

Particle Physics Faculty Meeting

- Agenda
 - TIPP Planning 10' - Fabrice Retiere
 - P-One Update 15' - Matthias Danninger
 - News from ALPHA 20' - Makoto Fujiwara
 - Current items 10'
 - AOB

Physical Sciences (Shown in SMM)

- **ATLAS**
- Max Swiatlowski – BAE hire is complete - Start October 1st (remains at CERN until fall next year)
- Working on bridging grant application (DiHiggs production)

- Second successful irradiation run at PIF/NIF testing ITK front-end ASICs. Four visitors from the US plus help from UBC help - four set-ups tested

- **UCN**
- Preparing for the Fall Beamtime 2019, aiming for 30 days at BL1U in November
- Test next generation source and EDM experiment hardware

- **HyperK/NuPRISM**
- Meeting at CERN to discuss NuPRISM prototype experiment to be operated at CERN test beam area
- Preparing NOI for CERN SPSC meeting



Summer School

TRISEP

TRI-INSTITUTE SUMMER SCHOOL ON ELEMENTARY PARTICLES

PI · SNOLAB · TRIUMF

TRISEP

$$\mathcal{L} = -\frac{1}{4}F_{\mu\nu}F^{\mu\nu} + i\bar{\psi}\not{D}\psi + D_{\mu}\Phi^{\dagger}D^{\mu}\Phi - V(\Phi) + \bar{\Psi}_L\hat{Y}\Phi\Psi_R + h.c.$$

www.trisep.ca

LOCATION: TRIUMF, VANCOUVER, BC

DATE: JULY 22 - AUGUST 2, 2019

<p>TOPICS:</p> <ul style="list-style-type: none"> STANDARD MODEL NEUTRINO PHYSICS BEYOND THE STANDARD MODEL DARK MATTER COLLIDER PHYSICS EXPERIMENTAL METHODS STATISTICS MACHINE LEARNING FOR PARTICLE PHYSICS GRAVITATIONAL WAVES 	<p>SPEAKERS:</p> <ul style="list-style-type: none"> CARSTEN KRAUSS (U ALBERTA) DJUNA CROON (TRIUMF) GRACIELA GELMINI (UCLA) BEATE HEINEMANN (DESY/UNI FREIBURG) DEAN KARLEN (U VICTORIA) JOACHIM KOPP (CERN/UNI MAINZ) KENDALL MAHN (MICHIGAN STATE U) BEN NACHMAN (UC BERKELEY) ANTHONY NOBLE (QUEEN'S U/MCDONALD INSTITUTE) FLIP TANEDO (UC RIVERSIDE) SEAN TULIN (YORK U) 	<p>LOCAL ORGANIZERS:</p> <ul style="list-style-type: none"> WOJCIECH FEDORKO MARK HARTZ ALISON LISTER DAVID MCKEEN DAVID MORRISSEY PATRICK DE PERIO OLIVER STELZER-CHILTON ISABEL TRIGGER
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2019-09-05

THE DARK SIDE OF THE UNIVERSE

BY KATHERINE FREESE

The atoms that make up the known universe constitute only 5% of all matter and energy in the cosmos. What remains is a recipe of 25% dark matter and 70% dark energy: nonluminous components whose nature remains a mystery.

Join Dr. Katherine Freese, author of *The Cosmic Cocktail: Three Parts Dark Matter*, and Professor of Physics at the University of Texas, Austin—as she recounts the hunt for dark matter, from the discoveries of scientists such as Fritz Zwicky and Vera Rubin, who identified the first pieces of evidence for dark matter, to the deluge of data today from satellites, underground laboratories, and the Large Hadron Collider.

