

# Particle Physics Faculty Meeting

- Agenda
  - News
  - Round table

## News of last week

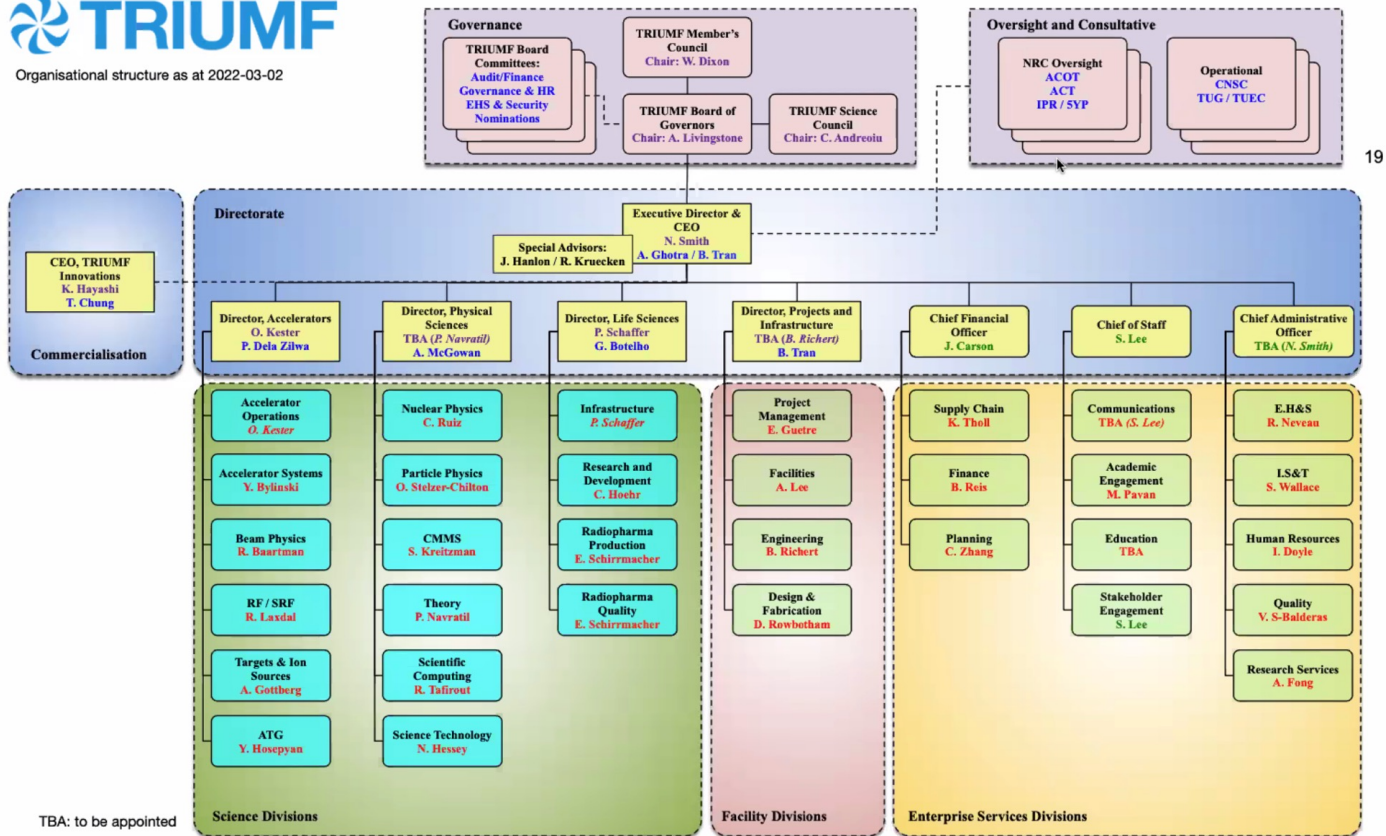
- Director: new TRIUMF organizational structure
  - Creation of an 'executive cabinet' approach to leadership, a team with complementary skills to support the Executive Director in delivery of strategic goals and risk management
  - A leaner, flatter leadership team structure to align to the current and future needs of the lab
  - All science division leads fully embedded within this cabinet to ensure science drivers are kept front and centre, and empowered to promote scientific excellence
  - A separate Director-led Division covering project delivery and infrastructure, to support overall programme delivery and support for scientific excellence, and alignment with Strategic Goals
  - A clear emphasis on operational excellence to support alignment with N286-12, and accountability for ensuring such alignment through a Chief Administration Officer
  - Implementation of a Chief of Staff role to support rapid risk responses by coordinating emergent issues and requirements

