



INSTITUTE OF  
PARTICLE  
PHYSICS

50 YEARS

INSTITUT DE  
PHYSIQUE DES  
PARTICULES

TOGETHER SINCE  
ENSEMBLE DEPUIS  
1971

# IPP Director's Report 2023 Annual General Meeting of Individual Members

J. Michael Roney

23 June 2023

University of New Brunswick

Fredericton

# AGM Agenda

- Directors Report to IPP Members and Council Election Results
- CFI Update (Olivier Gagnon)
- Report from McDonald Institute Director (Tony Noble)
- TRIUMF 5 Year Planning Process (within the 20 Year Vision) (Nigel Smith)
- Theory Community Report (Evan McDonough)
- Short Updates from a set of IPP Projects Under Construction
  - Moller (Michael Gericke)
  - Pioneer (Katherine Pachal)
  - Darklight (Katherine Pachal)
  - SuperCDMS (Scott Oser)
  - P-ONE (Carsten Krauss)
  - DUNE (Nikolina Ilic)
  - HyperKamiokande (Xiaoyue Li)

Minutes of 2022 IPP AGM from Meeting:

<https://particlephysics.ca/about-ipp/governance>

# IPP Council

## 2022-2023 IPP Council

- Mark Hartz (2023) - TRIUMF&IPMU
- Evan McDonough (2025) - Winnipeg
- Rob McPherson (2023) - IPP-Victoria
- Katherine Pachal (2025) - TRIUMF
- J. Michael Roney [Chair] (2023) - Victoria
- Katelin Schutz (2024) - McGill
- Simon Viel (2024) - Carleton

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# 2023 IPP Council Elections

- Call for Nominations to Council announced April 23 by Adam Ritz, IPP Secretary-Treasurer.
  - Nominations closed Monday, May 15
- Candidates, in alphabetical order:**

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- Razvan Gornea (Carleton U.)

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Welcome Matthias Danninger and Razvan Gornea to the IPP Scientific Council for the next three years

# IPP Council

## 2023-2024 IPP Council

- Matthias Danninger (2026) - SFU
- Razvan Gornea (2026) - Carleton
- Evan McDonough (2025) - Winnipeg
- Katherine Pachal (2025) - TRIUMF
- J. Michael Roney [Chair]\* (2023) - Victoria
- Katelin Schutz (2024) - McGill
- Simon Viel (2024) - Carleton

\* Term to end summer 2023



# Activities of Council

## Met 16 times this year – all remote

- 10 June 2022 – old and new Council
- 5 July 2022
- 12 September 2022
- 3 October 2022
- 31 October + 2 November 2022
- 1 December 2022
- 12 December 2022
- 23,24+27 January 2023 - IPP Summer Student selection
- 6 March 2023
- 3 April 2023
- 26 April 2023
- 2 May 2023
- 15 May 2022
- Next meeting - old and new Council today – 23 June 2023

# Activities of Council

## Some Council Matters in 2022-2023

- Digital Research Alliance of Canada – (IPP is an Associate Member, IPP RS R. Sobie chair of Research Council)
- IPP Project reviews and reviews of other projects of interest to IPP members
  - Document of IPP Program prepared
- Research Scientist programme matters
- Launch of IPP 50<sup>th</sup> Anniversary Connect Fellowship
- Connecting more Canadian teachers to CERN High School Teachers Program
- Early Career Theory Fellowship – resumed this past year
- IPP Summer Student programme – in person this past year
- Wikipedia entry on IPP
- Continue limited support for conferences: leverages support from universities

# Activities of Council

## Some Council Matters in 2022-2023

- MRS Resources
- Engagement with U.S. Snowmass community planning process – R. McPherson Canadian representative on International Advisory Committee
- Establishment of IPP Strategic Planning Committee as directed by IPP Board

# IPP Research Scientists

Research Scientist (Starting year)	Project: w/data	Project in Construction Phase/Future	Host Institution
Francois Corriveau (1991)	ATLAS	ILC; ATLAS upgrade	McGill
Christopher Hearty (1994)	<i>BABAR</i> , Belle II		UBC
Nikolina Ilic (2019)	ATLAS	ATLAS upgrade; DUNE	Toronto
Robert McPherson (1997)	ATLAS	ATLAS upgrade	Victoria
Steven Robertson (2003)	<i>BABAR</i> , Belle II, ATLAS	ATLAS upgrade; MATHUSLA; P-ONE	Alberta
Randall Sobie (1987)	ATLAS, Belle II, HEPNET	ATLAS upgrade	Victoria
Richard Teuscher (2005)	ATLAS	ATLAS upgrade	Toronto
Alexander Wright (2012)	SNO+, PICO	PICO, SNO+	Queen's

