

Particle Physics Faculty Meeting

- Agenda
 - News/Updates on goals
 - Research group updates

This just in – Breakthrough Prize

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- 2021 Breakthrough Prize in Fundamental Physics
- **Eric Adelberger, Jens H. Gundlach and Blayne Heckel**, University of Washington
- Citation: For precision fundamental measurements that test our understanding of gravity, probe the nature of dark energy, and establish limits on couplings to dark matter.

- 2021 New Horizons in Physics Prize
- **Tracy Slatyer**, Massachusetts Institute of Technology
- Citation: For major contributions to particle astrophysics, from models of dark matter to the discovery of the “Fermi Bubbles.”

Goals and Objectives Request

- Jens has been asked to produce divisional goals and objectives
- He subsequently asked for goals and objectives from PPD
- These goals and objectives will be used in the P3 coaching process
 - Jens believes they won't be used as checklist of accomplishments for performance evaluation
 - Used as guides to see how people are progressing on objectives related to TRIUMF goals
- Spreadsheet template has fields for owner and due date of objectives
 - Discussion within PPD indicates that many would prefer to leave these fields blank if possible

Goals and Objectives Feedback

- Thank you for providing first draft of PPD objectives. Have inputs from ALPHA, ATLAS, HALO, Hyper-K/T2K, SuperCDMS, UCN
- Preliminary list sent to Jens at: https://triumfoffice365-my.sharepoint.com/:x:/g/personal/mhartz_triumf_ca/Eey0ALFqHi9GtSNlwSwTG3ABwl8hUvygKj1F2VBXxuZe5A?e=aThGPY
 - For now, left out owners and due dates since they were not provided by everyone
 - Will see if Jens, Reiner or Ian requests these to be added
- So far, feedback from Jens is to try to fill in objectives for all areas of the 5YP goals
 - Make groundbreaking discoveries across TRIUMF's multidisciplinary research portfolio
 - Reinforce TRIUMF as a globally leading particle accelerator centre
 - Become a hub for interdisciplinary education and training
 - Inspire Canadians to discover and innovate
 - Translate knowledge and discovery into innovation
 - Increase national and international collaboration
- First 5YP goal is covered well, but the other less so

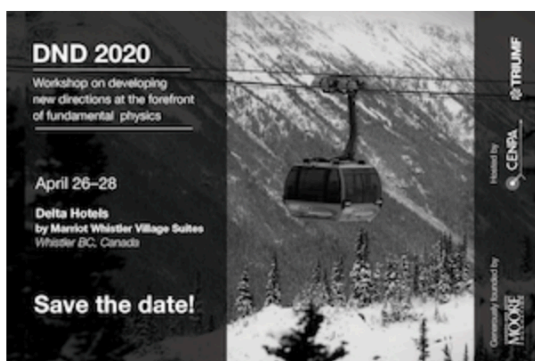
Return to Site

- Entered Phase 3
- Will take us closer to our overall site occupancy limit (based on physical distancing requirements) of approximately 300 people and will introduce a shift in how we manage site occupancy.
- Occupancy will no longer be defined by a division quota, but occupancy will now be defined by physical space limitations
- Working at home is encouraged to continue
- Respect posted space occupancy limits
- Shared offices are single occupancy only. Coordinate attendance with your co-workers.
- Division specific bookable workspaces have been created and can be booked through Outlook (or through <https://rooms.triumf.ca/schedule/>) up to 4 weeks in advance.
- Physical Sciences
 - MOB Auditorium – Station A-O
 - MOB 208 – Boardroom – Station A-B
- Meetings are to continue to be virtual. Under exceptional circumstances, the MOB Conference Room is available for meetings or group virtual meetings. Bookings will be approved by Anne Louise Aboud or Adrian Lee.

