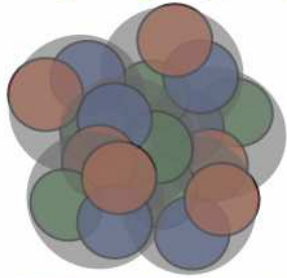


C I N P



I C P N

**Canadian Institute of
Nuclear Physics**

**Institut canadien de
physique nucléaire**

2024 Individual Members AGM

May 30, 2024

University of Western Ontario, London, ON

1. Guest Presentation

- Pan-Canadian MRS Coordination Board
Miriam Diamond

2. Executive Director's report

3. Financial Report

- Prepared by Greg Hackman

4. Discussion Items

5. Comments and Suggestions from Membership

6. Adjourn

What is the CINP?

- The 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.
 - Federally incorporated under the Canada Not-for-profit Corporations Act.
- Represents researchers covering all aspects of experimental and theoretical nuclear physics. Co-ordinates planning on a national scale and exchanges information within and between the various sub-fields of nuclear physics.
- Leads initiatives to strengthen the level and quality of nuclear physics research in Canada, including fellowships, undergraduate research scholarships, student travel awards, and targeted conference support.

CINP Membership Classes



INDIVIDUAL MEMBERS

- Open to any resident of Canada who has sufficient training and competence in the discipline of Nuclear Physics to enable the individual to play a significant role in the activities of the Institute.
- No dues or assessments.