# New Individual Members Recommended by IPP Council this past year

Jodi Cooley (Experimentalist, SNOLAB)  
Jean-Francois Fortin (Theorist, Laval U)  
Xiaoyue Li (Experimentalist, TRIUMF)  
Savino Longo (Experimentalist, Manitoba U)  
Balint Radics (Experimentalist, York U)  
Stephen Sekula (Experimentalist, SNOLAB)

# IPP 50<sup>th</sup> Anniversary Connect Fellowship

## Launched at the IPP 50<sup>th</sup> Anniversary Symposium

**Purpose:** To strengthen the Canadian particle physics research effort through the support of connections between IPP institutions.

- 4 year postdoctoral fellowship connecting at least 2 IPP institutions as co-hosts for the Fellow where the first 2 years of the Fellow's tenure are at one institution and the other 2 at the second institution. Hosts can partner with TRIUMF, SNOLAB, Perimeter, or any university with IPP Members.
- Intended to support research that connects and adds value to at least two particle physics research domains (two experiments, two theory areas, or experiment-theory).
- IPP will provide matching funding for salary+benefits up to a maximum of \$35,000/year from IPP, with the remainder of the Fellow's salary and benefits paid from other grants or by the host institutions
- Initially a pilot programme: First Fellows were selected by IPP Scientific Council

# IPP 50<sup>th</sup> Anniversary Connect Fellowship

First Fellows were awarded by IPP Scientific Council in Autumn 2022 in national competition of outstanding postdocs

- Saniya Heeba: Connecting theory groups: McGill (Katelin Schutz) and Carleton (Seyda Ipek, Daniel Stolarski and Yue Zhang)
- Caleb Miller: Connecting MATHUSLA (supervisor: Heather Russell, UVic) and P-ONE (supervisor: Matthias Danninger, SFU)

# IPP Early Career Theory Fellowship

Fellowships, awarded in national competition, enable outstanding theory PhD students and postdocs to be present for a period between two weeks and six months at an international university, laboratory, or institute.

Purpose: encourage scientific collaboration between theorists in Canada and those abroad and enhance the career prospects of junior researchers

More information about the fellowship:

<https://particlephysics.ca/research-activities/early-career-theory-fellowship/?lang=en>

## PROGRAM RESUMED THIS PAST YEAR

### 2023 Fellows:

- *Christian Capanelli (McGill) U. Chicago, host: Dr. Edward Kolb*
- *Carlos Henrique de Lima (Carleton) U. Wisconsin, host: Dr. Yang Bai*
- *Qinrui Liu (Queen's) U. Copenhagen, host: Dr. Mauricio Bustamante*



# IPP Summer Student Fellowships

- May and June in Canada with a subatomic physics project supported by NSERC USRA undergraduate student programme plus supervisor's research grant; followed by July and August at CERN participating in the CERN summer school programme of daily lectures and hands-on research in afternoons
- CERN offers positions to non-member state countries 'at cost'
- IPP pays for travel to CERN and stipend to augment USRA funding
- Gives Canadian students unrivalled opportunity to experience CERN's International research environment

# IPP Summer Student Fellowships

- Contributions have come from McGill, Alberta, Victoria, Toronto, Carleton, McMaster
- Each provided \$20k in funding to this programme to support students from their home institute or being supervised by a faculty at their home institute.
- Some funding agreements up for renewal
- McDonald Institute has also contributed funds

# IPP Summer Student Fellowships

- IPP Scientific Council identifies excellent students from across Canada in very competitive environment
- IPP RS Steven Robertson manages this programme
- In 2023 38 applicants – 7 students accepted into program:
  - 1 Alberta, 2 Ontario, 4 British Columbia
  - Students supervised at McGill, Toronto, Alberta, UBC, TRIUMF, UVic
  - On average 1/3 of applicants have been female; in 2023 2 of 7 finalists are female out of a 30% female applicant pool.
- Particular encouragement to non-CERN research efforts to take students in first two months
  - 2023 projects are in ATLAS (4), DarkLight (1), MoEDAL(1),TUCAN(1)