# News of last week

## New Org Structure



Organisational structure as at 2022-03-02



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## News

- **HyperK and ALPHA BAE**
  - ALPHA: search committee selected at short list of 5 candidates
    - Report submitted to director – clarification on EDI considerations
  - Hyper-K: search committee arrived at long-short list of 10 candidates
    - Pre-interviews this week
- Possible timeline
  - Interviews ~early April

# Next 5-year plan

	2022												2023											
	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	
20-year Vision Draft ready for review			■	■																				
SC/ ACOT / Community feedback on 20YV				■	■																			
<b>20-year vision finalized</b>					■																			
<b>NRC Evaluation</b>	■																							
Develop evaluation matrix and ToR	■																							
ToR approval by VP/ update to P MEC		■																						
Data collection and analysis			■	■	■	■	■	■	■	■	■													
International Peer Review																								
Preliminary findings presentation																								
Draft and revise evaluation report																								
P MEC endorsement																								
<b>Community Input</b>	■																							
community call for major Initiatives			■																					
Science Week																								
Submission of Lols																								
Review of major initiatives (SC)																								
<b>Internal Planning</b>	■																							
Divisional Planning																								
Institutional Planning																								
Budget Request defined																								
Goals and Objectives defined																								
<b>Writing of 5YP</b>	■																							
Define Structure/Level of Document																								
Internal Writing																								
Professional Writer																								
SC/ ACOT / Community feedback on 5YP																								
Release of 5YP 2025-2030																								
<b>Update of Web-page</b>	■																							
Team & Tools / IPRC input																								
5YP promotion																								

VERY PRELIMINARY

## News

- **Next 5-year plan timeline**
  - 5-year plan document (start writing fall 2022 - complete summer 2023)
  - International Peer review in the Fall (backward looking)
  - Science Week July 18-22
  - PSD retreat in May
  - 20-year vision document released for feedback in March
  - Departmental Planning March and April
- Busy time with BAE interviews and ACOT April 25-29

## News

- **Departmental Planning for 5YP 2025-2030**
  - Talks from each research group and potential new future initiatives
  - Talks should include
    - Science outcomes, infrastructure and new staffing needs, potential synergies
  - Special meetings (mini-retreat) during week of March 28<sup>th</sup> with talks and discussion
  - Fill out this poll for available and then I will distribute a sign-up sheet
    - <https://www.when2meet.com/?14934947-HzlAm>
  - Expect contributions from: ATLAS, Hyper-K, ALPHA, HAICU, TUCAN, SuperCDMS, nEXO, PHAAR, DarkLight?, PIONEER?, others?
  - New initiatives
    - Center for detector development – SiPM / rad hard silicon detectors /LiqXe?
    - Center for AMO physics (HAICU, radioactive molecules, UCN...), across Particle Physics and Nuclear Physics departments

## Next 5-year plan

# The role of National Laboratories reprised

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- National Laboratories have a major role within the Canadian research ecosystem, augmenting university fundamental research, developing People, Knowledge, Technology.
- The National Lab 'adds value' to the ecosystem by
  - **Performing** world-class science in its own right, developing synergies with other groups
  - **Enabling** world-class science using science underpin, large scale infrastructure, technical skills and knowledge, connections and reputation. Supporting community strategy development
  - **Brokering** world-class science (as a sought after and impartial collaborator) and as a connector to the international community and institutions
  - **Promoting** world-class science and societal benefits through outreach and inspiration, championing EDI, supporting commercialisation and knowledge exchange.
  - Acting as a **risk legatee**, reacting quickly to challenges/crises for societal and community benefit
- To fulfil this mission requires
  - **Scientific Excellence** in world-class research, infrastructure, and capabilities
  - **Operational Excellence** to support delivery of world class research