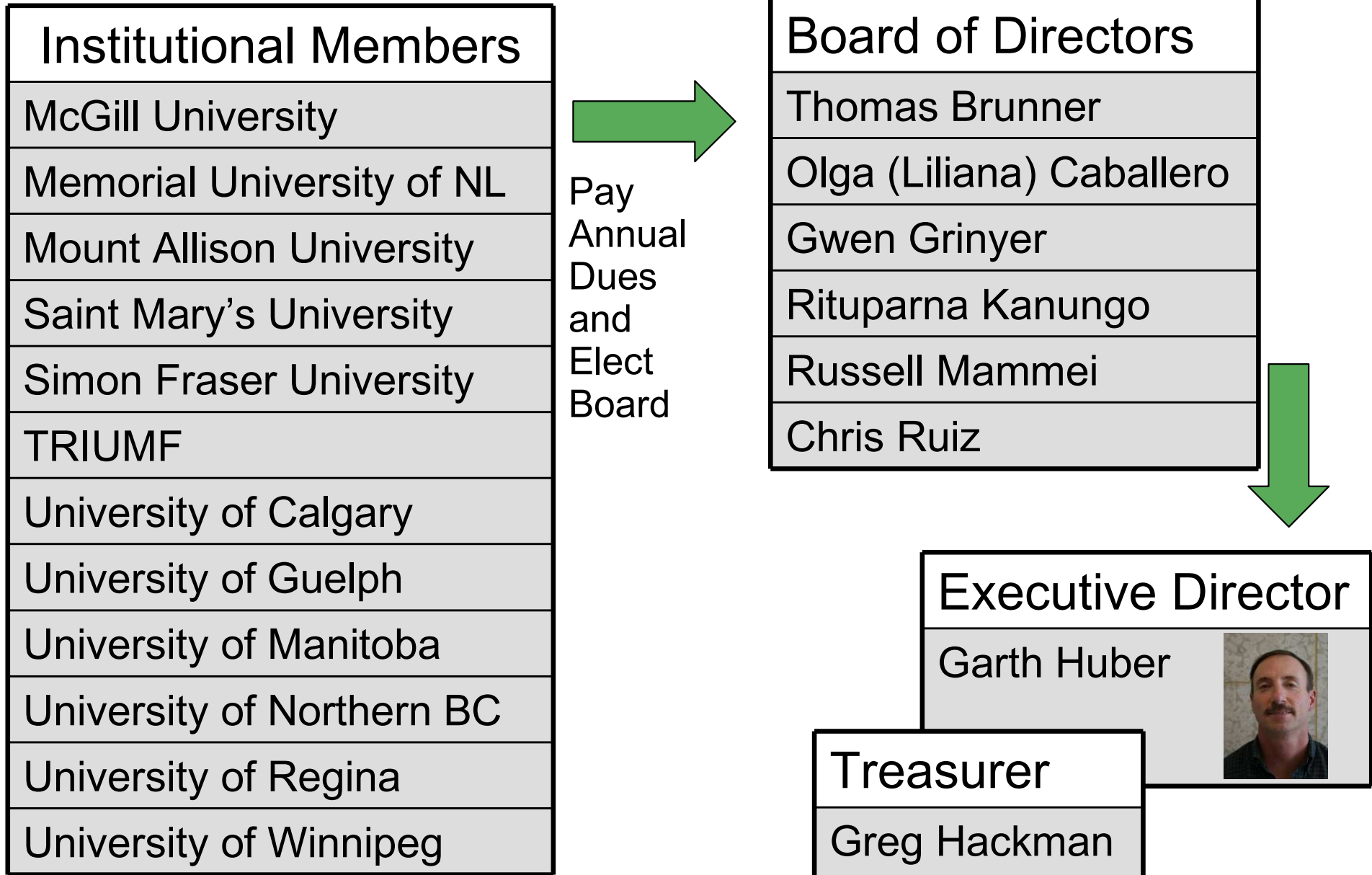
INSTITUTIONAL MEMBERS

- Universities and laboratories which are actively involved in academic research in Nuclear Physics.
- Meet annually to elect the Directors of the Institute.
- Must pay annual dues as levied by the Board of Directors.

AFFILIATE MEMBERS

- Industrial corporations, charitable organizations, etc. with staff members who have expertise in Nuclear Physics.
- Recognition will be based on annual donations.
- Qualified staff members permitted to attend Institute activities.

CINP Governance



Welcome to:

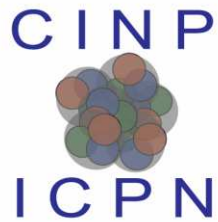
- **CINP's Newest Institutional Member**



UNIVERSITY OF CALGARY

- Applied for membership on Dec 4, 2023
- University of Calgary has 11 individual members, including five faculty (Donev, Friesen, Ouyed, Thompson, Wieser), and six associate members

CINP Individual Membership



- **Small growth in membership in last year**
 - Net gain of 7 members since last year
 - 7 new Associate Members offset by net loss of 6 due to finding permanent positions outside Canada or leaving field
 - 8 new Faculty Members, offset by loss of Kruecken (TRIUMF) and Franke (TRIUMF)

New Faculty Members:

G. Azuelos (Montreal)
 E. Caden (SNOLAB)
 A. Capra (TRIUMF)
 J. Cooley (SNOLAB)
 A. Khramov (BCIT)
 S. Sekula (Queen's)
 C. So (TRIUMF)

Assoc to Faculty:

S. Malbrunot (TRIUMF)

New Associate Members:

Z. Ahmed (Guelph) N. Niloy (Manitoba)
 R. Curry (Guelph) J. Suh (Calgary)
 P. Deguire (Guelph) A. Swadling (Calgary)
 P. Heidari (Calgary)

	Now	1 Year Ago	Change
As of May 1, 2024			
Faculty Level	93	87	+6
Associate	87	86	+1
Experiment Major Interest	132	127	+5
Theory Major Interest	46	44	+2

SWG 5 Year Review

- **CINP bylaws require each Scientific Working Group (SWG) be reviewed every 5 yrs.**
 - **Ensures the SWG remain scientifically relevant and that no urgent issue related to CINP mission is neglected.**
 - This process was last done in 2019 and has just concluded for 2024.
- **Completed Items:**
 - Individual Members asked to review their membership in SWGs
 - SWG Chairs appointed for new 5 year terms
 - 4 Incoming New Chairs!
 - Terms of Reference for SWGs renewed

Our thanks to:

Outgoing SWG Chairs

- **Gerald Gwinner** (Manitoba)
 - 14 Years as Fundamental Symmetries SWG Chair
 - Provided critical input and support during the initial operations of the CINP
- **Juliette Mammei** (Manitoba)
 - 10 Years as Nuclear Education and Training SWG Chair
 - Initiated addition of EDI to Terms of Reference
- **Iris Dillmann** (TRIUMF)
 - 10 Years as Nuclear Astrophysics SWG Chair
- **Adam Garnsworthy** (TRIUMF)
 - 10 Years as Nuclear Structure SWG Chair

Scientific Working Groups

Working Group	Members	Chair
Nuclear Astrophysics	72	Nicole Vassh (TRIUMF)
Nuclear Structure	76	Paul Garrett (Guelph)
Fundamental Symmetries	85	Jeff Martin (Winnipeg)
Hadrons/QCD	55	Svetlana Barkanova (Memorial)
Nuclear Theory	36	Alex Gezerlis (Guelph)
Nuclear Physics Education & Training	60	Ruben Sandapen (Acadia)

SWG Chair Duties:

- be main point-of-contact for SWG membership
- help facilitate CINP scientific program, e.g. contribute material to or suggest authors for the CINP website and newsletter, and help organize workshops
- help write the CINP Brief for input to the NSERC Subatomic Physics Long Range Plan, and to provide input on other CINP activities, such as the annual presentation at NSERC Large Projects Day and the AGM
- act as an advisor to the CINP Executive Director on related scientific issues, funding, and long range planning

• Nuclear Physics Representation

- The CINP is vital in giving the nuclear physics research community a coherent and strong voice
- CINP presentation at SAPES Fall Orientation Session on Dec 15, and observer at Large Project Day
 - Large Project Day is now entirely *in-camera*
- Input to SAPES membership
- NP Community Representative at Advisory Committee on TRIUMF (ACOT), spring and fall annually
 - In person meetings have resumed
- Nigel Smith (TRIUMF Dir) has instituted a regular set of meetings with ED of CINP, IPP, McDonald Inst
- Pan-Canadian MRS Coordination Board
- Formal observer to NuPECC (Nuclear Physics European Collaboration Committee)

CINP 2023–24 Accomplishments



- **Nuclear Physics Representation**

- In-person meetings in Ottawa on October 20, 2023 (GH & IPP Director Carsten Kraus)
- NSERC, CFI, Innovation Science and Economic Development Canada (ISED)

- **Three issues were discussed:**

- a) **New Major Research Facilities (MRF) paradigm**

- TRIUMF 5year funding and urgent need for an increase
- MRF implementation, such as matching fund requirements
- MRF maintenance and minor upgrade funding, separate from major upgrades
- McDonald Institute

- b) **Graduate student and PDF funding**

- increasing funding to an internationally competitive level
- not only increasing scholarship amounts, but number of scholarships, and broader criteria (for example, eligibility of gifted international students)

- c) **Tri-Council funding**

- an increase is long overdue
- Bouchard report recommended "as an initial step", an increase of at least 10% annually for 5 years
- The meetings were extremely useful, and were well received
- Having the meetings in October, rather than in February (in association with the former Large Project Day) was very effective, as federal budget is still being written then, and so there is more chance of a positive impact.
- With the recent announcements of TRIUMF and Tri-Council funding, we are hopeful our visit added positively to the other such voices. Another trip is planned for October 2024.

CINP 2023–24 Accomplishments

• Community Outreach

- CINP facilitates new connections and allows the disparate Canadian nuclear physics community to develop a common identity
- CINP website <http://cinp.ca/> content added regularly
- 2 Newsletters annually



Canadian Institute of Nuclear Physics
Institut canadien de physique nucléaire

Newsletter #19, November 2021

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. CINP Board of Directors (2021-22)

The CINP Institutional Members had their annual meeting via teleconference on May 21, 2021. This was the first meeting that included our two new institutional members, SFU and MUN. One of the agenda items was to elect two Board members. There were no changes in Board membership, as both Gwen Grinyer and Chris Ruiz were re-elected to new 3 year terms.

The Board is listed below, along with their assigned responsibilities.

