



**Project Module
New Initiatives Fund (NIF)**

Date submitted (dd/mm/yyyy):	Project no.: 19280
Project title: Canadian Spallation Ultracold Neutron Source	
Language of application:	
<input checked="" type="checkbox"/> English <input type="checkbox"/> French	
Applicant institution: The University of Winnipeg	
Designated Project Leader	
Name: Jeffery W Martin	
Title/position: Assistant Professor	
Department: Physics	
Telephone:	
Email:	
Project Funding	
Total project cost:	
CFI Request (\$):	
CFI Request (%):	
Proposal focus: Research proposal	
Research discipline/field	
Primary: PHYSICS	
Primary sub-discipline: Nuclear Physics	
Secondary: PHYSICS	
Secondary sub-discipline: Particle Physics	
Tertiary: PHYSICS	
Tertiary sub-discipline: Weak Interactions	
Area of application	
Primary: Other research	
Secondary:	
Keywords: ultracold neutrons, spallation, neutron physics, neutron moderators, surface nanoscience, materials science, electric dipole moments, weak interactions, beta decay, gravity	
<p>Signature of the applicant institution: It is agreed that the general conditions governing the partner contributions, and the use of CFI funds as outlined in the Institutional Agreement and the CFI Policy and Program Guide apply to the infrastructure project outlined in this application. These conditions are hereby accepted by the administering institution.</p>	
<p>Name: _____ Signature: _____ Date: _____</p> <p>President/CEO of the institution (or authorized representative)</p>	

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Collaborating Institutions

The following eligible institutions agree that the general conditions governing the partner contributions and the use of CFI funds, as outlined in the Institutional Agreement and in the CFI Policy and Program Guide, apply to the project outlined in this application and are hereby accepted by each institution.

Institution: University of Manitoba
Name (CEO, President or authorized representative):
Signature: _____ Date: _____

Institution: Simon Fraser University
Name (CEO, President or authorized representative):
Signature: _____ Date: _____

Institution: University of Northern British Columbia
Name (CEO, President or authorized representative):
Signature: _____ Date: _____

Institution: TRIUMF
Name (CEO, President or authorized representative):
Signature: _____ Date: _____

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Project Summary

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Institutional Priority and Commitment

Criterion Standard:

The proposed project is of strategic importance to the institution. The institution has made and will continue to make tangible and significant commitments in support of this area of strategic priority. These commitments are, or will be, of direct benefit to the proposed project, including the attraction and retention of the best researchers.

Each of following aspects must be addressed:

1. Describe the significant support that the institution has provided to this area of research (e.g., institutional resources committed to capitalize on the proposed infrastructure, the creation of new research positions, or research chairs in these areas, etc.).
2. Describe the significant and tangible contributions that the institution will make to the current and on-going needs of the proposed project.
3. Explain why this project is important to the fulfillment of the institution's strategic research plan.

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Quality of the Research or Technology Development

Criterion Standard:

The research opportunity is timely and has the potential to lead the breakthroughs in research or technology development. The proposed research or technology development is innovative and at the leading edge internationally.

Each of following aspects must be addressed:

1. Describe the proposed research or technology development activity and the potentially transformative and innovative aspects of this endeavour.
2. Explain why it is important to pursue the proposed research or technology activity at this time.
3. Explain how the proposed research or technology development activity complements or differs from comparable research or technology development being conducted nationally and/or internationally.

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Researchers (Principal Users) *

Name: Jeffery Martin

Title: Assistant Professor

Institution: The University of Winnipeg

Department: Physics

Applicant institution: The University of Winnipeg

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Researchers (Other Users)

Applicant institution: The University of Winnipeg

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Researchers (Use of the Infrastructure)

Criterion Standard:

The principal users of the infrastructure are experts in the relevant research or technology development domain. The research group has the expertise and experience to lead the proposed endeavour.

Each of following aspects must be addressed:

1. Demonstrate that the research group is comprised of highly accomplished researchers and may also include new researchers who have demonstrated potential for excellence and leadership in all the proposed field(s), or experts in technology development who have been recognized for their accomplishments. If any principal users are to be recruited, describe the recruitment plan.
2. Explain how each principal user will use the infrastructure to contribute to the proposed research or technology development.
3. Describe the existing or emerging collaboration and complementarity among the principal users.
4. Demonstrate that the principal users/team have the research or technical expertise to capitalize on the use of the requested infrastructure.

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Need for the infrastructure

Criterion Standard:

The infrastructure requested is appropriate and essential to support the proposed activities. It will establish or enhance a unique and important institutional capability in an area of leading edge research or technology development.

Each of following aspects must be addressed:

1. Explain why the requested infrastructure is appropriate for the proposed research or technology development.
2. Explain why the proposed research cannot be supported using existing infrastructure.
3. Describe the availability of similar infrastructure within the institution, the region, the country, and/or internationally and address any issues of accessibility, complementarity, duplication, and sharing.

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Management Plans

Criterion Standard:

The management plans provide for the optimal implementation, operation, and functionality of the infrastructure. The infrastructure requested will be managed effectively and efficiently, in keeping with the size and degree of complexity of the project.

Each of following aspects must be addressed:

1. Describe the management structure to oversee the implementation, operation, functionality and sustainability of the infrastructure.
2. Explain how the institution will address issues of access and utilization, taking into account scientific and user priorities.
3. If applicable, describe any changes or modifications to existing plans as a result of the infrastructure being requested and the integration or linkage with existing infrastructure.

