

CAP - PPD Business Meeting



Canadian Association of Physicists
SUPPORTING PHYSICS RESEARCH AND EDUCATION IN CANADA

Marie-Cécile Piro & Matthias Danninger
June 11th 2020

Thank you to our
Sponsors:



- **2020 CAP PPD Virtual**
 - **Lessons learned**
 - **Organisation of the congress in general**
 - **Importance of being a member**
- **Finances**
 - **Thesis awards**
 - **Other conferences sponsorship**
- **PPD Executive and Vote results**
- **PPD Structure: New proposals**
- **How can we improve the current way of communication**
 - **Between us**
 - **Between CAP**

Thank you for your support!

**You rock! ~ 300 to register from everywhere in
Canada and abroad!**

- **Schedule include 4 sessions highlighting NEUTRINO Physics [total 8 hours]**
 - Experiments in the **forefront of the research** in Canada including:
 - T2K, HyperK, SNOLAB experiments, P-ONE, DUNE
 - Neutrinos and Challenges for low background detection
 - Dark matter
 - Energy frontier and colliders
- **We gave priority to students and those finishing this year and won't have the chance to participate at CAP 2021.**

PPD CAP Congress - Agenda - Montain time zone				
Virtual world - Everywhere - 8-9 June 2020				
Virtual Agenda - Mountain time zone				
Monday 8th June	Time (MT)	Tot time with questions	Speaker	Subject
Neutrino Physics	10:00	10	M.-C. Piro, M. Danninger	Welcome and Introduction
Chair: M. Danninger	10:10	30	Deborah Harris	Neutrino Interferometry at DUNE
	10:40	20	Nikolina Ilic	The DUNE Experiment: Physics Reach and Progress on Prototyping
	11:00	20	Stanley Yen	Supernova Neutrinos and the HALO detector
	11:20	20	Yi-Hsuan "Cindy" Lin	The SNO+ experiment: current status and prospect
	11:40	20	Ken Clark	Neutrino detection with scintillation bubble chamber
	12:00	15	Andreas Gaertner	Pathfinder missions for P-ONE, a new neutrino telescope in the Pacific ocean
	12:15	60	COFFEE - LUNCH BREAK	
Dark matter	13:15	15	Daniel Durnford	The NEWS-G light Dark Matter search experiment: New results from the LSM
Chair: M.-C. Piro	13:30	15	Georges Savvidis	The ACHINOS sensor in the NEWS-G experiment
	13:45	15	Jean-Marie Coquillat	Laser calibration & electron drift property analysis for NEWS-G
	14:00	15	Marie Vidal	Quenching factor in Neon gas using spherical proportional counters
	14:15	15	Ashley Joy	Latest data analysis results from DEAP-3600
	14:30	15	Carl Rethmeier	5.5 MeV Solar Axion Search with DEAP-3600
	14:45	15	Moira Venegas	Axion Dark Matter in Non-standard Cosmologies
	15:00	15	Taylor Gray	How was Dark Matter produced in the early universe? A study of fermionic Dark Matter with a Z' portal
	15:15		All	WBFB - time!
Tuesday 9th June	Time (MT)	Tot time with questions	Speaker	Subject
Neutrino Physics Part II	10:00	15	Jean-François Caron	An Intermediate-Energy Neutron Beam for calibrating Dark Matter Detectors
Chair: M.-C. Piro	10:15	15	Sumanta Pal	Low background optical system R&D for the Scintillating Bubble Chamber (SBC) detector
	10:30	15	Vasundhara Vasundhara	Pulse fitting or event localization in HPGe detectors
	10:45	15	Hussain Rasiwala	Linear Paul Trap for Ba-tagging (nEXO)
	11:00	15	Caroline Deluce	Towards Liquid Scintillator Phase of the SNO+ Neutrino Detector
	11:15	15	Simon viel	Silicon Photomultipliers for nEXO
	11:30	25	Mark Hartz	Neutrino Oscillations at the T2K and Hyper-Kamiokande Experiments
	11:55	60	COFFEE - LUNCH BREAK	
Energy Frontier	12:55	15	Michael Staelens	Physics Performance Benchmarks For The New MoEDAL-MAPP Detector
Chair: M.Danninger	13:10	15	Meisam Ghasemi Bostanabad	Search for SUSY with missing transverse momentum and multiple b-jets in ATLAS detector
	13:25	15	Matthew Basso	Machine Learning and Multiclassifiers for Improved Measurements of 2-Lepton Final States in the Higgs to WW Decay Channel in High Energy Physics Analyses
	13:40	15	Jonathan David Bossio Sola	Latest jet cross-section measurements by ATLAS
	13:55	25	Heather Russell	Highlights of recent results from the ATLAS experiment
	14:20	25	Steven Robertson	Belle II results
	14:45	5	M.-C. Piro, M. Danninger	Conclusion, announcement, Adjourned
	14:50		All	WB - time!

● Presenters: Thank you!

- 14 Students (13 grads + 1 undergrad) → 13 students in the best oral talk competition!
- 5 Postdocs
- 7 Faculties/Researchers

● PPD Judges: Thank you!