# IPP Summer Students 2023

Year	Name	Undergrad	Supervision
2023	Dean Ciarniello Natalia Litvak Peter Ma Thomas Peterson* Ben Scheuer Hunter Sharron Sarah Wang*	UBC U Alberta U Toronto UNBC Victoria McMaster UBC	UBC, ATLAS (Lister) Alberta, MoEDAL (Pinfold) McGill, ATLAS (Vachon) TRIUMF/UNBC, TUCAN (Franke) Victoria, ATLAS (Kowalewski) Toronto, ATLAS (Trischuk) TRIUMF, DarkLight, (Pachal)

\* to be paired with supervisors from the CERN project pool during July-Aug  
Others continue with their nominal USRA project for the entire four months.

## IPP Support for Sending Canadian teachers to CERN High School Teacher Program

- CAP program to recognize outstanding high school teachers in different regions of Canada
  - Invites applications from the winners to attend the CERN HS Teachers Program – 2 weeks in summer
  - Before this year, one teacher was typically sent per year.
  - 90% of Cost born by Perimeter Institute (IPP providing 10%)
  - Last year, 2 teachers we sent
  - This year, IPP Council approved sending 2 additional teachers as a pilot project – will have reports from participants and will consider continuing this in future

# IPP Support for Conferences

- Council has a modest budget for contributions to Canadian particle physics conferences
  - focus: encouraging student participation
  - leverage of funds from other sources
- IPP Council approved support for the following conferences in the last year
  - Theory Canada 2023
  - WNPPC 2023
  - Lake Louise Winter Institute 2023
  - Testing Gravity 2023
  - HEPix Forum 2023
  - 13th Int’l Symposium on Development of Semiconductor Tracking Detectors 2023
  - Werner Israel Symposium 2023

# Advocacy and Communications

Very limited because of the pandemic as well as lack of NSERC presence in Ottawa until winter 2023

ICFA and HyperK Financial Forum were online in 2022 – have transitioned to being in person + online (hybrid)

ICFA: IPP Council nominated R. Teuscher (IPP RS) to be Canadian ICFA representative, confirmed by C11 in Feb. 2023 for a 3 year term, replacing M. Roney

HyperK Financial Forum Meetings: IPP Director attended meetings remotely and in-person – most recently June 2023 in Tokyo

# IPP Strategic Planning Committee

## Terms of Reference from IPP Board of Trustees

*Following the public release of the 2022-26 Canadian Subatomic Physics Long Range Plan, the Director is asked to strike a Strategic Planning Committee for IPP, and report back to the Board... potential issues for consideration by the Committee include the following: (i) the value proposition for potential donors; (ii) how IPP outreach programs would best fit within the broader ecosystem (including the Perimeter Institute, McDonald Institute, TRIUMF, SNOLAB, etc); and (iii) goals for future Research Scientist hires, e.g. in relation to instrumentation support or research computing*

## **Committee:**

Evan McDonough (Winnipeg); Robert McPherson (IPP/Victoria); Katherine Pachal (TRIUMF); Michael Roney (IPP Director)



# IPP Strategic Planning Committee

Report Drafted and will be distributed to IPP Members:

Three areas are included in report:

- *value propositions for potential donors;*
- *outreach efforts; and*
- *guidance on future Research Scientist recruitment.*

The committee notes that there are synergies between these three areas that can strengthen their individual impact.

- For example, outreach efforts can be enhanced by targeted donations, as described below, and IPP Research Scientists often have outreach roles when they find themselves in leadership positions of experiments, where they are in a position to promote and spread the excitement of particle physics beyond the physics community.
- Outreach efforts include – e.g. getting particle physics into school curricula across Canada, enhance Canadian participation in CERN HS Teacher program, etc

# Focus of coming year for IPP

- **Continue to produce outstanding physics and HQP !!!**
- Maintain the IPP Base Programme
  - IPP Research Scientists
  - Summer Student programme: growing support from universities
  - Support for conferences: leverages support from universities
  - Early Career Fellowship Program

# Focus of coming year for IPP

- IPP 50<sup>th</sup> Anniversary Connect Fellowship operations
- Ramp-up advocacy efforts coordinated with institutes
- Feedback to IPP Strategic Planning Committee Draft Recommendations and implementation of finalized recommendations
- Prepare for IPP Thematic MRS Grant renewal

