



XV International Conference on Topics in Astroparticle and Underground Physics



24 - 28 July, 2017
Sudbury, Ontario, Canada



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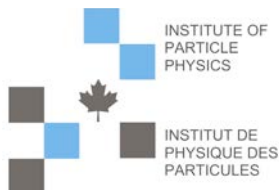
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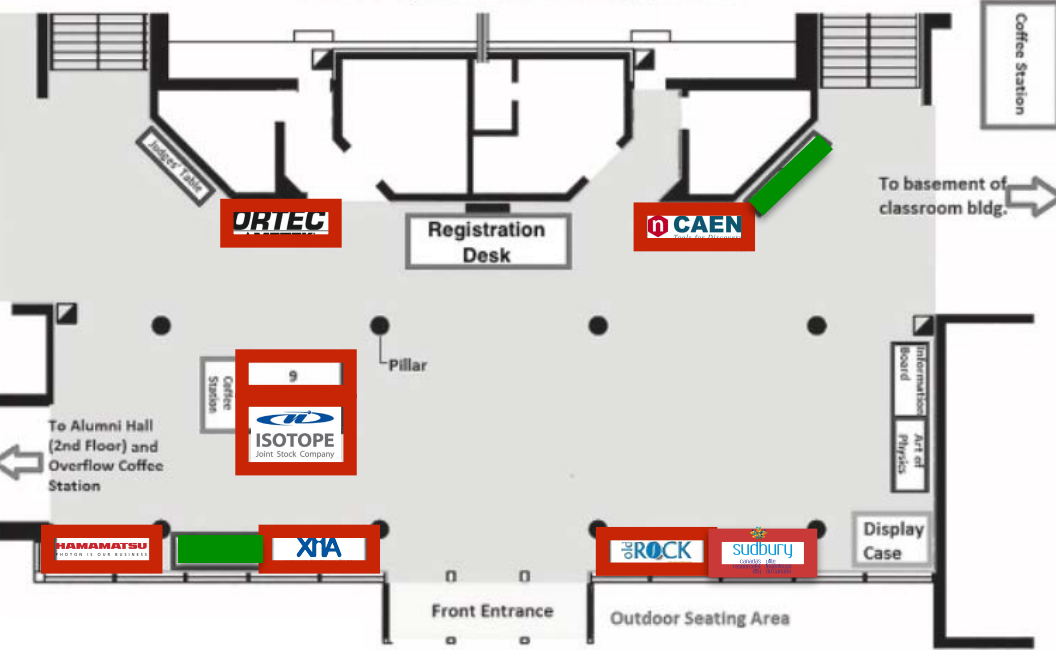


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Exhibitors

Fraser Foyer, Fraser Building, Floor 1



HAMAMATSU
PHOTON IS OUR BUSINESS

ORTEC
AMETEK

XIA

Instruments That Advance The Art



sudbury

canada's resourceful city
ville ingénieuse du canada

CAEN
Tools for Discovery



ISOTOPE
Joint Stock Company

Important Information

Wifi network: LUL (no login) or LUL-GUEST (requires valid email address to access network)

Parking: Conference attendees can use Parking Lot 1 free of charge (see map pg. 6)

Conference Registration: The registration desk will be open Sunday from 2pm to 9pm in the Fraser Auditorium Foyer at Laurentian University. It opens again at 7:45am Monday morning and will remain set up for the duration of the conference. Delegates can sign in, pickup their conference welcome packages, view the venue, etc. Snacks and beverages will be provided in the University Club located on the second floor of the Fraser Auditorium building. Payment of conference fees can be made via credit card or cash (CAD) for delegates that have selected the "Pay Later" option on their registration.

Campus security: 1-705-673-6562 (on-call 24/7)

SNOLAB tours: If you did not indicate interest in a tour during registration but would like to visit SNOLAB, please inquire at the registration desk. There may be spaces available.