- Isabel Trigger (TRIUMF)
- Silvia Scorza (SNOLAB)
- Claire David (York)
- Razvan Gornea (Carleton)
- Thomas Brunner (McGill / TRIUMF)
- Caio Licciardi (Laurentian)

The screenshot shows a Zoom meeting interface. At the top, a status bar indicates "You are viewing Deborah Harris's screen" and "View Options". Below this is a gallery of six video thumbnails for participants: Marie-Cecile Piro, matthias, Deborah Harris, Art McDonald, Jacques Farine, and Stan Yen. The main content area displays a slide with the title "Top Ten reasons to Study Neutrinos" in orange. The slide lists ten reasons, with items 4 through 10 in bold orange text. At the bottom of the slide, it says "D. Harris: Neutrino Interferometry at DUNE" and includes logos for Fermilab, York University, and OLU. The Zoom control bar at the bottom shows "Unmute", "Stop Video", "Security", "Participants" (152), "Chat", "Share Screen", "Record", "Reactions", and a "Leave" button.

Top Ten reasons to Study Neutrinos

1. Neutrinos the most abundant visible particles in the universe after γ 's
2. Neutrinos have been around since the universe was 1 second old
3. Neutrinos are signals from the highest energy accelerators in the universe
- 4. Neutrinos will teach us about how mass is generated**
5. Neutrinos may tell us if a fermion can be its own antiparticle?
- 6. Neutrinos can see inside the nucleus like none else**
- 7. Neutrinos will tell us if we really understand flavor**
- 8. Neutrinos may be the reason that we enjoy such a healthy baryon asymmetry**
9. Neutrinos can access physics up to the GUT energy scales
- 10. Neutrinos broke the standard model and will tell us what is beyond**

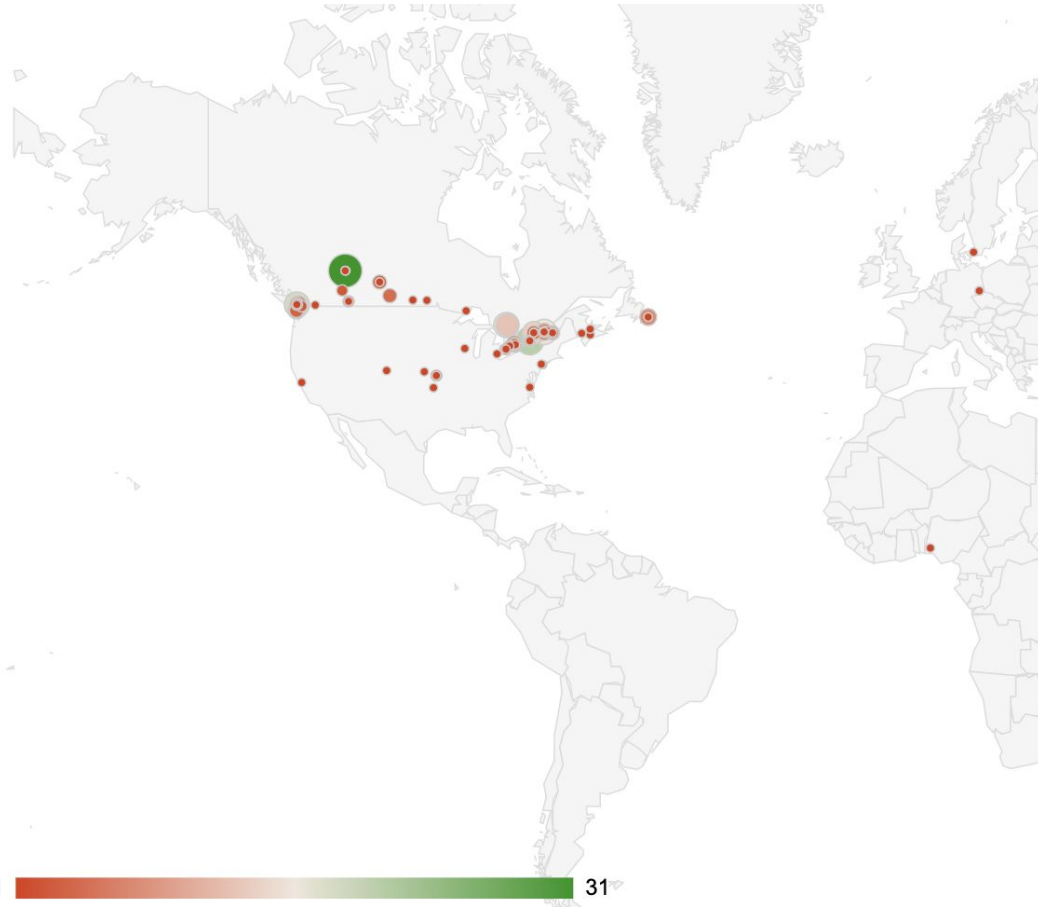
D. Harris: Neutrino Interferometry at DUNE

Fermilab YORK UNIVERSITY OLU

- **Around 300 registrants for being part of the congress**
 - **Some numbers about registrants**
 - ~100 (Faculties (~50) and Dr. / Researcher / postdocs)
 - ~160 students
 - ~ 40 not specified (retired, teacher, other)
- **A lot of interest from students across Canada and abroad!**

Important note:

- Interest from **small universities** across Canada who might not have enough resources to send students because of **physical realities** (registration, travel, accomodation, etc.)
- Possibility to offer travel fellowships?
 - From PPD funds or other sponsors?
 - To be discussed



- University of Manitoba
- Brandon University
- University of Regina
- Memorial University
- Okanagan college
- University of Ottawa
- Bishop's University
- Trent University
- University of Fraser Valley
- Mount Allison University, NB
- Lethbridge University
- Western University
- University of Waterloo
- And the others

And others from private, colleges,
and abroad ...

