



Canadian Institute of Nuclear Physics Institut canadien de physique nucléaire

Newsletter #23, November 2023

The Canadian Institute of Nuclear Physics (CINP) is a formal organization of the Canadian nuclear physics research community to promote excellence in nuclear research and education, and to advocate the interests and goals of the community both domestically and abroad.

1. SAPES Fall Orientation Meeting

The NSERC Subatomic Physics Evaluation Section (SAPES) activities for the 2024 competition have recently begun, following the closing date for most applications on Nov 1.

CINP has been asked to make a presentation to SAPES during their Fall Orientation session on Dec 15. The purpose of the session is to update and familiarize the SAPES about the SAP Canadian funding and research landscape, prior to their review of this year's applications. The CINP presentation is in addition to the updated Context Document that you sent me new information for some weeks ago.

Our usual practice is to brief SAPES on the major activities undertaken by the CINP in supporting Canadian subatomic physics research endeavors, and present some slides on the breadth of Canadian nuclear physics research and important current and future priorities. The CINP presentation will be 15 minutes long, leaving time for questions.

If you have something to contribute, such as:

- a major research award or recognition received,
- a recent research highlight, such as a publication in a prestigious journal,
- approval or commissioning of a new research capability or technique,

please let Garth Huber know ASAP, and preferably no later than November 27, so he can send you an example slide using the CINP PPT template. His contact information is on the back page of this newsletter.

2. Potential Funding Opportunity

NSERC has alerted us to the potential funding offered to CINP researchers through their Alliance International grant program. This is open to Canadian university researchers working in partnership with international collaborators from the academic sector, including subatomic physics. The overall objectives of the program are to: 1) allow Canadian researchers to initiate the development of international collaborations; and 2) provide support for Canadian researchers participating in international collaborative projects of global importance and benefit to Canada. Two types of grant types are offered.

Alliance International Catalyst grants

Catalyst grants will provide up to \$25k funding for one year to support Canadian researchers in initiating international research collaborations in natural sciences and engineering.

Alliance International Collaboration grants

Collaboration grants will provide up to \$100k/yr funding for up to 3 years. International academic collaborators are expected to have already secured funding from their own national funding agency for the collaborative project and identified the Canadian academic researcher(s) in their proposal. This proposal must have been peer-reviewed. The eligible Canadian researchers participating in the international project can then apply for a Collaboration grant to cover the costs of their participation in the global-scale project.

The Alliance International program has no application deadline. For further information, please visit:

https://www.nserc-crsng.gc.ca/innovate-innover/AllianceInternational-AllianceInternational/index_eng.asp

or contact

allianceinternational@nserc-crsng.gc.ca

3. Junior Scientist Travel Support Program (JSci)

The goal of the JSci program is to allow graduate students and PDFs to broaden their research horizons and become more mature scientists. Two types of expenditures are supported:

1) Funding to allow graduate students and PDFs to attend specialized workshops and schools not directly related to their research project, such as workshops or training opportunities on the practical applications of subatomic physics detector techniques, new computer or digitization technologies, advanced computation techniques, or technology transfer training.

2) Funding to enable PDFs to present their work at conferences or workshops. Conferences and workshops already receiving funds from CINF will not be eligible. Preference will be given to international meetings held either in Canada or abroad.

How to Apply:

The application form can be obtained from the CINF website at: <https://cinp.ca/junior-scientist-travel-support-program-jsci>

Applications are accepted on a continuing basis.

A standing committee consisting of: CINF Executive Director, Chair of the Education & Training SWG, and one representative of the CINF Board will evaluate applications as they are submitted and provide prompt feedback or decision to the applicant (typically within 2 weeks).

The total program funds available for 2023-24 are \$7000, of which only \$1000 has so far been allocated.

4. Representation and Input to Various Agencies

The CINF is an advocate and representative of the Canadian nuclear physics community and is asked to attend various meetings or make presentations on its behalf. Some recent and forthcoming activities include:

- GH and the new IPP Director, Carsten Krauss, traveled to Ottawa on October 19-20 for their first in-person meetings with federal science funding agencies since the pandemic. The meetings were with:

- NSERC Vice President, Marc Fortin, Robin Craig (AVP), and staff
- CFI Vice President, Marc Legace, and staff
- ISED Associate Deputy Minister, Nipun Vats, and staff

At each meeting, we raised three issues, including:

- TRIUMF 5 year funding request and the new Major Research Facilities (MRF) paradigm
- Increased graduate student and PDF funding
- Increased Tri-Council funding

It is extremely important for the science community to engage with the federal and provincial governments on the importance of science funding. We encourage you to similarly reach out to your MP or provincial representative.

