Canadian Institute of Nuclear Physics
Institut canadien de physique nucléaire

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.

May 2017 Newsletter

1. CINP Sessions at the CAP 2017 Congress

As is now customary, the CINP and IPP are hosting a joint session at the CAP Congress at Queen's University in Kingston, ON. Due to comments received at last year's congress, CAP graciously agreed to accommodate our request to move the joint session to Monday. Please note the early morning start time in the schedule below.

Time	Event
Sunday, May 28	
20:00	**CINP Board Meeting** (by invitation only)
Monday, May 29	
	Joint CINP/IPP session
8:00	NSERC SAPES Report – Heather Logan (30+5)
8:35	CFI Report – Heidi Bandulet (20+5)
9:00	TRIUMF Report – Jonathan Bagger (30+5)
9:35	SNOLab Report – Nigel Smith (20+5)
10:00	**Coffee (15)**
10:15	**CAP Congress Starts**
12:30	**CINP Annual General Meeting (lunch)**

2. NSERC Support for CINP

The CINP gratefully acknowledges support from NSERC in the form of a Major Resources Support (MRS) grant. This grant was renewed for 5 years in the 2015 competition. The installment for 2017 is $45,000. The grant also supports the CINP's external conference support program, the undergraduate research scholarship program, representation travel, and other initiatives. We look forward to your input at the AGM on how best we should make use of these funds.

NSERC CRSNG

3. CINP Conference Support

The 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 its members.

Application forms for external conference support are available from **http://cinp.phys.uregina.ca/node/22** and should be returned to the CINP Executive Director, Garth Huber. Once it is confirmed the necessary information is received, the Chair of the Scientific Working Group most closely related to the conference topic will be consulted, and a recommendation forwarded to the CINP Board for final approval.

We hope you will be able to attend one of the following CINP-sponsored conferences:

Advances in Radioactive Istotope Science, ARIS 2017

The third International Conference on Advances in Radioactive Isotope Science, ARIS 2017, will be held in Keystone, Colorado in the U.S. from Sunday, May 28 through Friday, June 2, 2017. ARIS is the flagship conference for rare isotope science that resulted from a merger a few years ago of the `International Conference on Exotic Nuclei and Atomic Masses (ENAM)' and the 'International Conference on Radioactive Nuclear Beams (RNB)'. The ARIS meeting will facilitate vibrant and extensive information exchange and collaboration among all the researchers in the field.
Website: https://indico.fnal.gov/internalPage.py?pageId=2&confId=11150

11th International Workshop on Neutrino-Nucleus Scattering in the few GeV Region, NuInt2017

The goal of the workshop series is to bring together theorists and experimentalists from the nuclear and particle physics communities to further understand complex neutrino-nucleus interactions in the few GeV region.
Website: https://nuint2017.physics.utoronto.ca/

TRIUMF Summer Institute, TSI2017

TSI 2017 will focus on the three research pillars of nuclear astrophysics: experiments, observations, and astrophysical modeling. The school will host 40 graduate students and young researchers from all over the globe, and is designed to be very interactive with ample time for questions and discussions. During the two weeks of the TSI, the afternoons will be dedicated to hands-on problem solving to help digest the content of the lectures. TSI2017 is designed to be accessible to students working in nuclear physics and nuclear astrophysics, providing them with a solid foundation in modern methods and tools in all three areas of research, as well as our current understanding of the astrophysical events under study.
Website: http://tsi.triumf.ca/2017/

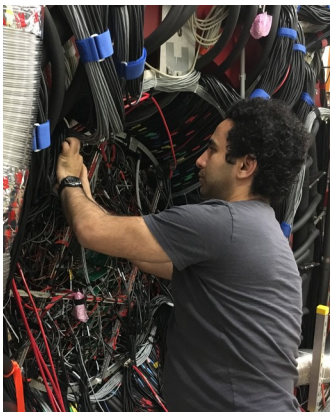
Challenges of the World-Wide Experimental Search for the Electric Dipole Moment of the Neutron, nEDM2017

nEDM2017 is being organized by TRIUMF, Vancouver, BC and take place from Sunday, October 15, 2017 to Friday, October 20 at Harrison Hot Springs close to Vancouver. It is the third in the series of successful technical workshops fostering cooperation on the challenges of the worldwide search for an nEDM: the first two of the series were held in Oakridge, TN 2012 and Ascona, Switzerland 2014. Scientific Scope: Experimental techniques (cryogenic, room temperature, crystal), Sources of ultracold neutrons, Transport and manipulation of ultracold neutrons, Magnetic field sensors, Magnetic field control, High voltage and electric field control, Simulation tools, Systematic effects, Theory background, other EDM searches.