- **From the “real” congress we had:**

- **93 abstracts [6 posters]**

- Huge submission again! (last year 93 abstracts)
- 1 Plenary + 24 invited (15) + 31 grad comp (29) + 7 grad non-comp (9) + 2 undergrad comp (2) + 22 non student (27) + 6 posters (11).

- **Improvements and action items from last year:**

- Have less invited speakers and more student talks --- yes and no :(
- Give priority to students who didn't have the chance to give a talk from last year
- Succeed to get an additional 90 minutes for parallel sessions
- + Increased joint sessions with DNP - DTP and DAPI



- **Succeeded to have 2 plenary speakers at CAP 2020 Congress (support provided):**

- Deborah Harris (York) - PPD
- Avery Broderick (PI/University of Waterloo) - PPD/DTP

CAP PPD 2020 Congress

Count of CAP (Division) membership

CAP (DCMMP, PPD)

1.1%

CAP (DASP, DHP, DNP,

1.1%

former member

4.3%

CAP (DNP, PPD)

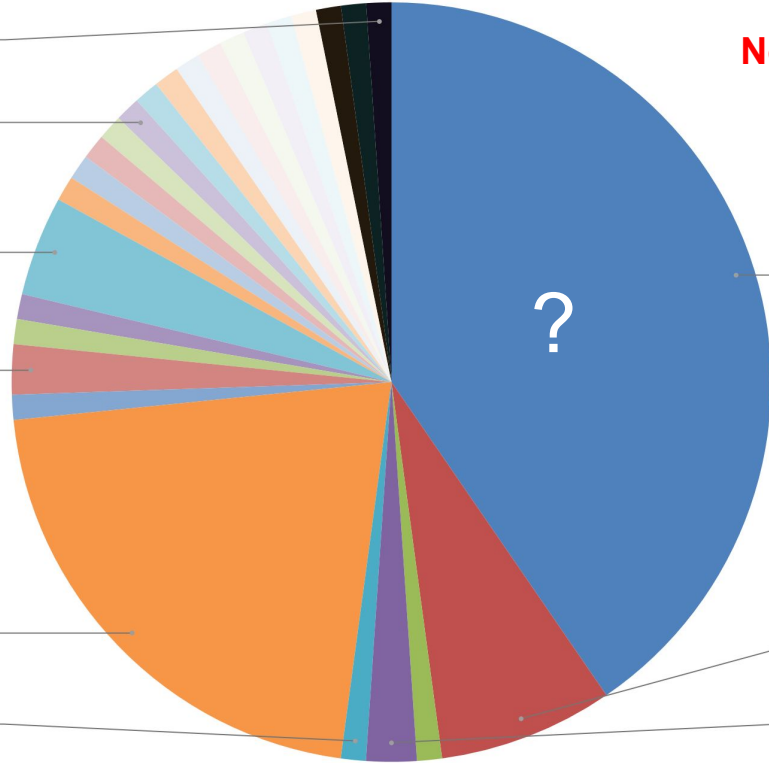
2.1%

CAP (PPD)

21.3%

PPD DNP

1.1%



Not member of CAP at all!

- 50% of invited speakers
- 67% Student in comp.
- 30% non-students

Non-member

40.4%

?

CAP

7.4%

CAP (PPD, CEWIP)

2.1%

Item for discussion for next Congress

- **Offer some virtual session during the next in-person congress**

→ *It won't replace everything offered at an in-person conference, but we may keep some online components.*

- **We would like to provide more support for attending the congress:**

- Child care (in discussion with TRIUMF)
- Travel, Accomodation (challenging)