## News

- **Science Week**

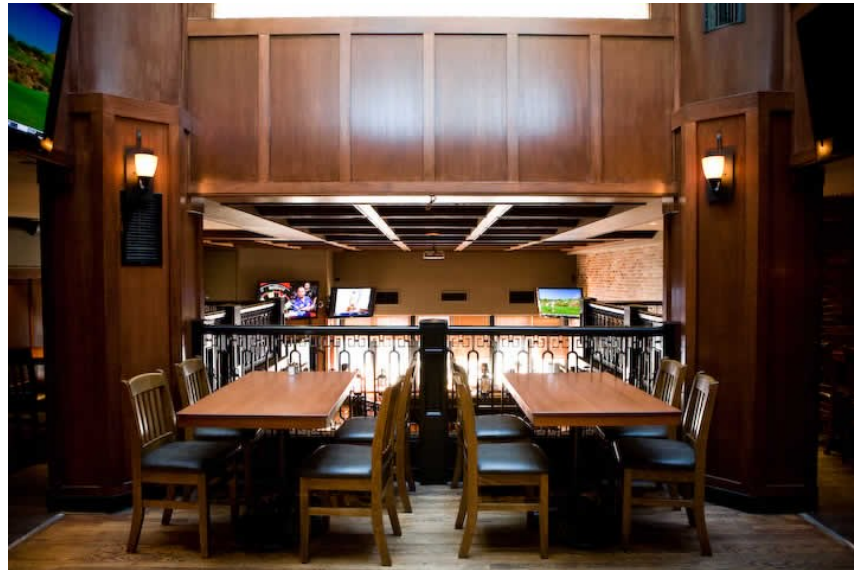
- Hold the date message going out soon July 18-22
- Hybrid event – in person + remote participation
  - Hopefully with in person reception, poster session, BBQ
- Mo, Tue: Past years science accomplishments from early career + keynote speakers
- Wed, Thu: 20YV summary, focus on 5YP planning with new initiatives and summary on divisional planning (from preceding retreats)
- Fri: Townhall and TUG AGM
  
- Cttee: Iris Dillmann, Beatrice Franke, David Morrissey, Petr Navratil, Reiner Kruecken, Monika Stachura, Bob Laxdall, Annika Lennarz, Marcello Pavan, Paul Schaffer, Stephan Malbrunot-Ettenauer, Iain McKenzie, Hua Yang, Thomas Planche, Kathryn Hayashi, Oliver Stelzer-Chilton

## Misc Items

- The second annual Particle Physics Experiment Evaluation Committee (PP-EEC) for particle physics proposals related to the Electron Hall, Meson Hall and UCN beam line channels at TRIUMF will take place virtually on Thursday, March 24th, 2022
- PSD
  - Do you know of any empty offices during the next few months due to leave or travel?
  - Any agreements with Russia?
  - Mixer March 11<sup>th</sup>, talk by Fabrice
  - Capital & One-Time Funding Requests – due by March 25<sup>th</sup>
    - Additional PIF shielding blocks for UCN to mitigate radiation leak - \$25k
    - Will be put forward by Petr

## Social

- At the last Pub night (among the 7 of us who were there), we decided to try the [Cove](#) this time.
- So for those comfortable to join and interested, it will be at 5pm tomorrow (Thursday). I reserved a table under TRIUMF upstairs (they have two levels).





**AOB**

## Physical Sciences

### Outreach

- Participation by A. Capra, P. de Perio, E. Hill in the TRIUMF-Emily Carr “Leaning Out of Windows” art-science collaboration project, exhibition Feb.28-Mar.19, opening event March 5

### BAE Searches

- ALPHA Position: search committee selected at short list of 5 candidates – preparing report
- Hyper-K Position: search committee has a long-short list of 10 candidates
  - Arranging phone interviews to reduce to short list