Name	Institution	Role	E-mail	Term Ends
Michael Gericke	University of Manitoba		mgericke@physics.umanitoba.ca	June, 2023
Gwen Grinyer	University of Regina		gwen.grinyer@uregina.ca	June, 2024
Sangyong Jeon	McGill University	Secretary	jeon@physics.mcgill.ca	June, 2022

2. SAPES Large Project Day Changes

Large Project Day is an important event at the start of NSERC competition week. Traditionally, the day is divided into two parts, with presentations by CINP, IPP, TRIUMF, SNOLAB, Perimeter, McDonald, CFI, LRPC in the morning, and presentations by the principal investigators of large proposals (requesting an average of \$500k/yr or more) in the afternoon.

To reduce their workload on this long day, the Subatomic Physics Evaluation Section (SAPES) has decided to move the first half of Large Project Day to a separate meeting in December (date not yet finalized). SAPES feels that having the input from the community institutes and laboratories prior to their reading the grant applications will help them gain a better perspective of the Canadian subatomic physics research environment. **Thus, the traditional CINP presentation on The Breadth of Canadian Nuclear Physics Research at SAPES Large Project Day is now in December rather than February.**



The screenshot shows the CINP website homepage. At the top left is the CINP ICPN logo. To its right, the text reads "Canadian Institute of Nuclear Physics" and "Institute Canadien de Physique Nucléaire". Below this is a navigation menu with links for Home, About CINP, Nuclear Physics, Programs, Outreach, Membership, and Governance. The main content area is divided into three sections: "Information and News" with links for Jobs/Announcements, Newsletters, Conference Support, AGM slides, and CINP White Papers; "Scientific Working Groups" with links for Overview, Nuclear Astrophysics, Nuclear Structure, Fundamental Symmetries, Hadronic Physics/QCD, and Education and Training; and "Important Links" with links for Subatomic Physics Long Range Plan, NSERC News, SAPES Chair Reports (2010-), GSC-19 Chair Reports (2001-09), and IUPAP Working Group WG.9. On the right side of the page is a large image of the GRIFIN detector, with the caption "GRIFIN with DESCANT and SCEPTAR" below it. At the bottom of the page, there is a row of seven dots, with the first one filled, and a footer paragraph: "The Canadian Institute of Nuclear Physics 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."

- **CINP Undergraduate Research Scholarships (URS)**

- A supervisor can nominate only their best student for the award.
 - \$5.5k student stipend which must be matched by supervisor to at least \$9.5k
 - \$1300 travel supplement available if the supervisor intends to send the student to a laboratory or to work with a second collaborator for an extended period
- **CINP URS is complementary to the NSERC USRA in several key aspects:**
- 1) Gifted international students studying in Canada are eligible to apply for the CINP URS, but not the NSERC USRA
 - 2) An important element of the URS is the optional Travel Award, which allows the supervisor to send student to a lab or work with second collaborator for an extended period. This can have a significant impact on the quality of the research experience for some undergrads. The NSERC USRA has no such component.

- **15 applications were received, had to ask Board to authorize up to 10 awards**
- **Selection Committee: Barry Davids (TRIUMF), Chair, Peter Blunden (Manitoba), Greg Christian (Saint Mary's), Zisis Papandreou (Regina)**

CINP 2023–24 Accomplishments



2024 CINP Undergraduate Research Scholarships

Student	Supervisor	Project Title
Rylen De Vries (Winnipeg)	Russell Mammei (Winnipeg)	First diamond-like-carbon UCN coated guides from the UCN guide coating facility at UofW
Allison Frayne (Calgary)	Timothy Friesen (Calgary)	Microwave spectroscopy of anti-hydrogen
Sarah Littlejohn (Mt. Allison)	David Hornidge (Mt. Allison)	Analysis of CPP–NPP data from GlueX @ JLab
Karalee Reimer (Manitoba)	Savino Longo (Manitoba)	Neutron–Antineutron production in e+e- annihilations @ Belle-II
Claire Sauze (Saint Mary's)	Ritupana Kanungo (Saint Mary's)	Determination of neutron skin thickness in neutron-rich Ca isotopes
Benjamin Scully (UBC)	Jason Holt (TRIUMF)	Ab-initio theory for superallowed Fermi transitions and constraints on CKM unitarity
Dhruval Shah (Regina)	Gwen Grinyer (Regina)	Beta-delayed charged particle emission of ^{20}Mg
Zachary Sullivan (Regina)	Garth Huber (Regina)	Probing nuclear matter via Deep Exclusive π^+ production with JLab electron beams
Portia Switzer (Winnipeg)	Elie Korkmaz (UNBC)	Instrumenting a new Pulsed Laser Deposition Vacuum Chamber for UCN Coating Applications
Ethan Taylor (Western Ont)	Ania Kwiatkowski (TRIUMF)	Commissioning of laser ablation ion source for TITAN–TRIUMF