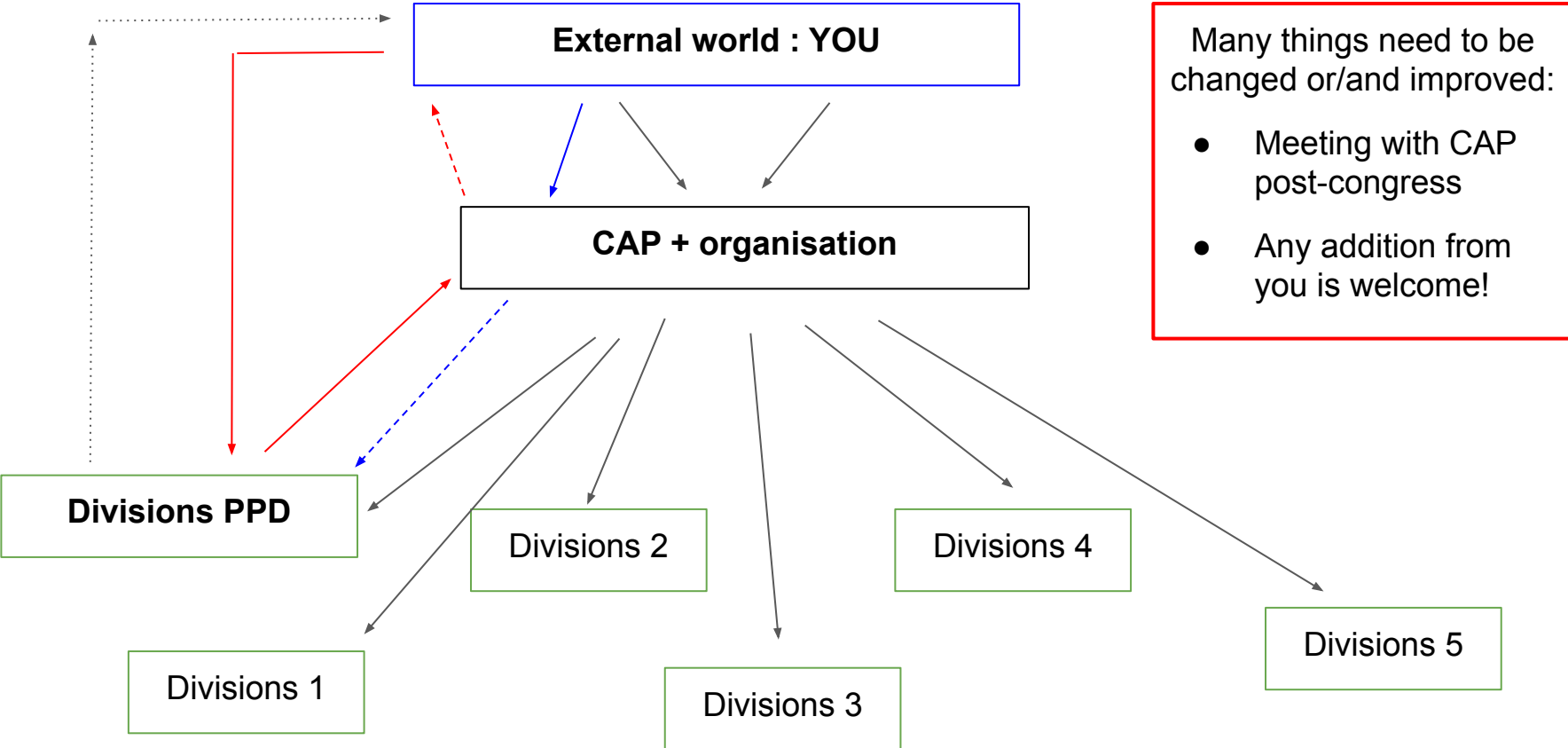
→ *Need a motion to approve in the future*

- **Need to have more discussion with PPD members!**

Problem faced during the organisation and ...

- **Many things we don't have any control ...**
 - Indico system for mounting the different session
 - Miscommunication between CAP and the exterior world
 - What are we allowed to do and not to do?
 - Bylaws - code of conduct - any PPD internal rules??
 - Very difficult to find any information!
 - We welcome any insights from ex-chairs and experienced people!
 - Some work needs to be done with CAP and PPD members.
- **More communication is needed between the leadership and members!**
- **Item for discussion and improvements**