Tour times:

Monday July 24:
10:00 am - 4:30 pm

Tuesday July 25:
6:30 am - 3:00 pm

Wednesday July 26:
10:00 am - 4:00 pm

Thursday July 27:
6:30 am - 3:00 pm

Friday July 28:
10:00 am - 4:00 pm

Saturday July 29:
6:30 am - 3:00 pm

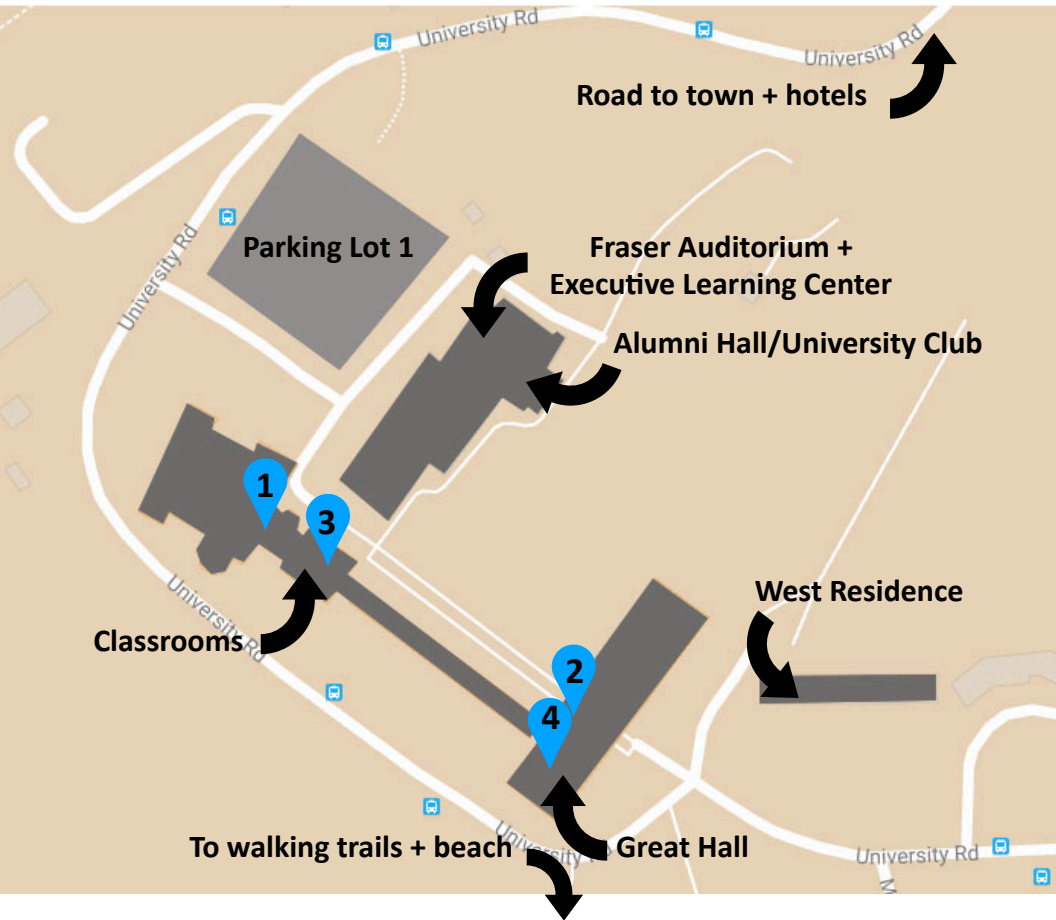
Schedule At-A-Glance

Time	Sunday	Monday, July 24	Tuesday, July 25			
8:30	WELCOME & REGISTRATION, Laurentian University	Welcome Remarks	Tuesday SNOLAB tour from 6:30 AM to 3:00 PM			
8:45		Plenary Sessions		Plenary Sessions		
9:00					HEALTH BREAK	HEALTH BREAK
10:00						
10:30		LUNCH		LUNCH		
12:00					Parallel Sessions	Parallel Sessions
1:00						
3:00		Parallel Sessions		Parallel Sessions		
3:30					Parallel Sessions	Parallel Sessions
5:30						
5:45	TAUP 2017 RECEPTION Science North (Transportation Provided)	POSTER SESSION Laurentian University				
6:00						
6:15						
6:30						
6:45						
7:00						
7:15						
7:30						
7:45						
8:00						
8:15						
8:30						
8:45						
9:00						