4. GlueX @ Jefferson Lab First Physics Publication

Submitted by Zisis Papandreou, University of Regina

The physics goal of the GlueX experiment is to create and identify exotic forms of matter that, by their very nature, exhibit unique signatures among all other particles that will allow theoretical models of color confinement to be tested in a most constraining way possible. The first physics results from the GlueX Experiment at 12-GeV JLab is available at arXiv:1701.08123 https://journals.aps.org/prc/abstract/10.1103/PhysRevC.95.042201.
The results reflect the beam asymmetry for 8-9 GeV linearly polarized photons on a proton target going into exclusive channels with a proton and π^0/η. The asymmetries possess greater precision than previous π^0 measurements and are the first η measurements in this energy regime. Similar analyses are underway for other pseudoscalar and vector mesons and will be followed next by cross section measurements and eventually by Partial Wave Analysis to seek exotic hybrid mesons. The University of Regina contributions to GlueX include the R&D towards large-array SiPMs (now an industry standard) and the construction of the 30-ton lead, scintillating fiber e-m barrel calorimeter, which is essential in the identification of neutral showers π^0 and η decays. Photo: UofR Ph.D. student Ahmed Foda adjusting cables on the GlueX Barrel Calorimeter.



5. TRIUMF Science Week

Submitted by Jens Dilling and Reiner Kruecken, TRIUMF

TRIUMF is starting to prepare its Five-Year Plan 2020-2025, a report that will define TRIUMF's vision and mission, communicate the lab's goals and priorities, and lay out an action plan for the period 2020-2025 and beyond. In addition, the Five-Year Plan will underpin TRIUMF's request for operational funding from the Government of Canada.

As announced in February, the 2020-2025 Five-Year Plan will be shaped in part through broad community consultation. Hosted at TRIUMF, Science Week is scheduled from July 10-14, 2017 and will play a crucial role in this consultative process.

Science Week 2017 will consist of topical workshops from Monday through Thursday, followed by the TRIUMF User Group (TUG) Annual General Meeting on Friday. The current schedule is as follows:

- **Monday, July 10, all day: Nuclear Physics with ARIEL & ISAC**
  - Local Organizers: Iris Dillmann, Adam Garnsworthy, Greg Hackman, Petr Navratil
- **Tuesday, July 11, AM, PM: Molecular and Materials Science with Assorted Probes**
  - Local Organizers: Rob Kiefl, Iain McKenzie, Monika Stachura
- **Tuesday, July 11, PM, evening: Innovation Pathways**
  - Local Organizers: Karthryn Hayashi, Mike Trinczek
- **Wednesday, July 12, AM: Life Sciences with Isotopes and Particle Beams**
  - Local Organizers: Conny Hoehr, Valery Radchenko
- **Wednesday, July 12, PM: Accelerator Science and Applications**
  - Local Organizers: Alex Gottberg, Victor Verzilov
- **Thursday, July 13, all day: Particle Physics, Nuclear Physics, and Beyond**
  - Local Organizers: Mark Hartz, David Morrissey, Oliver Stelzer-Chilton
- **Friday, July 14, all day: TRIUMF User Group Annual General Meeting**

The workshop series will provide an opportunity to brainstorm plans and ideas for TRIUMF's scientific activities for the period 2020-2025 and beyond. The local organizing teams will solicit input for the program and reach out to the community in forthcoming communications. Each session will reserve time for discussing both continuing commitments and new directions. Please feel free to contact local organizing teams directly with ideas for their respective workshops.