Status

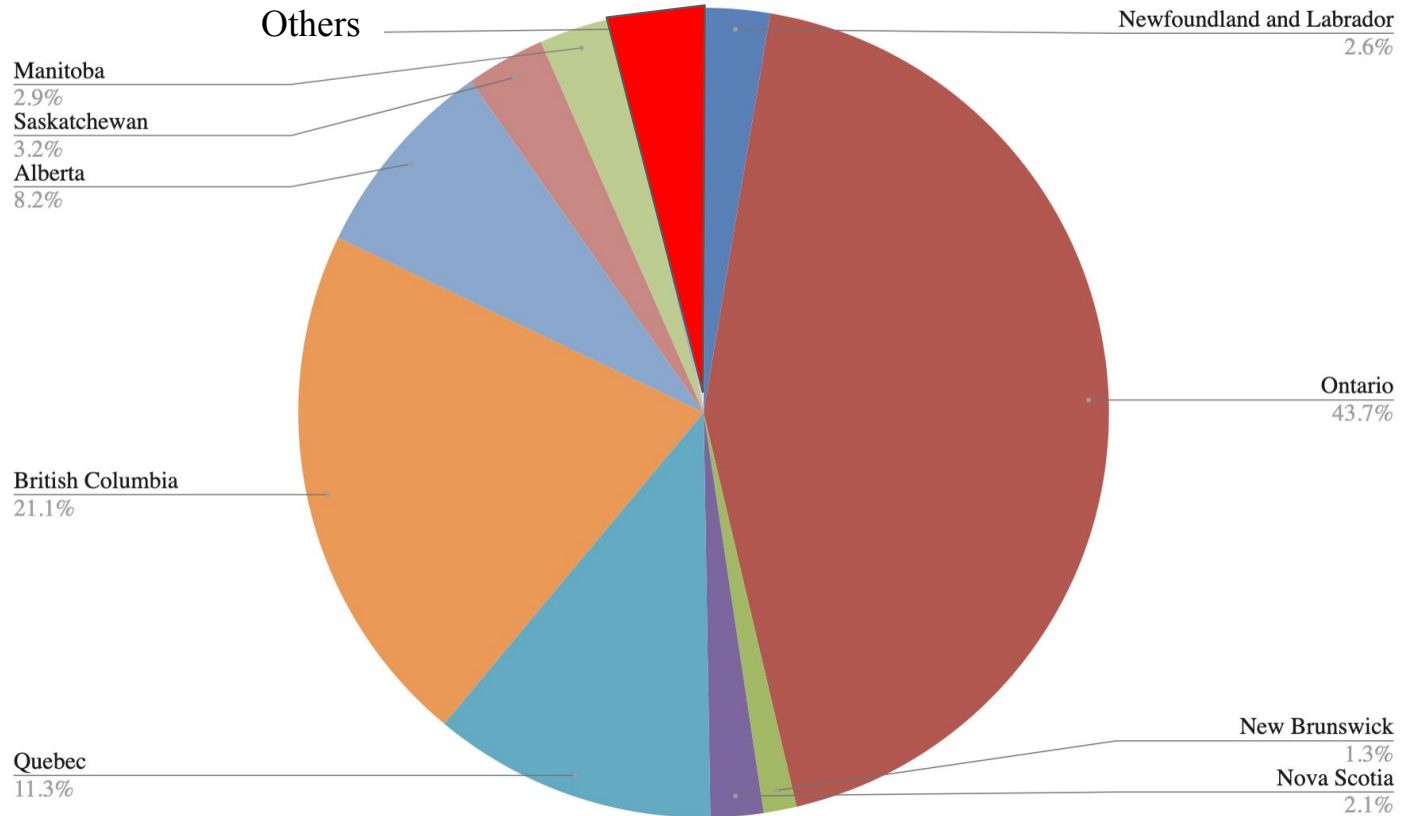


Many things need to be changed or/and improved:

- Meeting with CAP post-congress
- Any addition from you is welcome!

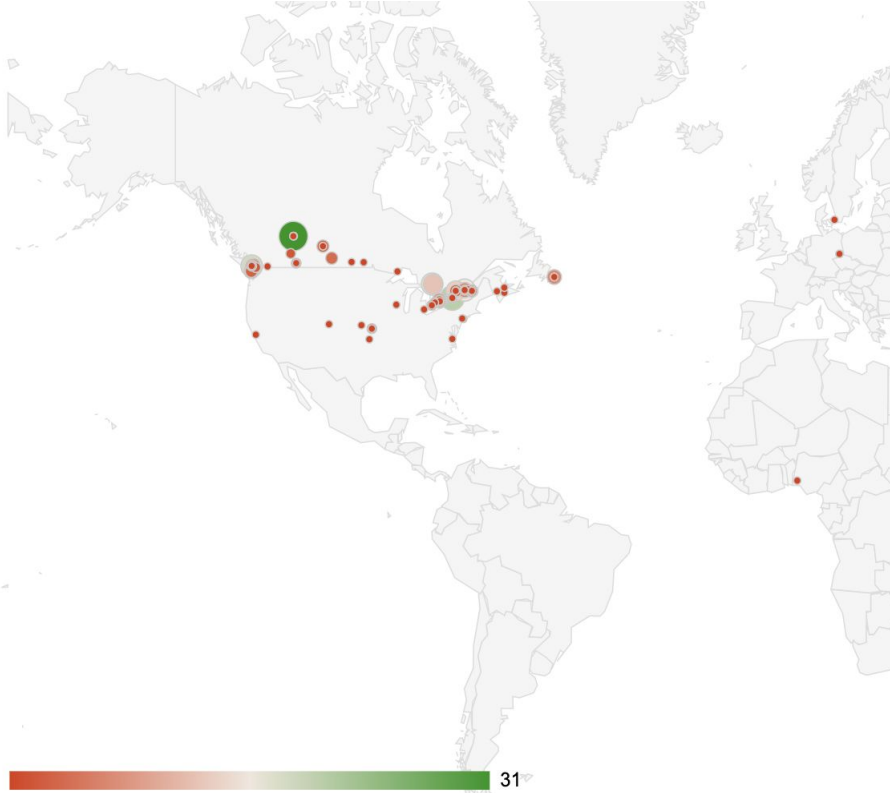
380 PPD Members in 2020 (455 PPD members in 2019)