Schedule At-A-Glance

Time	Wednesday, July 26	Thursday, July 27	Friday, July 28	Sat.		
8:30	Plenary Sessions	Plenary Sessions	Plenary Sessions	Saturday SNOLAB tour from 6:30 AM to 3:30 PM		
8:45						
9:00						
10:00	Wednesday SNOLAB Tour from 10:00 AM to 4:30 PM	HEALTH BREAK	Friday SNOLAB Tour from 10:00 AM to 4:30 PM		HEALTH BREAK	
10:30		Plenary Sessions			Plenary Sessions	Conference Overview
12:00		LUNCH			LUNCH	END OF CONFERENCE
1:00		Parallel Sessions			Parallel Sessions	
3:00		HEALTH BREAK			HEALTH BREAK	
3:30	Parallel Sessions	Parallel Sessions				
5:30	END OF FORMAL DAY					
5:45						
6:00						
6:15						
6:30						
6:45						
7:00	PUBLIC LECTURE Laurentian University	GALA DINNER Caruso Club (Transportation provided)				
7:15						
7:30						
7:45						
8:00						
8:15						
8:30						
8:45						
9:00						

Laurentian University Campus



In addition to lunch being served in the Great Hall from 11:30 - 1:30 each day, (lunch is included in registration; conference badges are required to enter the Great Hall) the following locations will be open on campus at Laurentian University:

