Environment Hazards

Are there dangers with your sample(s) if they are subjected to the conditions you propose? Is there any foreseeable danger if the sample environment fails, e.g. large temperature excursion, vacuum failure, sudden compression, or are there known eutectics between your sample and common furnace materials (Al, Cu, V, Mo, steel)?

If yes, there must be an "X" placed in at least one box in order that the proposal be given further consideration.

- ☐ No. I know of no hazards related to the sample environment or the conditions the sample may experience.
- ☐ Yes. Hazards may exist:
- ☐ When the sample(s) are subjected to the conditions I propose. ☐ If the sample environment fails.

Please specify any hazards you have identified with the sample environment described above:

RECORD OF REVIEW (To be completed by NRC)

LOCAL CONTACT

- ☐ Approved for Review of Scientific Merit, because the project is technically feasible with existing CNBC equipment and there are no abnormal hazards.
- ☐ Approved for Safety Review because abnormal hazards are expected, and the project is technically feasible with existing CNBC equipment.
- ☐ Rejected, because the project is not technically feasible with existing CNBC equipment, or is unacceptably hazardous in the view of the local contact.

Local Contact:

Signature

SAFETY AUTHORITY (if applicable)

- ☐ Approved for Review of Scientific Merit because the hazard mitigation plan is adequate.
- ☐ Rejected because the hazards cannot be mitigated adequately.

Describe any special procedures or work permits that must be applied in practice:

Indicate supplementary documentation to attach prior to scheduling (check all that apply):

- ☐ Note of approval by NRU operations, to be attached by the Safety Authority.
- ☐ Radiological Work Assessment (RWA), to be attached by the Local Contact.

CNBC Safety Authority:

Dimitry Sediako, P. Eng.
(or designate)

Signature

REVIEW ADMINISTRATOR

- ☐ Approved by scientific peer review for access to CNBC beam time.
- ☐ Rejected by scientific peer review.

Review Administrator:

Nicole Schrie
(or designate)

Signature

DIRECTOR

Project is approved for scheduling of beam time.

CNBC Director:

John Root
(or designate)

Signature