Members across Canada

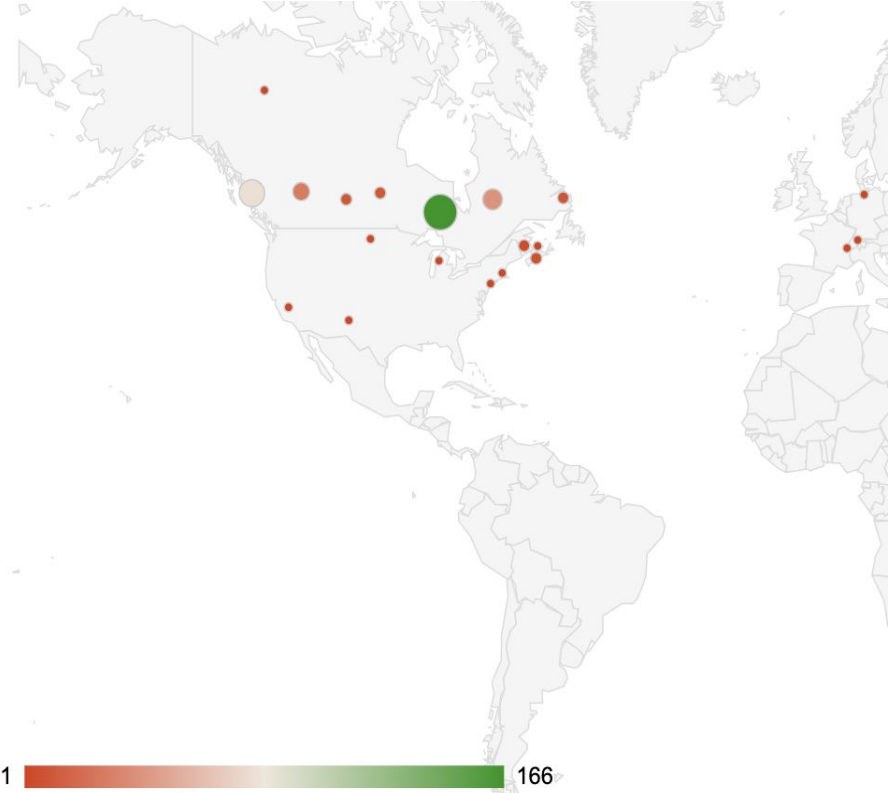


Comparison

Virtual Congress 2020

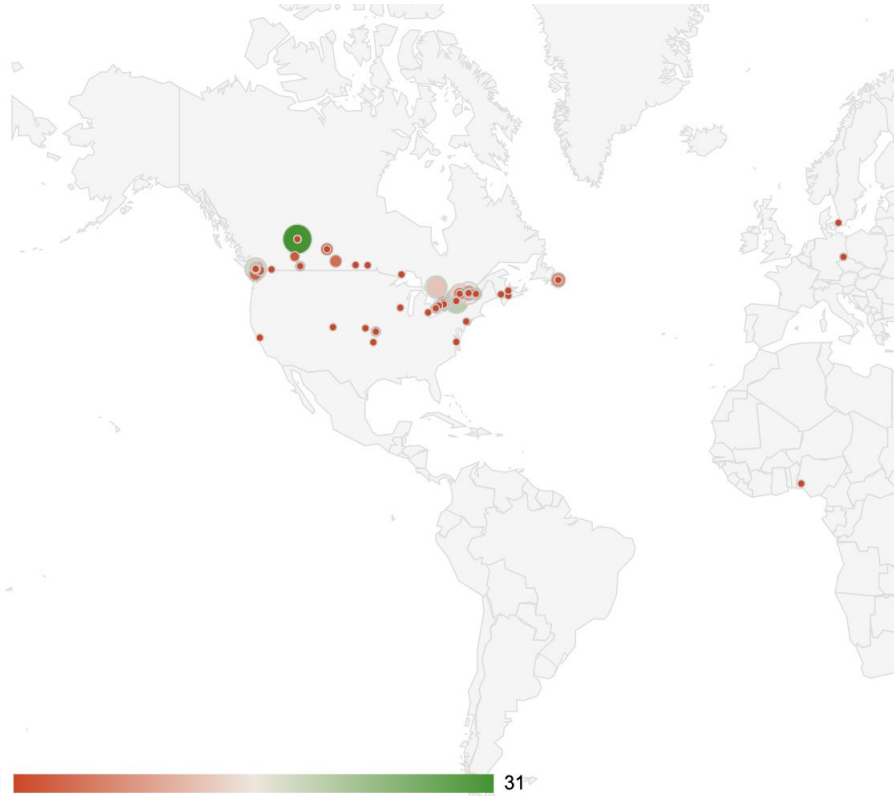


Members 2020

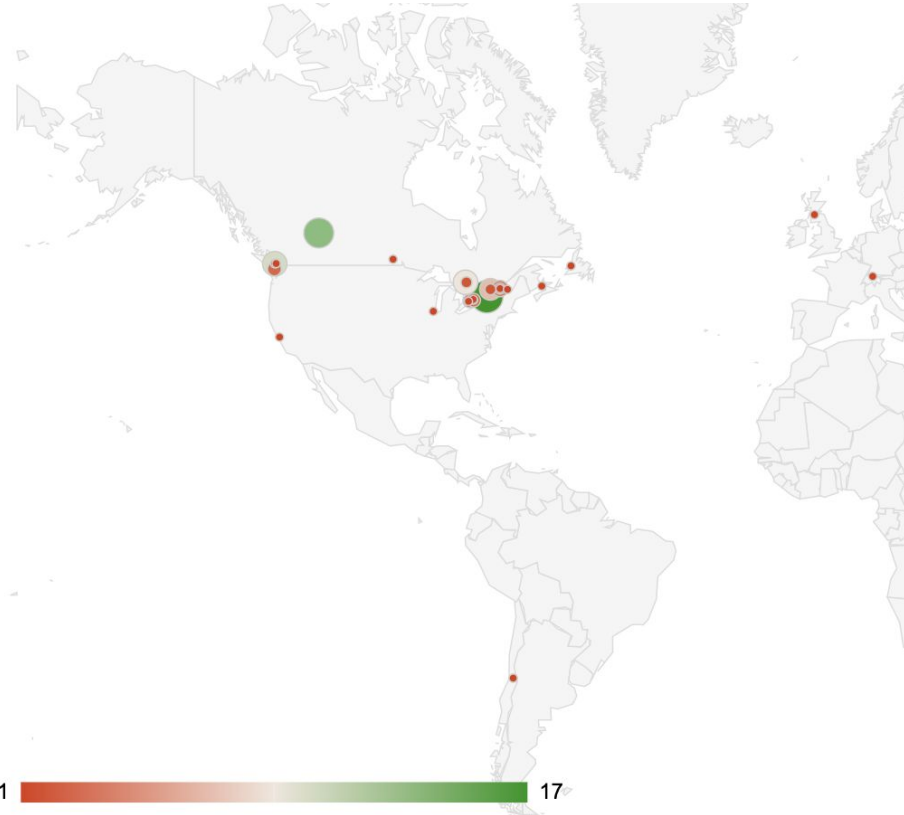


Comparison

Virtual Congress 2020



Abstract Submission 2020



The number of Abstracts and interest increase but not the membership

- **What is our image within province and universities in Canada?**
 - Ways to improve our visibility
 - *Focussing on students research recognition (PhD. Thesis, paper)*
 - *Sponsor initiatives (symposium, outreach, openhouse)*
 - *Engage and support the next generation of physicists*
 - *Career panel - Diversity panel - working with CAP and other division*
 - ***Each member plays an important role!***
 - What are the barriers and how can we help each other?
 - Open to discussion
- **CAP PPD mission complementary with other organisations**
 - Define clearly our PPD role and work together

Reminder of the CAP mission

- Advance and diffuse the knowledge of physics
 - *Organise workshops? -- Increasing support for initiatives*
- Provide a welcoming and supportive professional home for an active, engaged, and diverse membership
 - *Networking opportunities and facilitates the dialogue and collaboration across sub-disciplines*
- Advance scientific discovery and research dissemination
 - *Advertise members across Canada and abroad*
- Amplify the voice for science
- Share the excitement of physics and communicate the essential role of physics
- Promote effective physics education for all

What can we do together to fulfill our commitment?

→ **Open for discussion**

Reason to be a member

Member Benefits

- Stay current with activities across Canada and abroad.
 - *Workshop, schools, conferences etc.*
- Receive professional development and recognition.
 - *Student prizes (Thesis award, Best oral and poster presentation)*
 - *Other recognitions -- Best student paper? (challenging)*
- Connect with scientists of common research and/or topical interests through member sub-groups.
 - *Place for improvements here but more communication needed!*
- Receive support from PPD for novel initiatives
- Free for students and \$10 fees for others

Action Item: Please encourage more people to join!

Finances

- Balance 2019: \$9,624.14
- Revenue of \$1635/yr from memberships.
- Opening Balance January 2020: \$11,259.14
- Expected expenses:
 - \$300 - WNPPC 2020
 - \$500 - 2019 Thesis Prize (+ up to \$1000 in travel sponsored by TRIUMF)
 - \$200+\$100+\$50 - PPD best talk (1st, 2nd, 3rd)
 - \$300 TRU Virtual - Best talk (1st, 2nd, 3rd)