• CINP Graduate Fellowship

- Program began in 2021
- Two \$13,000 fellowships to PhD student of high merit
- In addition to academic and scientific criteria, the application has an EDI component, where applicants wrote a 1 page description of what role a PhD student and Graduate Fellow can play in promoting and advancing EDI in our community
- 9 applications were received for fellowship, competition very tight
- **Selection Committee:** Chris Ruiz (TRIUMF), Chair, Sangyong Jeon (McGill), Ruben Sandapen (Acadia), Paul Garrett (Guelph)

Zarin Ahmed (Guelph)

Supervisor: Paul Garrett

Nuclear shapes can vary with nucleon numbers and between states within the same nucleus, known as shape coexistence. This phenomenon challenges nuclear theory and requires advanced experimental techniques. My research on ^{96}Zr aims to provide spectroscopic data and constraints on quadrupole and octupole correlations, crucial for both experimental and theoretical studies.

Nathan Heinrich (Regina)

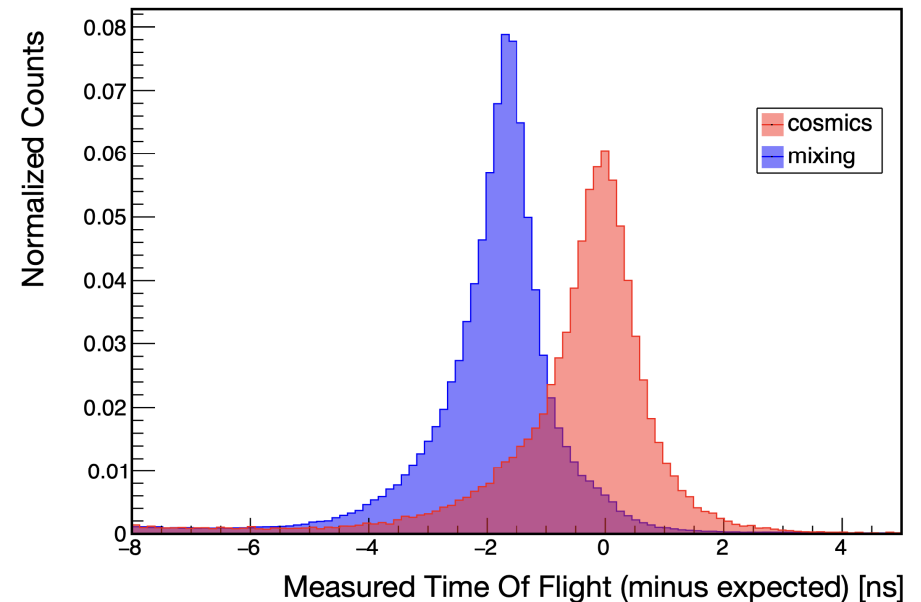
Supervisor: Garth Huber

Parton Distributions (GPDs) are a cohesive framework for describing quark-gluon structure of particles bound by the strong force. My experiment seeks to determine the viability of extracting GPDs via a new method, known as Deep Exclusive Pion Electroproduction.

2023 Graduate Fellowship Report

- **Gareth Smith (UBC/TRIUMF)** *Supervisor: Makoto Fujiwara*
- *Background discrimination for the ALPHA-g anti-hydrogen detectors*
- ALPHA-g was designed to directly measure the gravitational free fall of anti-hydrogen
- ALPHA-g employs two detectors to observe anti-hydrogen annihilations. A time projection chamber (TPC) tracks the trajectory of charged pions produced in annihilations, and traces them back to a common annihilation vertex. Simultaneously, a barrel scintillator (BSC) detector measures the time-of-flight of these annihilation products.
- My research over the past year has been developing a time-of-flight calibration algorithm for the BSC. My scheme requires around 3 hours of cosmic ray background-only data; by parasitically using data already taken while waiting for anti-proton delivery from ELENA, time-of-flight calibration can be performed continuously on a run-to-run basis.