Dr. Katherine Freese

JULY 22, 2019
Doors open at 6:45PM
Lecture begins at 7:30PM
Q&A to follow

TELUS WORLD OF SCIENCE
1455 Quebec Street
Vancouver, BC

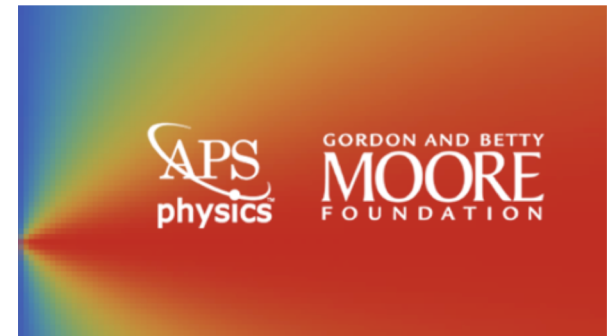
Presented by the Tri-Institute Summer School on Elementary Particles (TRISEP)

Reserve your free tickets:
<https://darksideoftheuniverse.eventbrite.ca>

Discovery, accelerated

Physical Sciences

- **New Initiative on Future Directions in Fundamental Physics**
- Planning to have a series of workshops over the next years surveying the landscape of new ways to test fundamental physics at TRIUMF
- A working group/local organizing committee has been setup locally with **David McKeen** as chair
- Submitted an application for workshop funding to the Moore Foundation “Convening Awards” together with Dave Hertzog from CENPA/UW and Ann Nelson (UW)
- Awarded US\$50K



Ann Nelson, Expert on Particle Physics, Is Dead at 61

Dr. Nelson was celebrated for helping to address flaws in the Standard Model, the longtime basis for explaining how particles interact.

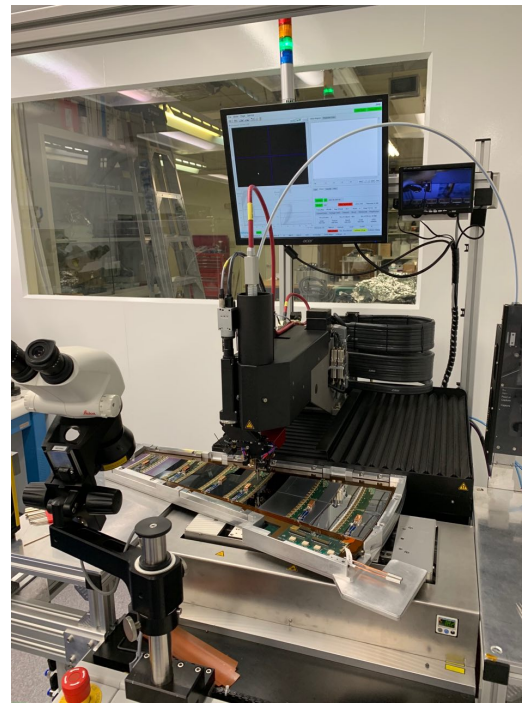
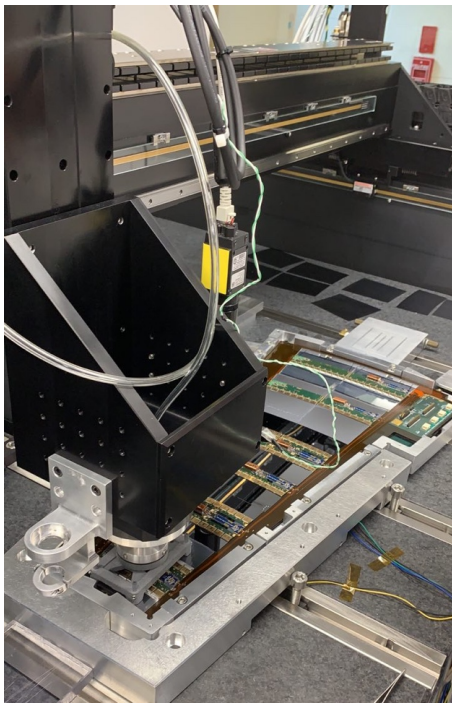


Ann Nelson climbing Seven Fingered Jack, a mountain in Washington State. A physicist who helped clarify our understanding of how the fundamental particles in the universe behave, she was also an avid hiker and died in a fall. David Kaplan

2019-09-05

ATLAS

- ATLAS-ITK semi-electrical petal loaded in Vancouver
 - Collaborators from Freiburg present



ALPHA

- Developing NSERC and CFI grant proposals
 - Novel antimatter fountain scheme looks very promising
- ALPHA-g TPC returned to TRIUMF for repair/upgrade
- User Group meeting
 - Invited talk on ALPHA: A. Capra

- 3 student poster presentations at poster slam
- Darij Starko, won the poster competition at the TRIUMF User Group