1. Starbucks

Monday to Friday 8:00 am - 4:00 pm

2. Subway

Monday to Friday 11:00 am - 3:00 pm

3. Tim Hortons

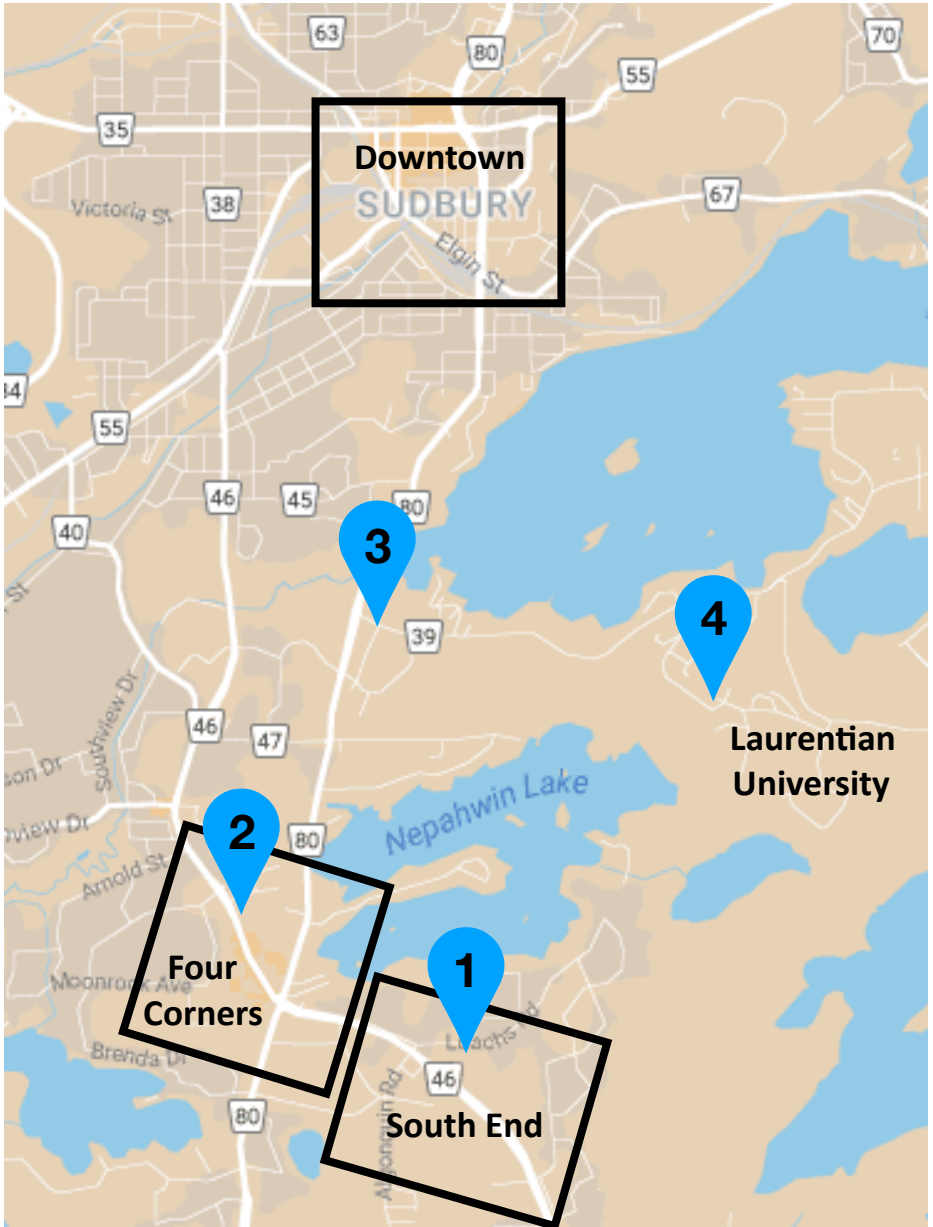
Monday to Friday 8:00 am - 4:30 pm

4. Toppers Pizza & Grill

Monday to Friday 11:00 am - 2:00 pm

Sudbury, ON

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Accommodations:

1. Hampton Inn, 2280 Regent Street
2. Holiday Inn, 1696 Regent Street
3. Travelway Inn, 1200 Paris Street
4. Laurentian U. West Residence, 935 Ramsey Lake Rd.

Event Information

Welcome Reception:

The welcome reception for TAUP 2017 will be hosted at Science North (transportation will be provided from campus). New Eyes on the Universe, an exhibit showcasing the discoveries of the original SNO experiment will be on display in the lobby, and the entire science center will be open exclusively for TAUP. Drinks and desserts will be available throughout the science center. Try some SNOLAB beer and liquid nitrogen ice cream while you socialize!

Public Lecture:

The 2017 TAUP public lecture is entitled *Cosmic Chirps: Gravitational waves and what they are telling us about the Universe*. It takes place at Laurentian University's Fraser Auditorium on Thursday, July 26. Doors open at 6:30pm and the lecture begins at 7:00. A reception will follow. Dr. Peter S. Shawhan of the University of Maryland will share the latest results from LIGO and discuss the expansion of the gravitational-wave detector network, including underground neutrino detectors.

Gala Dinner:

The gala dinner to celebrate TAUP 2017 will be held on Thursday, 27 July. The event will take place at Sudbury's Società Caruso. Cocktail hour begins at 6:30 pm, followed by dinner at 7:30 pm. Entertainment will be provided by a local jazz trio. Transportation to and from the venue will be provided. Named to honour the famous Italian singer Enrico Caruso, the Società was approved and incorporated in 1947 and the building was completed in late 1948. To this day the Società Caruso remains a hub of Sudbury's Italian community, and its banquet space and delicious food make it a popular choice for local events.

You must show your conference badge for admission to the above events.