- GH represents CINF on the Pan-Canadian MRS Coordination Board, which is a national oversight board for all SAP-MRS resources. We meet ~6 times a year to discuss MRS resource requests and the progress of each center on the assigned SAP projects. The most recent meeting was on November 3/23. In addition, the CINF and IPP Executive Directors were asked to join as co-applicants on the Victoria MRS grant application in the 2024 competition

For more information on the available MRS resources, please visit the CINF website

<https://cinp.ca/subatomic-physics-major-resources-support-facilities>

- CINF can provide letters of support for relevant research projects. We most recently wrote a letter of support to the PMO regarding the TRIUMF 5 year funding request, and a letter of endorsement for CAP's brief to the federal government on increased

science funding.

- The Advisory Committee on TRIUMF (ACOT) is a panel of international experts that meets and reports to the NRC twice a year. Garth Huber represents the CINP as a “community observer”. GH is the nuclear physics community representative at ACOT (Advisory Committee on TRIUMF) meetings. ACOT will meet virtually in late November, with their next in-person meeting scheduled for May 7-9, 2024.



5. Winter Nuclear and Particle Physics Conference (WNPPC 2024)

(submitted by Thomas Brunner, McGill)

The 61st Winter Nuclear and Particle Physics Conference WNPPC2024 will be held in Chateau Bromont, Quebec, from February 15-18, 2024.

<https://wnppc.triumf.ca/2024/>

The WNPPC is a national meeting for the Canadian subatomic physics community, with a special focus on providing a forum for junior researchers (students and postdocs) and encourages scientific discussions and community building with subatomic research groups from across Canada. WNPPC will feature sessions focusing on the research areas of interest to the Canadian subatomic physics community, both experimental and theoretical.

Invited Speakers:

- Greg Christian (Saint Mary's University)
- Seyda Ipek (Carleton University)
- Caio Licciardi (University of Windsor)

- Chloe Malbrunot (TRIUMF)
- Heather Russell (University of Victoria)
- Gojko Vujanovic (University of Regina)

Abstract submission for WNPPC2024 is now open! Please submit abstracts at <https://meetings.triumf.ca/e/WNPPC2024>

Important dates:

- Abstract submission opens: Friday, Nov 10
- Abstract deadline: Friday, Dec 8
- Registration opens: date TBD
- Early Registration deadline: Friday, Jan 12
- Registration deadline: Thursday, Feb 1

Rooms at Chateau Bromont will be released on Friday, Jan 19, so please book your rooms before this date!

We look forward to seeing you in Bromont for WNPPC2024!

The WNPPC organizing committee

Thomas Brunner (McGill University – co-chair)

Erica Caden (SNOLAB and McGill University – co-chair)

Corina Andreoiu (Simon Fraser University)

Alain Bellerive (Carleton University)

Tim Friesen (University of Calgary, past chair)

Gwen Grinyer (University of Regina)

Annika Lennarz (TRIUMF – permanent member)

Tony Noble (Queen's University – permanent member)

Katelin Schutz (McGill University)

Jana Thomson (TRIUMF, Conferences Facilitator)

6. 2024 WNPPC Graduate Student Travel Awards

The Canadian Institute of Nuclear Physics (CINP) is making available up to eight graduate student travel awards to the 2024 WNPPC. Each award will be for up to \$750 towards student travel expenses. Students must be enrolled in graduate studies at a Canadian university and performing research in experimental or theoretical nuclear physics. **The application deadline is Friday, January 5.** For more information and application forms, please visit:

<https://cinp.ca/wnppc-graduate-student-travel-awards>

7. CINP Conference Support

CINP extends partial funding to workshops, meetings and conferences of broad relevance to nuclear physics in Canada. Requests are appraised against the mission and goals of the CINP, and funding is contingent upon satisfactorily showing that the event will further the aims of the CINP and be of benefit to its members. **Application forms for external conference support are available from <https://cinp.ca/conference-support>**

We hope you will be able to attend the following CINP-sponsored conference:



14th Nucleus-Nucleus Collisions Conference (NN2024)

August 18 - 23, 2024 Whistler, BC

1. Conference website

<https://nn2024.triumf.ca/index.html>

2. Scientific Program

The scientific program will be devoted to the latest experimental and theoretical developments in nucleus-nucleus collisions with a wide range of topics. The topics include:

- Fusion and Fission
- Hadron Physics and QCD
- Relativistic Heavy Ion Collisions, QGP
- Equation of State of Neutron-Rich Nuclear Matter
- Nuclear Structure from collisions
- Nuclear Reactions
- Nuclear Astrophysics
- Heavy and Superheavy Elements
- Instrumentation and Facilities

- Applications of Nuclear Science and Technologies

The program will consist of invited plenary and parallel session presentations, contributed presentations for parallel sessions and poster presentations.