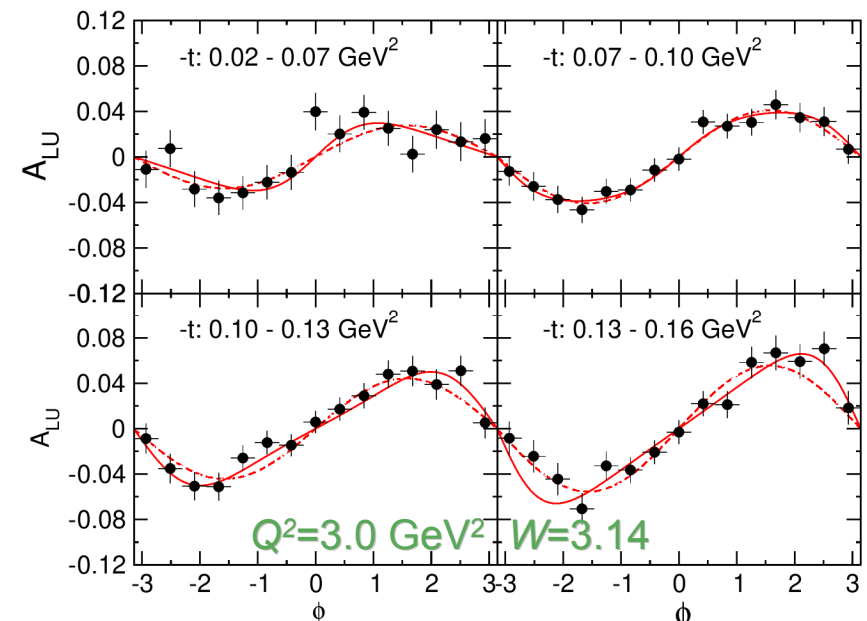
Measured time-of-flight distributions for annihilations (blue) and cosmic ray background (red). Expected time-of-flight based on a cosmic ray at the speed of light has been subtracted.



- For more details, please see the article in the May CINP Newsletter

2023 Graduate Fellowship Report

- **Alicia Postuma (Regina)** *Supervisor: Garth Huber*
- *Beam Spin Asymmetry of Exclusive Pion Production in the KaonLT Experiment*
- The KaonLT experiment @ JLab measured deep exclusive meson production (DEMP) reactions to study quark-gluon interactions in the transition regime.
- My work measured the beam spin asymmetry of $p(e, e' \pi^+)n$ data, defined as the fractional difference in events caused by incident electrons of positive or negative helicity, and it is proportional to the structure function σ_{LT}/σ_0 .
- There are two ways of determining σ_{LT}/σ_0 : using the full functional fit (**solid line**) or an approximation (**dashed line**). In this work, the result from the approximation method is used as a systematic error. Other systematic errors result from the uncertainty on the beam polarization, and the cut dependence of σ_{LT}/σ_0 from missing mass and coincidence time cuts. Once σ_{LT}/σ_0 was determined, the $-t$ dependence was studied at fixed Q^2 and W .
- Results from this work are in good agreement with recent results from CLAS12, showing a similar magnitude and $-t$ dependence of σ_{LT}/σ_0 . A manuscript will be submitted to PRL soon.



- For more details, please see the article in the May CINP Newsletter

Congratulations to:

• New CAP Fellows



Corina Andreoiu (SFU) In recognition of her influential contributions to subatomic physics, particularly in advancing the understanding of collective behavior and shape co-existence in nuclei, and for dedication to the Canadian physics community through tireless service to the CAP, the CINP, and TRIUMF.