Director Search

- TRIUMF has retained the services of Boyden, an executive search.
 - Boyden has extensive recruitment expertise in the research and academic communities
- The search committee has been finalized and will be represented by the following stakeholders:
 - Chair (Digvir Jayas, Board Chair / VP Research & International, University of Manitoba)
 - Board of Management, Executive Committee (Vivek Goel, Board Vice Chair / Special Advisor to the President & Provost, University of Toronto)
 - Board of Management, Executive Committee (Walter Dixon, Chair, Finance Committee / Interim VP Research & Innovation, University of Alberta)
 - Board of Management, Executive Committee (Wendy Taylor, Chair Personnel Committee / Professor, Physics & Astronomy, York University)
 - Board of Management, Executive Committee (Rob Thompson, Chair, Safety & Security Committee / Associate VP Research, University of Calgary)
 - UBC (Gail Murphy, Board member, VP Research UBC)
 - TRIUMF Associate Laboratory Director (Oliver Kester)
 - TRIUMF Research Scientist representative (Isabel Trigger)
 - TRIUMF Technical and Administrative Staff (Doug Preddy)
 - TRIUMF Users Community (Rituparna Kanungo, Saint Mary's University)
 - National Research Council (NRC) Representative (Geneviève Tanguay)
 - Jim Hanlon (Secretary to the Search Committee)
 - Ian Doyle (HR Resource to the Search Committee)

New Directions Workshop



Developing New Directions in Fundamental Physics (DND) 2020

4-6 November 2020
Zoom
America/Vancouver timezone

Overview

Timetable

Contribution List

My Conference

DND2020 has been rescheduled as a fully online event due to COVID-19. We will hold future iterations in this series in person if it is safe to do so.

New Avenues to Probe Fundamental Physics in the Pacific Northwest

If interested in registering for this event, please email sciencediv@triumf.ca.

New Directions Workshop

- Organized in plenary and parallel sessions

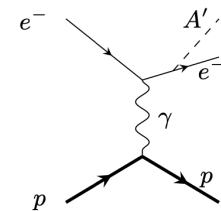
- Confirmed plenary speakers
 - Masha Baryakhtar (NYU/University of Washington)
 - Douglas Bryman (UBC/TRIUMF)
 - Timothy Chupp (University of Michigan)
 - Jens Dilling (TRIUMF)
 - Martin Hoferichter (Universität Bern)
 - Nicholas Hutzler (Caltech)
 - Oliver Kester (TRIUMF)
 - Surjeet Rajendran (Johns Hopkins University)

- Parallel session convenors organize 3h session that are summarized in the plenary
 - WG 1: physics with protons, neutrons, and deuterons/EDMs etc. & radioactive species/molecules [Adam Ritz, Beatrice Franke]
 - WG 2: new ideas with pions/muons (muonic atoms, Lepton univ, pion beta decay) [Peter Kammel, Dave Hertzog]
 - WG 3: new physics with radioactive beams [Alejandro Garcia, John Behr]
 - WG 4: electron beam opportunities [David McKeen]
 - WG 5: TRIUMF-based new physics direction [Oliver Stelzer-Chilton, Makoto Fujiwara, Alvaro Chavarria, Gray Rybka]

Expression of Interest

- At early stage of discussion: (technical and scientific evaluation to come)
- **Next-generation experiment to measure the charged-pion branching ratio e vs. mu: $R_{e/\mu}$**
- Improve uncertainty by order of magnitude, constrain BSM at very high mass + sterile neutrino etc
- PIENU and PIENUXe - a 4π solid angle liquid xenon (LXe) scintillating calorimeter for detection of positrons and gammas from pion decay
- Also improve CKM V_{ud} and V_{us} from beta decay

- **Starlight**
- Motivated by the 6.8σ anomaly at 17 MeV which has been reported in 8Be nuclear transitions
- Proposes to search for BSM via decays to e^+e^- final states in the mass region from 10 -100MeV
- electron beam through a windowless, cylindrical hydrogen gas chamber
- $e^+p \rightarrow e^+ p e^+e^-$
- Trigger system of helical fibers can be made sufficiently efficient to elastic events to suppress backgrounds by 2 orders of magnitude
- <https://arxiv.org/pdf/1812.01369.pdf>