Final Balance: \$9809.14

PPD Best Thesis Award

Winner 2020

- Savino Longo (Victoria)
“First Application of CsI(Tl) Pulse Shape Discrimination at an e^+e^- Collider to Improve Particle Identification at the Belle II Experiment”
- Savino will be invited to present his work in next year’s congress

Big thank you to our additional committee members:

- Simon Viel
- Pierre Savard
- Matthias Danninger

PPD Best Thesis Award

Additional details:

- Three submissions
- Note: three is the minimum number needed for the award to be given.
- Two of the three theses were outstanding and it was a challenge for the committee to decide
 - PPD rules state we can only have 1 winner!
 - Both these were of very different topic/nature (how do we select on over the other?)
 - One truly experimental thesis (design experiment, assembly, DAQ, data analysis)
 - One thesis focused on data analysis, novel analysis techniques

Action Item: Should we modify award rules to allow in extraordinary circumstances the award of 2 prizes (or shared)? Note: this is not intended to be the norm! → [Discussion](#)

Action Item: Please help us promoting this award and consider submitting student theses for 2019-2020!

PPD Executive and Results of the vote

Current members of PPD Executive:



Vote system now !!

- Chair: Marie-Cécile Piro
- Vice-chair: Matthias Danninger
- Old-Chair: David Morrissey

With the cancellation of the in-person CAP Congress 2020, the PPD executive and CAP executive director proposed a vote to PPD members for keeping or not the current situation of the PPD Leadership.

- Results of the vote: 40/44 in favour
- Need a motion to be approved?

PPD Executive and New proposal

Re-occurring discussion

- Most other divisions have 2+2 year terms vs, PPD's 1+1 years

Advantages of 1+1y:

- This is a fun job, creating contacts in the community → allow more people to do it
- It's a long commitment for junior faculty (we might get fewer candidates interested)

Disadvantages of 1+1y:

- The way the CAP annual cycle works, the vice-chair has very little valuable input until January
- The chair starts to become experienced enough to “demand” certain aspects from CAP by the end of the 2y period.
 - The voice of PPD within annual meetings will therefore always be less strong and experienced
 - It is equally frustrating for CAP executives that PPD chairs have limited experience

• Questions: *From David M. last year*

- Should we extend the PPD chair/vice-chair term to two years (like DNP and DTP)?
- Should we add a secretary position, with a secretary → vice-chair → chair cycle?