We invite you to join us at TRIUMF during Science Week 2017 for an open, broad, and in-depth discussion of exciting science and new ideas. Please, also forward this invitation to any other colleagues who may not be part of the TRIUMF community yet, but who may bring valuable and outside the box ideas to our discussions.

Finally, in May we will issue a call for proposals for any and all activities that might involve commitments of TRIUMF resources and expertise during the five years covered by the plan. The submission deadline will be in the late summer or early fall, 2017. The submissions will be reviewed by the Policy and Planning Advisory Committee (PPAC). More information will be forthcoming.

While it is not mandatory to attend Science Week 2017 in order to submit a PPAC proposal, we aim to include all major current activities in the Science Week 2017 program. We encourage new ideas to be presented in this forum for discussion and initial feedback from the community.

We are looking forward to welcoming you at TRIUMF in July.

6. CINP Individual Membership

CINP membership numbers are up slightly from last year, with a small decrease in the number of faculty members as a number of senior members were moved to associate membership upon retirement, and some corresponding increases in other classes of membership.

Please encourage your grad students and PDFs to join and contribute to the activities of the Scientific Working Groups (SWGs). "Associate class" memberships are typically renewed every three years, to ensure that continued membership is appropriate, and that our records remain up to date. An associate membership may be renewed if the individual is no longer a Canadian resident, provided he/she intends to permanently return to Canada within the next 5 years.

The membership form and introduction letter are posted at:
http://cinp.phys.uregina.ca/node/19
or contact Garth Huber for further information.

CINP Individual Membership – May 5, 2017			
Total Membership	115	Nuclear Astrophysics SWG	41
Faculty-class Members	67	Nuclear Structure SWG	49
Associate Members	48	Fundamental Symmetries SWG	45
Experimentalists	87	Hadrons/QCD SWG	34
Theorists	27	Education & Training SWG	38

7. Consultations with External Agencies

The CINP is an advocate and representative of the Canadian nuclear physics community and is asked to attend various meetings or make presentations on its behalf.

- The CINP was asked to make a 15 minute in-camera presentation to the NSERC Subatomic Physics Evaluation Section (SAPES) Large Projects Day, in Ottawa on Sunday, February 26, 2017. In addition to a status report on CINP activities, GH provided information on the breadth of Canadian nuclear physics research and important current and future priorities. The response from the membership in providing highlights and updates for this section of the presentation was excellent, and GH would like to thank all of those who provided material for the presentation.
- The CINP and IPP are jointly invited to make a presentation at the SAPES Fall Policy meeting on "The Context and Environment of Subatomic Physics Research at Canadian Universities." This presentation and accompanying document are intended to address some of the deficiencies caused by the cancellation of the SAPES fall site visits, given their value to both international and domestic members of the committee. We expect to update this document in advance of the 2017 fall policy meeting, and we will appreciate your input once we get closer to that date (late October).
- The CINP is asked to provide input to NSERC on a periodic basis, including suggestions for members of the Subatomic Physics Evaluation Section (SAPES), to replace the specific nuclear physics expertise of outgoing members. If you have any suggestions for domestic or international SAPES members please let Garth Huber know (contact info at

the end of the newsletter). When making suggestions, please keep in mind that committee members cannot be applicants in that competition and they are required to recluse themselves from any applications in which there is a real or perceived conflict of interest.

- The Advisory Committee on TRIUMF (ACOT) is a panel of international experts panel that meets and reports to the NRC twice a year. Garth Huber represents the CINP as a "community observer", providing feedback on TRIUMF's planning and operations. If you have specific information that would be useful to the CINP's input, please let us know.

8. WNPPC Student Conference Support

The CINP awarded $500 travel grants to support graduate students giving talks at the 2017 WNPPC in Banff, AB. Due to the exceptional demand, the size of the support program was increased by 50% from our usual levels. Even so, not all worthy applicants could be supported. The applications were evaluated by a committee: Gerald Gwinner (Manitoba), Sangyong Jeon (McGill) and Chris Ruiz (TRIUMF), and the top 6 ranked applicants selected for funding.