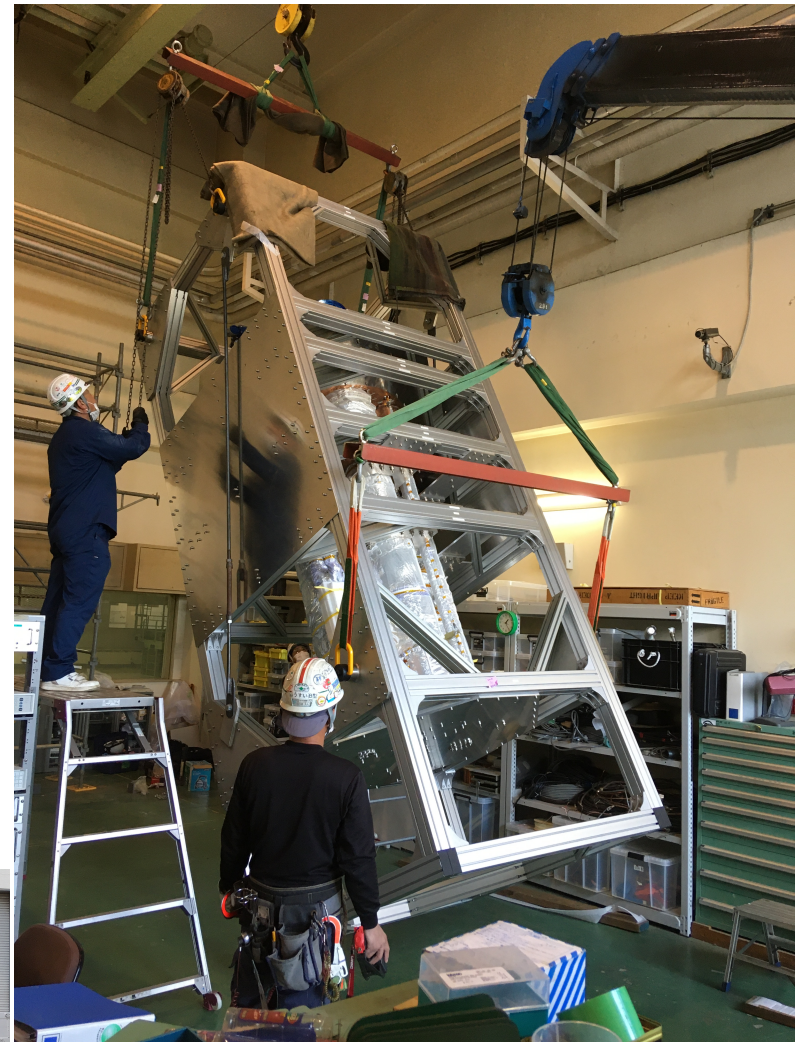
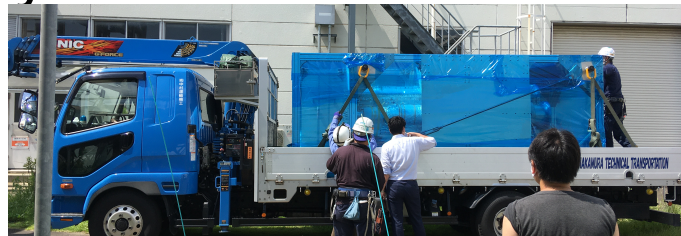




Slides from SMM

TUCAN status

- Transport of **new UCN source cryostat** from manufacturer to KEK, important milestone, (after successful vacuum leak tests)
- Move to KEK enables cryo tests
- Transport in tilted orientation important dry run before move to TRIUMF



TUCAN status continued

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- Starting to spend our CFI money, after award recent finalization (cash flow beginning now)
 - **Magnetically shielded room (MSR)** tender: Aug 13th U Winnipeg board of regents meeting (biggest ticket item & longest lead time for nEDM spectrometer)
~ CAD 2.4M
 - **New source cryo-system pumps** tender underway; vendor selection almost finalized
~ CAD 250k
 - **High precision inner magnetometers** (for nEDM) vendor response to RFP received (Aug 11th) for ~ USD 150k, lab work for cell tests resumed at U Winnipeg

Round Table

- ATLAS
- T2K/HyperK
- UCN
- ALPHA
- SuperCDMS
- Pienu
- NA62
- DEAP
- SNO+
- EXO
- HALO
- g-2
- Belle 2
- Theory

Committee Updates

- IPP/MISnomass/Snowmass
- New Initiative Planning
- Seminar/Colloquia
- Safety
- Space
- 5S
- Academic
- Summer schools
- Health & Wellness
- Data Science
- Diversity committee
- Physical Sciences Division Structure
- PPR Working Group



Next Meeting

- October 8th

2020-09-10