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Operation and Maintenance Plans

Criterion Standard:

The plans for the optimal operation and maintenance of the proposed infrastructure for the first five years of operation are appropriate and realistic. They will allow for its sustainable usage as well as provide for future upgrade requirements.

Each of following aspects must be addressed:

1. Describe the significant requirements to efficiently operate and maintain the infrastructure (e.g., personnel, utilities, supplies, upgrades, etc.).
2. Outline the sources of support for operation and maintenance costs and describe the contingency plans should any of this support be unavailable.

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Training of Highly Qualified Personnel (HQP) Through Research

Criterion Standard:

The infrastructure requested will create or enrich a stimulating and innovative training environment that attracts high quality trainees and imparts new high-level skills to HQP for research and other careers.

Each of following aspects must be addressed:

1. Describe the benefits of the proposed infrastructure for research training and career development.
2. Outline the extent to which the proposed infrastructure will be accessed directly by research trainees.
3. Describe the impact of the proposed infrastructure on future training of HQP as well as the impact that not having access to the proposed infrastructure would have on training. Include an estimate of the number and type of HQP (e.g., undergraduate and graduate students, postdoctoral fellows, technicians, technologists, other trainees/students) to be trained.

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Collaborations and Partnerships

Criterion Standard:

The project will establish or enhance major collaborations and partnerships. The infrastructure requested will further strengthen multidisciplinary approaches, collaborations among researchers and users of research results, as well as partnerships with different institutions and sectors, where appropriate.

Each of following aspects must be addressed:

1. Describe the nature of the major collaborations that already exist, and that are planned, both within and external to the institution (beyond those between the principal users, as addressed in the "Researchers (Use of Infrastructure)" section in terms of:
 - a) ensuring that the proposed research or technology development can be pursued successfully;
 - b) promoting synergies among research disciplines and sectors (public, private, NFP).
2. Describe the nature of the major partnerships that already exist, and that are planned, with users of the research results, including the extent of the engagement of these partners.
3. Outline the steps that have been taken, or that will be taken, to create or strengthen collaborations, partnerships, and/or networks.
4. Explain why the proposed infrastructure is important to these collaborations or partnerships.

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Benefits to Canada

Criterion Standard:

The proposed activities have the potential to lead to:

- significant improvements to society, quality of life, health, and the environment, including the development of new practices and public policies; and/or
- improved economic activities through development of new products, services and/or technologies, greater resource efficiency and productivity, and job creation in strong or emerging areas of the Canadian economy.

Each of following aspects must be addressed:

1. Describe the expected benefits to Canada, including why they are significant, how they will be realized, and the timeframe over which they are expected to be realized.
2. Describe the institution's plans to transfer the research results to potential users. Where appropriate, these should include plans for knowledge mobilization or transfer of technology and the commercialization of products, services and processes.
3. Demonstrate that the team has the skills and experience, or has identified the relevant partners, to ensure the successful transfer of the research results.

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Suggested Reviewers *

The CFI reserves the right to make its own selection of reviewers.

REVIEWER 1

Name: Robert Tribble

Institution/organization: Foreign - University - Other

If "Foreign", please specify: Texas A&M University

Country: United States

Email 1: tribble@comp.tamu.edu

Email 2:

Online CV or biography: <http://cyclotron.tamu.edu/tribble>

Telephone: 979-845-1411 **Ext.**

Fax: 979-845-1899

Expertise keyword(s): weak interactions, nuclear reactions at low and high energy and
nuclear astrophysics

REVIEWER 2

Name: Garth Huber

Institution/organization: University of Regina

If "Foreign", please specify:

Country: Canada

Email 1: huberg@uregina.ca

Email 2:

Online CV or biography: <http://lichen.phys.uregina.ca>

Telephone: 306-585-4240 **Ext.**

Fax: 306-585-5659

Expertise keyword(s): hadron structure, electron scattering

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Suggested Reviewers *

REVIEWER 3

Name: Jeffrey Nico

Institution/organization: Foreign - Federal Government - Other

If "Foreign", please specify: National Institute of Standards and Technology

Country: United States

Email 1: jeffrey.nico@nist.gov

Email 2:

Online CV or biography:

Telephone: 301-975-4663 **Ext.**

Fax:

Expertise keyword(s): neutron physics

REVIEWER 4

Name: Andrzej Czarnecki

Institution/organization: University of Alberta

If "Foreign", please specify:

Country: Canada

Email 1: czar@phys.ualberta.ca

Email 2:

Online CV or biography: <http://www.phys.ualberta.ca/~czar>

Telephone: 780-492-5510 **Ext.**

Fax: 780-492-0714

Expertise keyword(s): theoretical subatomic physics, electroweak physics

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Suggested Reviewers *

REVIEWER 5

Name: Paul Garrett

Institution/organization: University of Guelph

If "Foreign", please specify:

Country: Canada

Email 1: pgarrett@physics.uoguelph.ca

Email 2:

Online CV or biography: http://www.physics.uoguelph.ca/www_physics/personal_site.php?idx=176

Telephone: 519-824-4120 **Ext.** 52192

Fax: 519-836-9967

Expertise keyword(s): Structure of exotic nuclei and nuclear states, precision tests of the Standard Model, nuclear reaction dynamics

REVIEWER 6

Name: John Hardy

Institution/organization: Foreign - University - Other

If "Foreign", please specify: Texas A&M University

Country: United States

Email 1: hardy@comp.tamu.edu

Email 2:

Online CV or biography:

Telephone: 979-845-1411 **Ext.**

Fax:

Expertise keyword(s): nuclear physics, beta decay