3. Abstract Submission

Abstract submission opens: November 1, 2023

Abstract submission deadline: December 31, 2023

Abstract submission information link

<https://nn2024.triumf.ca/abstract.html>

Abstracts need to be submitted via indico

We anticipate that authors can be notified about the selection of their abstract and the type of presentation (oral or poster) by March 2024.

Young Scientist Support

The conference can offer a limited number of registration fee waivers to students and post docs. This award will be decided by a competitive selection process. Interested candidates should apply for this support, together with a letter of recommendation from their supervisor, during the abstract submission.

Young Scientist Prizes

The conference will offer prizes for poster and oral presentations by students and post docs. Please indicate while submitting your abstract if you want to be considered for the prize competition.

4. Registration

Registration opens: November 1, 2023

Deadline for early registration: June 14, 2024

Registration information

<https://nn2024.triumf.ca/registration.html>

5. Conference Venue

The conference will be held in the Whistler Conference Centre

<https://nn2024.triumf.ca/venue.html>

6. Accommodation

Whistler is a popular tourist destination. We strongly suggest that participants reserve their

accommodation at the earliest to ensure availability.

For details please visit

<https://nn2024.triumf.ca/accommodations.html>

7. Childcare

The conference has a limited amount of support (\$350 for each family), available for participants with young children. Please send an email to nn2024@triumf.ca to apply for this support.

The Whistler area has provision for appointing babysitters. You may find information on the facilities for childcare at

<https://www.whistler.com/family/childcare>

8. Satellite Event

The TRIUMF Summer Institute (TSI2024) will take place from August 11-18 at TRIUMF, Vancouver. This school precedes the NN2024 conference and is thought to give students and young researchers a deeper introduction into some of the topics of the conference. There will be a transport organized for TSI participants and lecturers from Vancouver to the NN2024 in Whistler on August 18.

TSI2024 webpage <https://tsi.triumf.ca/2024/>

Chair: Greg Hackman

Co-Chair: Iris Dillmann

We look forward to seeing you in Whistler.

Rituparna Kanungo, Saint Mary's University/TRIUMF (Co-Chair)

Reiner Kruecken, Lawrence Berkeley National Laboratory, USA (Co-Chair)

Petr Navratil, TRIUMF (Co-Chair)

On behalf of the Organizing Committee

8. Grad classes offered by TRIUMF (submitted by Marcello Pavan, TRIUMF)

TRIUMF periodically offers a few graduate-level courses, usually in the fall and winter terms, which could be of interest to your students. The courses are run online through UBC or UVic. Typically students would register at their local department in a 'directed studies' or 'special topics' course, though students in western Canada could take advantage of the Western Dean's Agreement to transfer course credit directly.

In Winter 2024, the following courses are planned. **Students are asked to contact the lecturer directly if they are interesting in taking, or want more information about, the course.**

UBC Phys 527 Special Topics in Nuclear Physics

<https://www.triumf.ca/topics-nuclear-physics-ubc-phys-527>

The course will give an overview of the experimental methods used to address the forefront questions concerning the structure and dynamics of atomic nuclei, in particular those far away from stability. An overview will be given on current central questions concerning the structure and dynamics of exotic nuclei, their role in producing the chemical elements in astrophysical scenarios and in testing for physics beyond the standard model of particle physics using precision experiments. Different experimental approaches will be introduced and examples from recent experiments will be used to highlight the application of the various techniques to investigate the main questions currently addressed in this field of research.

Prerequisites: PHYS 505 Intro Nuclear Physics, or equivalent

Contact Dr. Iris Dillmann <dillmann@triumf.ca>

UBC PHYS 528 Elementary Particle Physics

<https://courses.students.ubc.ca/cs/courseschedule?pname=subjarea&tname=subj-course&dept=PHYS&course=528B>

This course will cover the underlying theory of the Standard Model (SM) of particle physics. Starting

from Feynman diagrams and quantum electrodynamics (QED), we will build up the other elements of the SM including the strong and weak forces and the Higgs mechanism. We will also connect the SM to experimental observations at high energy colliders and beyond.