# INVISIBLE Forces

Leaning out of Windows

February 28 – March 19, 2022

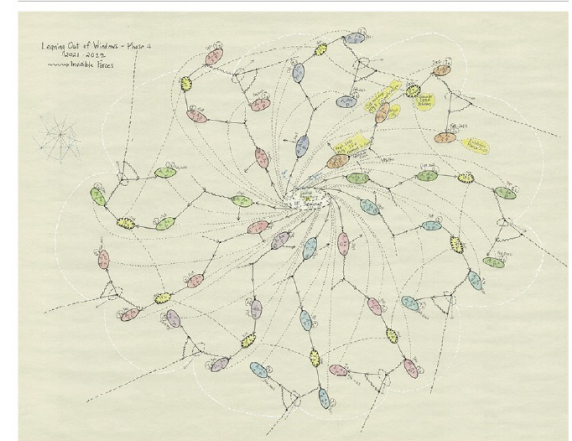
Opening: March 5, 2022 2 - 5 pm

Proof of vaccination required

Instagram live event March 5, 3pm

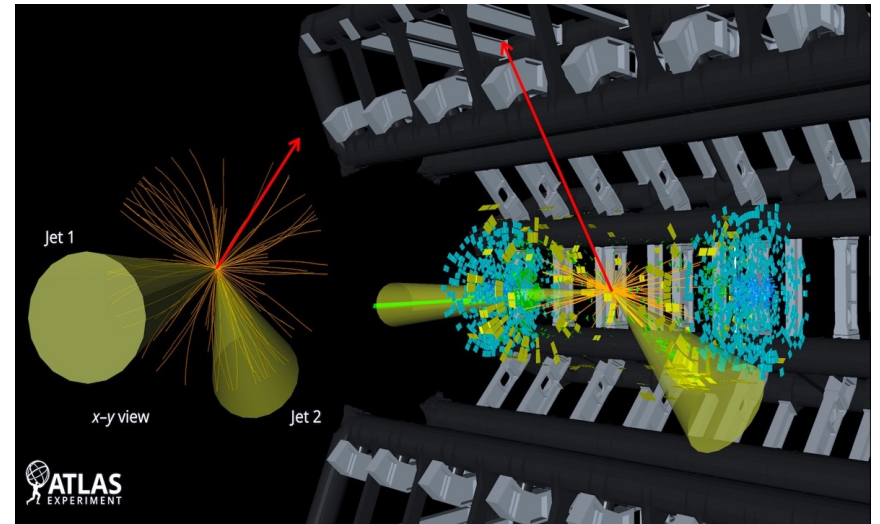
@leaningoutofwindows

Emily Carr University of Art + Design,  
M. O'Brian Exhibition Commons + the RBC Gallery (main floor)  
520 East 1st Avenue, Vancouver, BC Canada

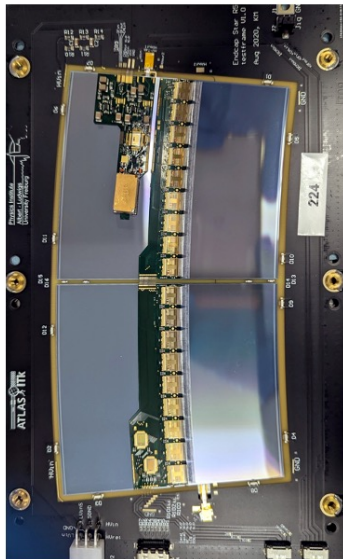


Process Diagram by Ingrid Koenig

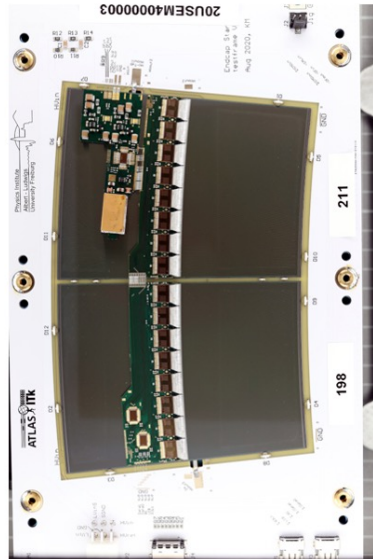
- 3 students at CERN for NSW commissioning are back at TRIUMF
- Conference talks at LLWI by M. Swiatlowksi and Higgs2021 by M. Valente
- 3 student talks at WNPPC (Leesa Brown, Callum McCracken, Damian Sheppard)
- Recent papers with major TRIUMF group contributions:
  - Search for resonant pair production of Higgs bosons in the 4b final state using pp collisions at  $\sqrt{s} = 13$  TeV with the ATLAS detector (submitted to PRD)
  - Search for invisible Higgs-boson decays in events with vector-boson fusion signatures using 139 fb<sup>-1</sup> of proton-proton data recorded by the ATLAS experiment (submitted to JHEP) [CERN Physics Briefing](#)



- First electrical prototypes of 4 of 6 end-cap modules (R1, R2, R4, R5) assembled
- Today: submitted last site qualification step required for module site qualification
- About to begin module Pre-Production at TRIUMF/SFU (as first end-cap module site in the collaboration)