Shuttle Schedule

TAUP SHUTTLE SCHEDULE						
	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Shuttle to Conference (from Hotels)	7:30 am - Hampton 7:45 am - Holiday Inn 8:00 am - Travelway Inn	7:30 am - Hampton 7:45 am - Holiday Inn 8:00 am - Travelway Inn	7:45 am - Hampton 8:00 am - Holiday Inn 8:30 am - Travelway Inn	7:45 am - Hampton 8:00 am - Holiday Inn 8:30 am - Travelway Inn	8:00 am - Hampton 8:15 am - Holiday Inn 8:30 am - Travelway Inn	
Tour Shuttle to SNOLAB P/U - Fraser Auditorium	10:00 am - Fraser	6:00 am - Hampton 6:15 am - Holiday Inn 6:30 am - Travelway Inn 6:40 am - Campus *Hotel pick-ups	10:00 am - Fraser	6:00 am - Hampton 6:15 am - Holiday Inn 6:30 am - Travelway Inn 6:40 am - Campus *Hotel pick-ups	10:00 am - Fraser	6:00 am - Hampton 6:15 am - Holiday Inn 6:30 am - Travelway Inn *Hotel pick-ups
Tour Shuttle from SNOLAB to LU	4:30 pm - arrival on campus	3:00 pm - arrival on campus	4:30 pm - arrival on campus	3:00 pm - arrival on campus	4:30 pm - arrival on campus	Leave SNOLAB to Hotels: 3:00pm
Shuttle to Hotels	Leaving LU to Hotels: 4:30 pm 5:00 pm 5:30 pm	Leaving LU to Hotels: 5:30 pm 6:30 pm	Leaving LU to Hotels: 4:30 pm 5:00 pm 5:30 pm	Leaving LU to Hotels: 4:30 pm 5:00 pm 5:30 pm		
Shuttle to Events	Science North Reception 6:30 pm - Hampton 6:45 pm - Holiday Inn 7:00 pm - Travelway 7:10 pm - LU (Fraser Aud.)	Poster Session on Campus 6:00 pm - Hampton 6:15 pm - Holiday Inn 6:30 pm - Travelway	Public Lecture on Campus 6:00 pm - Hampton 6:15 pm - Holiday Inn 6:30 pm - Travelway	Caruso Club Gala 6:00 pm - Hampton 6:15 pm - Holiday Inn 6:30 pm - Travelway 6:40 pm - LU (Fraser Aud.)		
Shuttle to Hotels/Campus after event	Leaving Science North to hotels: 9:00 pm 10:00 pm	Leaving LU to Hotels: 9:00 pm 10:00 pm	Leaving LU to Hotels: 9:00 pm 10:00 pm	Leaving Caruso Club to Hotels: 9:00 pm 10:00 pm		

Please Note: Any busses departing or arriving at Laurentian University will pick-up and drop-off in front of the Fraser Auditorium.

Where to Eat



Breakfast



Bar

Downtown


Name	Location	Hours	
Alexandria's	211 Shaughnessy Street	11:00am-10:00pm (closed Sunday)	
Frubar Juicery	82 Cedar Street	7:00am-9:00pm	
Hardrock42 Gastropub	117 Elm Street	7:00am-11:00pm	
Kuppajo Espresso Bar	109 Larch Street	7:00am-9:00pm	
Laughing Buddha	194 Elgin Street	11:00am-2:00am	
Old Rock Roastery	212 Minto Street	7:00am-8:00pm	
Oscar's Grill	86 Durham Street	11:00am-10:00pm	
Peddler's Pub & Eatery	63 Cedar Street	11:30am-12:00am	
Respect is Burning Supperclub	82 Durham Street	4:30pm-10:00pm (closed Sunday)	
Sapporo Ichibang Japanese Restaurant	67 Cedar Street	11:00am-9:00pm (closed Sunday)	
The Hourglass Restaurant & Lounge	183 Cedar Street	11:30am-9:00pm	
Townhouse Tavern	206 Elgin Street	11:00am-2:00am	

See map on Page 7 for locations.

Where to Eat cont'd.

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Four Corners

Name	Location	Hours	
Buzzy Brown's Brasserie	1984 Regent Street	11:00am-1:00am	
Di Gusto Pizza & Pasta	1620 Regent Street	11:00am-10:00pm	
Eddie's Restaurant	1769 Regent Street	7:00am-1:00am	
Fionn MacCool's	1875 Regent Street	11:00am-12:00am	
My Thai Palace	2037 Long Lake Road	11:00am-8:30pm (closed Monday)	
Ripe Restaurant	1788 Regent Street	4:30pm-9:30pm (closed Sunday)	

South End

Name	Location	Hours	
East Side Mario's	2040 Algonquin Road	11:00am-11:00pm	
Pizza Hut	121 Loach's Road	11:00am-12:00am	
Salute Coffee Company	2195 Armstrong Street	6:30am-6:00pm	
Shoeless Joe's	2260 Regent Street	11:00am-12:00am	
Swiss Chalet Rotisserie & Grill	2309 Regent Street	11:30am-10:00pm (9:30 on Sunday)	
Tutti Frutti	125 Loach's Road	6:00am-3:00pm	