# Additional Material

# IPP Summer Students 2022

Year	Name	Undergrad	Supervision
2022	Jonathan Barrett*	Memorial	Memorial, Theory (Barkanova)
	Kyran Klazek-Schryer	Victoria	UBC, ATLAS, (Lister)
	Angela Moskal*	McMaster	TRIUMF, HyperK(Lindner)
	Leandro Risk	Toronto	Toronto, ATLAS (Triscuk)
	Michaela Robert*	Queens	Queens, PICO (Noble) AdS/CFT( Frey)
	Ruchi Soni	Toronto	Toronto, ATLAS (iTK) (Teuscher)
	Ethan Sun	UBC	UBC, ATLAS, (Lister)

\* to be paired with supervisors from the CERN project pool during July-Aug  
Others continue with their nominal USRA project for the entire four months.

# IPP Summer Students 2021

Year	Name	Undergrad	Supervision
2021	Darren Zeming Chan	Waterloo	UofT, ATLAS (Sinervo)
	Cole Coughlin	Manitoba	Winnipeg, theory AdS/CFT( Frey)
	Paula Bosca	McMaster	UofT, ATLAS (Savard )
	Michael Grehan*	Winnipeg	Winnipeg, theory AdS/CFT( Frey)
	Roxane Theriault*	McGill	Carleton, theory neutrino DM (Zhang)
	Paul Deguire	Laval	McGill, ATLAS (Vachon)
	Kristopher Samant*	Carleton	Carleton, ATLAS (Gilbert)

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# IPP Summer Students 2020

Year	Name	Undergrad	Supervision
2020	Matthew Ens Gillian Godden Peter Kaloyanis Patrick Li Lucy Liu Michael Sloan Alex Wen	Victoria UBC Okanagan McGill Alberta Toronto Carleton UBC	SFU (Danniger) Victoria (Roney) McGill (Vachon) Alberta (Pinfold) Toronto (Sinervo/Curtin) Carleton (Bellerive) Toronto (Savard)

# IPP Summer Students 2019

Year	Name	Undergrad	Supervision
2019	Samantha Connolly Genevieve Hayes Kaitlyn Liang Khaled Madhoun Doris Rusu	Queen's Queen's UT Mississauga Carleton Windsor	Queen's UBC Toronto Carleton Victoria



# IPP Summer Students

Year	Name	Undergrad	Supervision
2007	Rabinovitch	Yale	TRIUMF
2008	Guindon Ilic Louca McCarthy	Ottawa Waterloo Waterloo Queens	Carleton Toronto McMaster Carleton
2009	Abouzeid Dupuis Feige LaFlamme Low	Carleton Victoria McGill McGill UBC	Toronto Victoria Toronto McGill McGill
2010	Krizka Moult LeBlanc Pachal Picard	Simon Fraser UBC Acadia Victoria Victoria	Toronto Victoria TRIUMF Victoria Montreal

# IPP Summer Students

Year	Name	Undergrad	Supervision
2011	Buck Burke Collins-Fekete McDonald Portillo	Carleton Victoria Laval MacMaser Alberta	Carleton UBC Carleton Simon Fraser Alberta
2012	Abdel-Aziz Bluteau Boone Friedl Killick	Toronto Acadia UBC Carleton Carleton	Toronto TRIUMF UBC Carleton Carleton
2013	Abidi Hedrich Layden Rettie Waslaski	Toronto Thompson Rivers Waterloo Ottawa UBC	Carleton/UofT SFU McGill TRIUMF Toronto
2014	Noordeh Quenneville Strickland	York SFU Memorial	York SFU Victoria

# IPP Summer Students

Year	Name	Undergrad	Supervision
2015	Dicaire Grant Morningstar Ojeda	Ottawa UBC McMaster McGill	Carleton TRIUMF Toronto McGill
2016	Abernathy Fascione Krupa Tomalty Trischuk	Queens Queens UBC/Okanagan McGill Toronto	St. Mary's Queens TRIUMF Toronto Carleton
2017	Barron Kudzman-Blais Richardson Wandler Egan	Alberta Toronto Laurentian Alberta McGill	Alberta UBC SNOLab Alberta UBC
2018	Lia Formenti Luke Polson Joshua Sandor Jon Corbett Gareth Smith	Guelph Victoria McGill Queen's Carleton	ATLAS at McGill Belle II at Victoria Theory at McGill SuperCDMS at Queen's ATLAS at Carleton