Gwen Grinyer (Regina) In recognition of her outstanding research contributions of ultra-high precision measurements to test the Standard Model description of electroweak interactions and designing of state-of-the-art instrumentation to study the structure of rare isotopes; and for championing equity, diversity and inclusion, and challenging the barriers faced by women and 2SLGBTQ+ people in STEM.



Rituparna Kanungo (Saint Mary's) In recognition of her contributions to experimental subatomic physics and groundbreaking discoveries in rare isotopes and nuclear shells; and for leadership of international collaborations in Japan, Germany, and Canada's TRIUMF, and service to national and international organizations.

CINP NSERC Expenditures

– Prepared by Greg Hackman



FY23 (preliminary)	
FY23 Installment	75,000
Conference Sponsorship	8,500
Student Conf Support	6,000
Junior Scientist Travel	1,000
Undergrad Scholarships	33,000
URS Travel Supplement	2,119
Graduate Fellowships	25,000
Representation Travel	5,747
Recruitment	2,250
Misc	0
FY23 Expenses	86,536

FY24 (budgeted)	
FY24 Installment	75,000
Conference Sponsorship	14,500
Student Conf Support	9,000
Junior Scientist Travel	7,000
Undergrad Scholarships	55,000
URS Travel Supplement	5,200
Graduate Fellowships	26,000
Representation Travel	
ACOT (1 trip)	1,550
Other domestic	3,500
International	5,250
Recruitment	3,000
Misc	1,670
FY24 Projected Expenses	130,700

- Slowly drawing down COVID19 surplus
- FY24 expenses are particularly high because of large number of awarded URS

CINP Private Account

– Prepared by Greg Hackman



FY23 (preliminary)	
FY23 Dues assessed	\$25,500
Executive Director	\$24,000
AGM 2022 Expenses	\$140
Finance Expenses	
Audit	\$3,552
Bank	\$0
Industry Canada	\$0
Total FY23 Expenses	\$27,552

FY24 (budgeted)	
FY24 Dues assessed	\$28,000
Executive Director	\$24,000
Finance Expenses	
Audit	\$3,885
Bank	\$100
Industry Canada	\$36
Total FY24 Expenses	\$28,021

- Small annual deficits, due in part to annual audit fees.
- At some point in next ~5 years, might need to consider an institutional membership fee increase.

- CPA: Dudley & Company LLP, Regina

Agenda Items

4. Discussion Items

- Suggestions for new SAPES members
- URS selection criteria
- CAP Vogt Medal and Fellowship nominations

5. Comments & Suggestions from Membership

6. Adjourn

SAPES Member Suggestions



NSERC has asked CINP to suggest new SAPES members for the 2025 competition and beyond

Retiring Members:

- *Nikolina Ilic*, University of Toronto, Exp Particle Phys
- *David Morrissey*, TRIUMF, Theor Particle Phys
- *Matthias Schindler*, University of South Carolina, Theor Nuclear Phys
- *Albert Young*, North Carolina State University, Exp Nuclear Phys, Strongly Interacting Matter (IEP)

Members who are stepping down for a year:

- *Thomas Brunner*, McGill University, Exp Neutrino & Particle Phys
- *Rituparna Kanungo*, Saint Mary's University, Exp Nuclear Phys, Nuclear Reactions

General Future Recruitment:

- Exp High Energy Phys
- Exp Astroparticle Phys, Dark Matter
- Exp Nuclear Phys, Low and Intermediate Energies
- Exp Accelerator R&D
- Theor Quantum Field Theory, High Energy Particle Phys, Dark Matter & Cosmology
- Theor Nuclear Astrophysics

Upcoming NSERC Application



- **CINP's NSERC grant expires this March**
- GH, Greg Hackman and the Board will be preparing a new application for submission this fall
- **What is your opinion on the value of future Graduate Fellowships?**
- Recognizing that the cost of living and education have considerably increased, the other Federal Scholarships will soon be increasing in value, should we propose an increase from \$13k to around \$20k in the NSERC application?
- Or is it better to spread the Fellowship awards more broadly, with only a small increase, and instead request new funds to increase the number of recipients by one?

Agenda Items

- 5. Comments & Suggestions from Membership**
- 6. Adjourn**