PPD Executive and New proposal

Options up for discussion

1. We keep the current 1+1 years structure but stop discussing it annually
2. We change the PPD executive terms:
 - a. *Adopt 2+2y as done by other divisions*
 - b. *ATLAS collaboration board style proposal of 1+2+1 years* (vote for an incoming vice-chair every 2 years)
 - i. First year: vice-chair together with previous chair
 - ii. Second year: moves to chair and outgoing chair acts as support (roles would need to be more clearly defined, but outgoing chair should have less workload as vice-chair)
 - iii. Third year: stay in chair position together with new incoming vice-chair
 - iv. Fourth year: move into outgoing-chair role supporting new chair
 - c. Additional proposals (better ideas)

How can we improve the communication

Between us:

- Make PPD Business meeting more regularly?
- Accessible remotely even during the in-person CAP Congress
- Need a webmaster, maybe a forum of discussion, slack channel?
- For now we only have emails between PPD Executive and members
- New website? (<http://dnp.phys.uregina.ca/>)
- Input from members through survey?

The communication in any organisation is not easy things to do so this is something we should really work together to improve and the PPD business meeting is the best place to start.

- We need to have more interactions -- more discussion
- As PPD Executive we can diffuse and communicate to CAP

How can we improve the communication

Between CAP:

- We will have a post-congress meeting
 - It will be the good time to discuss all the issues we faced and how can we improve the current organisation
 - We would like to be your voices for future improvements
 - Talking about your priority and issues that you think it's most important and need to be addressed
 - And what you would like we focus more in the next year congress
- For future meetings
 - Propose our bylaw - code of conduct - other policies
 - Understand how all is working and how can we improve the communication

Merci Thank you!



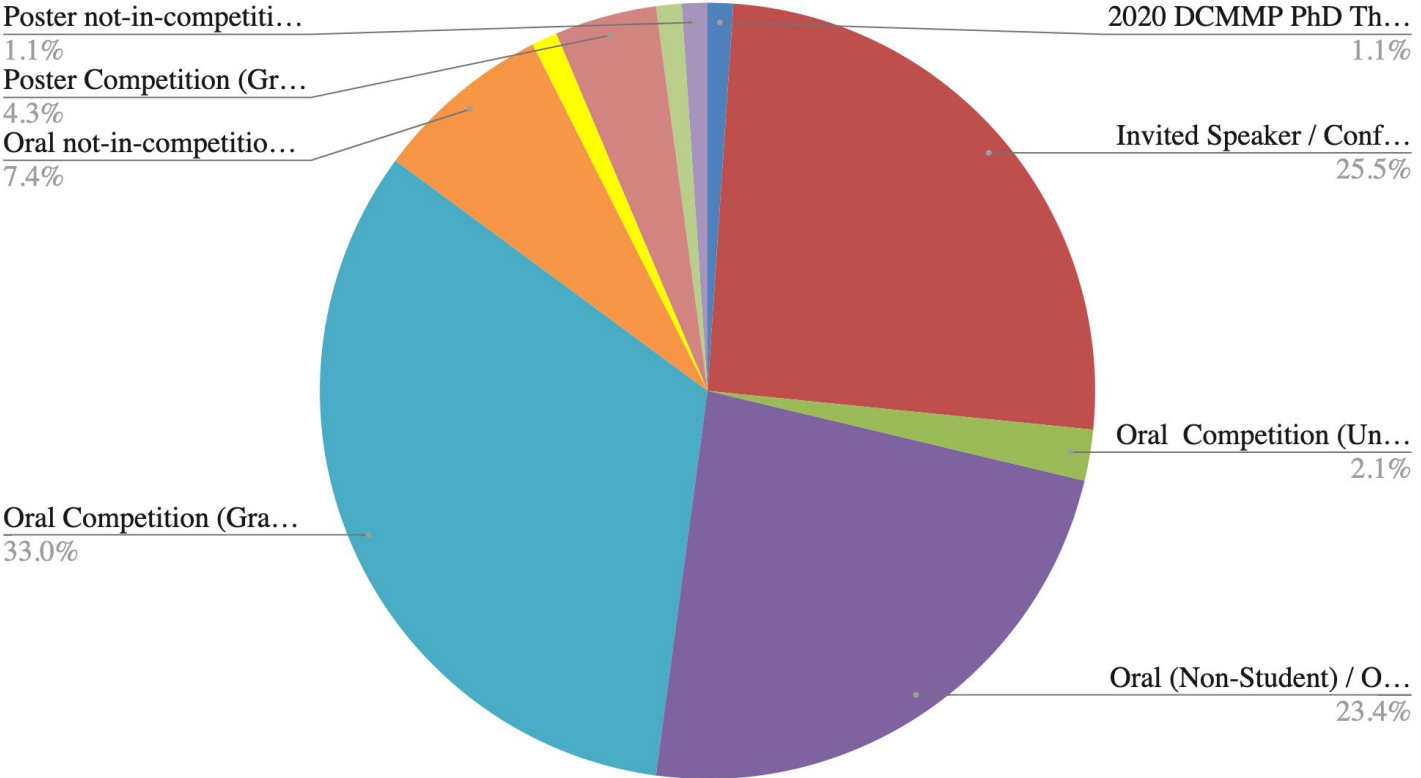
Canadian Association of Physicists
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Thank you to our
Sponsors:



CAP PPD 2020 Congress

Count of Submitted type



Supporting Initiatives

- **Other sponsorship conferences**
 - CUPC, CCWiP
 - Workshops / Summer Schools
 - Symposium organised by PPD graduate students
 - Open House in different canadian institutions
 - Help canadian institutions with less resources
- **Support PPD members new projects**
 - Open for discussion
- It is not a lot \$, but if we have more members, we can have a stable revenue/year and act locally in order to support students at our level