Prerequisite: Familiarity with obtaining Feynman rules from a Lagrangian, and know how to compute scattering amplitudes in QED.

Contact: Dr. David Morrissey <dmorri@triumf.ca>

UBC PHYS 560 / UVic PHYS 522 Physics and Engineering of Particle Accelerators

The course will provide an introduction to the physics and technology of particle accelerators concentrating particularly on proton and ion accelerator technology. The course will include a survey of existing accelerator types and an introduction to transverse and longitudinal beam optics. The course will also include an introduction to the physics and technology of ion sources, will give an overview of radioactive ion beam production, of accelerator radio-frequency principles and more detailed aspects of room temperature and superconducting linear accelerators, as well as high energy circular machines. The course should appeal to students of Accelerator Physics, as well as to students of Experimental Nuclear and Particle Physics and other students interested in Particle Accelerators.

Pre-requisites: Classical Mechanics, Classical Electro-dynamics

Final Grade:

Homework assignment (due one week after assignment) – 50%
Mid-term exam – 20%
Final Exam – 30%

Contact:

Course Coordinator: Dr. Oliver Kester
<okester@triumf.ca> 604-222-7682

Course Contact: Dr. Robert Laxdal <lax@triumf.ca>
604-222-7322

9. NSERC Support for CINP

NSERC provides funding for many CINP activities through the Subatomic Physics Major Resources Support (SAP-MRS) program. The installment for 2023-24 is \$75,000.



10. CUPC Research Presentations (submitted by Savino Longo, Manitoba)

U. Manitoba undergraduate student Trang Bui presented at the 2023 Canadian Undergraduate Physics Conference work from her summer 2023 CINP Research award. She also received a CINP Travel award to give this presentation.

Talk title: *An Ultracold Neutron Detector Prototype for the TUCAN Experiment* by Trang Bui
Supervisors: Dr. Savino Longo and Dr. Russell Mammei



CINP also sponsored Emily Taddei, supervised by Dr. Corina Andreoiu of SFU, who spoke about an experiment to analyze excited states in ^{120}Sn following (n,γ) reaction on an enriched ^{119}Sn target.

11. CINP posting of Job Opportunities

We regularly post Nuclear Physics Job Opportunities on the CINP website, at:

<https://cinp.ca/announcements>

- Researchers looking for positions are encouraged to regularly consult this page. Please let the Executive Director know if you are recruiting for a position and want your announcement to be distributed.

12. CINP Board of Directors

The CINP Institutional Members had their annual meeting via Zoom on May 18. One of the agenda items was to elect two Board members, who are listed below.

Name	Institution	Role	Email	Term Ends
Thomas Brunner	McGill	Secretary	thomas.brunner @ mcgill.ca	June, 2025
Olga (Liliana) Caballero	Guelph		ocaballe @ uoguelph.ca	June, 2026
Gwen Grinyer	Regina	President	gwen.grinyer @ uregina.ca	June, 2024
Rituparna Kanungo	Saint Mary's		ritu @ triumf.ca	June, 2025
Russell Mammei	Winnipeg	Vice-President	r.mammei @ uwinnipeg.ca	June, 2026
Chris Ruiz	TRIUMF		ruiz @ triumf.ca	June, 2024

13. CINP Contact Information

CINP Executive Director:

If you require information about any CINP programs, please do not hesitate to contact:

Garth Huber, Ph.D.
CINP Executive Director
c/o University of Regina
huberg@cinp.ca

This Newsletter was edited by Garth Huber. Email regarding the content of this newsletter, or suggestions for content in future CINP newsletters should be sent to huberg@cinp.ca

CINP Treasurer:

Greg Hackman
TRIUMF
treasurer@cinp.ca

CINP Institutional Members:

Memorial University of Newfoundland
Saint Mary's University
Mt. Allison University
McGill University
University of Guelph
University of Manitoba
University of Winnipeg
University of Regina
University of Northern British Columbia
Simon Fraser University
TRIUMF

Scientific Working Group Chairs:

Fundamental Symmetries:

Gerald Gwinner (Manitoba)

Hadronic Physics/QCD:

Svetlana Barkanova (Memorial)

Nuclear Astrophysics: Iris Dillmann (TRIUMF)

Nuclear Education and Training:

Juliette Mammei (Manitoba)

Nuclear Structure: Adam Garnsworthy (TRIUMF)

Nuclear Theory: Alexandros Gezerlis (Guelph)