UCN

- The next UCN beam time has been scheduled for fall 2019:
 - Dates Oct 30 to Dec 3
 - approx 26 different configurations will be tested
 - we'll be taking roughly 200 micro-amp hours of proton beam during that time
- Main experiments focus on
 - ++ improving the UCN polarization
 - ++ testing non-magnetic, metal substrate UCN guides
 - ++ testing new UCN source hardware that will be housed inside the biological shielding
 - ++ performing the first UCN storage lifetime experiments in a prototype EDM cell
 - ++ measuring a fundamental quantity for UCN transport: the probability of diffuse (non-specular) reflection for several components

Toshio's Retirement

- After 42 years of hard work and dedicated service to TRIUMF, our friend and colleague Toshio Numao has retired.
- Please join us at TRIUMF in the afternoon on Thursday, September the 12th for a special colloquium to celebrate Toshio's contributions, followed by a reception in the Great Dane Cafeteria:
- 2:00pm-3:30pm: Special Colloquium in the Auditorium
- 4:00pm: Drinks and Appies at Great Dane
- **Please RSVP by Thursday, September 5th** using this [Microsoft Form](#) to let us know if you will attend. Please feel free to pass along this information to anyone who may have been missed and would be interested in attending these events.
- Thanks to Doug for organizing this

From PSD

- TRIUMF-Helmholtz Workshop on Scientific Computing Sept. 16-17, 2019:
- As previously announced, TRIUMF and Helmholtz centers, together with partner organizations from Germany and Canada, are hosting a workshop on Scientific and Quantum Computing. This is the second workshop in the series and it will be held at DESY Hamburg on September 16 & 17, 2019. The agenda (as it stands today) can be found below, some slots are still open:

<https://indico.desy.de/indico/event/22522/>

- With several keynote presentations and three parallel sessions on large-scale computing, quantum computing, and data analytics, the workshop will be of great interest to a wider audience. We therefore invite you to register now at the aforementioned INDICO page. Participation is limited.
- We are looking forward to welcoming you in Hamburg and to a great workshop.

From PSD Mixer

Renovation:

- MOB147: SuperCDMS and UCN HV and nEDM laboratory:



From PSD Mixer

Budget:

TRIUMF 5 YP budget:

- ⚙️ \$292M approved for 2020-2025.
- ⚙️ this will allow for a strong 'constant effort' operation
- ⚙️ leadership retreat in May to look at implementation plan

⚙️ first retreat happened, and we are developing plans for implementation: hiring strategies, and capital investments. Also: we are looking at operational impact (ISAC, cyclotron, etc).

- ⚙️ Next retreat on Sept 13th

Particle Physics Hiring Plan

- Immediate hires:
 - ALPHA BAE (*request for hire submitted by PP Dept*)
 - UCN P&S (*request for hire submitted by PP Dept*)
 - UCN PD 30% (to be matched by 70% CFI funds)

- Next 5 year plan
 - 2 BAE's for New Initiative

- Suggestions for “joint university hires” (but needs university commitment)
 - UCN
 - Dark Matter
 - HyperK
 - Future Collider Experiment

- Written summary from end of July available here – submitted to Jens at the end of July
- https://triumfoffice365.sharepoint.com/:w:/s/ParticlePhysicsDepartment/EZ3X_vJGHUFFja-t4aUrXtwBgd2_8vzRL6Dp8IXsdrY9_A?e=AJ96g2

Move into MOB

- Discussed in the PP Meeting in August
- Thanks to Mark for taking the lead providing feedback and updates!

- Email from Jens:
- As we are moving closer to start the re-location, I have put a floorplan together to move people into MOB.
- Ongoing draft:
- https://triumfoffice365-my.sharepoint.com/:x:/g/personal/jdilling_triumf_ca/ERVYdymub2ZOgRTTb9NnloIBGsv55r04Hv2mlcvQ8te7cw?e=HgED5h

- I can make everything fit, however, we will move to double occupancy in the theory wing, too. Plus we will need all office back from non-PSDiv personnel.
- There is the need to move three people from the NA62 group into MHESA 2nd floor.



AOB

- Next meeting scheduled for October 3rd

Project News

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

Committee Updates

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