R5 module

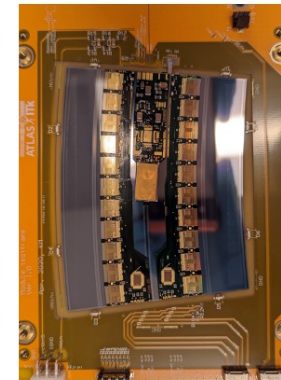


R4 module

R3  
module  
to be  
built in  
Toronto



R2 module

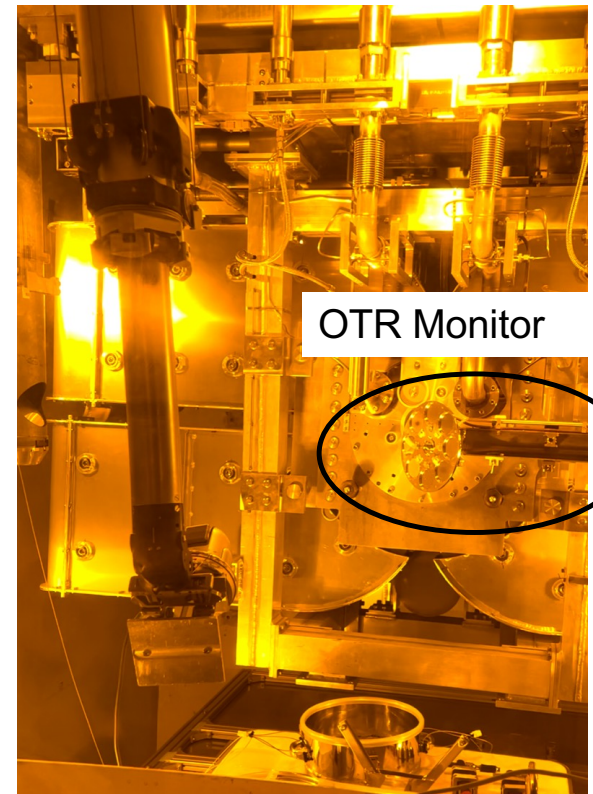


R1 module

R0  
module  
to be  
built in  
Toronto

## T2K/Hyper-K

- Hyper-K Collaboration meeting was held on Feb. 14-25
- NOI for Hyper-K CFI-IF project was submitted
- Talks at LLWI by postdocs R. Akutsu and N. Prouse
- T2K Magnetic Horn 1 (right) has been transferred to the hot cell (which uses TRIUMF manipulator arm system)
  - Patrick de Perio is leading the diagnosis of Optical Transition Radiation (OTR) monitor problems
  - This is initial work towards the installation of a new OTR monitor happening later this summer.



## ALPHA

- Paper on "Sympathetic cooling of positrons to cryogenic temperatures for antihydrogen production", published in Nature Communications 12, 6139 (2021)
- Preparing for this year's run at CERN



- **Jason Chak** has joined UCN group as **project engineer**
- **tail section wall 1 UCN testing at LANL** successfully completed
  - go ahead for production of complete tail section vessel
- **electrical and controls installations** progressing
  - new 480 V panel installed
  - 480 V electrical infrastructure for variable frequency drives (VFDs) for 3He/4He pumps installed
  - PLC to VFD communication established by controls group
  - pump and VFD commissioning this Spring
- support structure for **liquid He transfer & return lines** installed
- first **liquid He transfer tests** this Spring
  - transfer line expected in March
  - safety review for tests planned for March
- preparing for **external review by EAC** and funding in May or June
- installation of magnetically shielded room in July
- recent publication on UCN source
  - The TRIUMF UltraCold Advanced Neutron Source, Nucl.Phys.News 31 (2021) 2, 19-22



3He/4He pumps in place



VFDs for 3He/4He pumps



helium transfer and return line infrastructure



racks, PLC, cable trays

- **publications in preparation**
  - A detailed analysis of the rotational motion vxE systematic in the nEDM experiment
  - Storage lifetime of ultracold neutrons in superfluid helium between 1.0K and 1.8 K
  - Characterization of Electroless Nickel plating for ultracold-neutron storage

## Round Table

- ATLAS
- T2K/HyperK
- TUCAN
- ALPHA
- SuperCDMS
- DarkLight
- Pienu / PIONEER
- NA62
- n-EXO / PHAAR
- SNO+
- HALO
- g-2
- Belle 2
- Theory



## Next Meeting

- April 14<sup>th</sup>