Student	Supervisor	WNPPC Talk Title
Shomi Ahmed (Manitoba)	Jeffrey Martin (Winnipeg)	Compensation of Magnetic Fields in the TRIUMF nEDM Experiment
Tegan Beattie (Regina)	Zisis Papandreou (Regina)	Analysis of the $\eta(548)\rightarrow\pi^+\pi^-\pi^0$ and $\acute{\eta}(958)\rightarrow\pi^+\pi^-\eta$ channels using a 8-9 GeV tagged photon beam for the GlueX experiment
Nikita Bernier (UBC)	Reiner Kruecken (TRIUMF)	Decay Spectroscopy of Neutron-Rich CD around the N=82 Shell Closure
Dilli Paudyal (Regina)	Garth Huber (Regina)	Spin Polarizability of a Proton via Measurement of Nuclear Structure Observable with Polarized Target and Polarized Beam at MAMI
Sakib Rahman (Manitoba)	Juliette Mammei (Manitoba)	Spectrometer and Detector Simulations for the MOLLER Experiment
Jonathan Williams (SFU)	Krzysztof Starosta (SFU)	Study of ^{22}Ne and ^{28}Mg Excited States Using Fusion-Evaporation and Doppler Shift Measurements

9. CINP Undergraduate Research Scholarships (URS)

The 2017 competition for the CINP URS was recently completed. The intent of the program is to allow gifted undergraduates to work with a supervisor on nuclear physics research for 16 weeks this summer. The scholarship is for $3600, which must be supplemented by the supervisor. In addition, if the supervisor intends to send the student to a laboratory or work with a second collaborator for an extended period in the summer, the CINP can contribute up to an additional $1300 to help cover transportation and lodging expenses.

Ten applications were received, which were evaluated by a committee consisting of: Gerald Gwinner (Manitoba), Garth Huber (Regina), Sangyong Jeon (McGill). The caliber of the competition was very good, and we regret that we were only able to award scholarships to the following five students.

Student	Supervisor	Project Title	Travel
Roseanne Burrough (Winnipeg)	Russell Mammei (Winnipeg)	Magnetic Holding Field Coil R&D for the nEDM Experiment at TRIUMF	No
Martin Hellmich (Saint Mary's)	Rituparna Kanungo (Saint Mary's)	Investigating the Structure of Neutron-Rich Be Isotopes	Yes
Bo Leng (Alberta)	Andrzej Czarnecki (Alberta)	Mass Threshold for Heavy Tetraquarks	No
Anish Verma (SFU)	Krzystof Starosta (SFU)	Impact of Collective and Single-Nucleon Degrees of Freedom on the Nuclear Jahn-Teller Effect	No
Daniel Wong (Waterloo)	Makoto Fujiwara (TRIUMF)	Construction and Testing of the Radial Time Projection Chamber for ALPHA-g	No

10. CINP Governance

CINP Institutional Members:

Saint Mary's University	Mt. Allison University	McGill University
University of Guelph	University of Manitoba	University of Winnipeg
University of Regina	University of Northern B.C.	TRIUMF

The CINP is supported by nine institutional members, representing universities in 7 provinces plus TRIUMF. The institutional members are the owners of the CINP and are solely responsible for the election of the Board of Directors. Faculty and associate membership in the CINP is free. Institutional members annual dues are used to support the operation of the CINP and pay expenses not eligible to the CINP's NSERC grant, such as the partial teaching release for the Executive Director. If your university is not yet an Institutional Member, we encourage you to contact Garth Huber for further information.

The Institutional Members AGM is scheduled for May 11, to elect two Board members and transact other official business of the CINP.

CINP Board of Directors (2016-17)

Name	Institution	Role	E-mail	Term Ends
Rituparna Kanungo	Saint Mary's University	President	ritu@triumf.ca	June, 2019
Gerald Gwinner	University of Manitoba	Vice-President	gerald.gwinner@umanitoba.ca	June, 2017
David Hornidge	Mt. Allison University		dhornidge@mta.ca	June, 2018
Sangyong Jeon	McGill University		jeon@physics.mcgill.ca	June, 2019
Jeffery Martin	University of Winnipeg	Secretary	j.martin@uwinnipeg.ca	June, 2017
Jens Dilling	TRIUMF		jdilling@triumf.ca	June, 2018

CINP Executive Director:

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

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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