Others near campus

Name	Location	Hours	
Gloria's Restaurant	469 Bouchard Street	6:00am-8:30pm (closed Monday)	
Perkins Restaurant	1401 Paris Street	6:00am-10:00pm	
Taphouse Northern Grill + Pub	1500 Regent Street	11:00am-11:00pm	
Bridges Bistro	390 Elgin Street	7:00am-2:00pm	

Things to Do

Laurentian University Trails: Enjoy a network of trails through the woods behind campus. There is also a private beach on Nepahwin Lake for anyone wanting to swim.

Planetarium Shows: The Laurentian planetarium offers The Northern Ontario Sky show several times during TAUP free of charge. Take in the skies of Northern Ontario under their 10-m dome located in the Fraser Auditorium building.

Schedule (each show lasts 45 minutes):

Monday, July 24th 12:15 pm

Tuesday, July 25th 12:15 pm

Friday, July 26th 12:15 pm

Science North: Check out Canada's second largest science center. Science North is located just down the road from Laurentian University and is open daily 9:00am-6:00pm. Also on site is an IMAX theatre showing feature films and documentaries.

Ramsey Lake Boardwalk: Walk along the shores of Ramsey Lake, through Bell Park. Boardwalk begins at Science North.

William Ramsey Cruise: See Ramsey Lake from the water. Cruises leave at 1:00, 3:00, 4:30, 6:00, and 7:30 pm daily. Tickets are available at Science North, and the William Ramsey departs from there.

For other ideas of what to do in Sudbury, check out the Sudbury Visitor Guide, available at the reception desk.

8:30 AM	Welcome Remarks <i>FA 054</i>
8:45 AM	Science Teaching Edna Manitowabi, Trent University <i>FA 054</i>
9:15 AM	Dark Matter Theory Overview Tracy Slayter, MIT <i>FA 054</i>
9:45 AM	Neutrino Theory Overview Werner Rodejohann, MPI Heidelberg <i>FA 054</i>
10:15 AM	Health Break <i>Fraser Foyer + Alumni Hall</i>
10:45 AM	Gravitational Waves Overview Peter Shawhan, University of Maryland <i>FA 054</i>
11:15 AM	Underground Science Takaaki Kajita, University of Tokyo <i>FA 054</i>
12:00 PM	Lunch <i>Great Hall</i>
1:00 PM	Dark Matter (1) <i>FA 055</i>
1:00 PM	Neutrino (1) <i>FA 056</i>
1:00 PM	New Technologies (1) <i>Executive Learning Center</i>
3:00 PM	Health Break <i>Fraser Foyer + Executive Learning Center</i>
3:30 PM	Dark Matter (2) <i>FA 055</i>
3:30 PM	Neutrino (2) <i>FA 056</i>
3:30 PM	Cosmology, Gravitational Waves, & Cosmic Rays <i>Executive Learning Center</i>
5:30 PM	End of Formal Day
7:30 PM	TAUP 2017 Reception <i>Science North</i> <i>(Transportation provided from Fraser Auditorium + hotels)</i>

8:30 AM	High Energy Neutrinos Claudio Kopper, University of Alberta <i>FA 054</i>
9:00 AM	Direct Dark Matter Searches (WIMPs) Nigel Smith, SNOLAB <i>FA 054</i>
9:30 AM	DEAP-3600 Results Mark Boulay, Carleton University <i>FA 054</i>
9:50 AM	Results PICO Experiment Carsten Krauss, University of Alberta <i>FA 054</i>
10:10 AM	Health Break Fraser Foyer + Alumni Hall
10:40 AM	Accelerator Dark Matter Searches at CERN Kristian Hahn, Northwestern University <i>FA 054</i>
11:10 AM	Absolute Neutrino Mass Christian Weinheimer, Münster University <i>FA 054</i>
11:40 AM	Axions Gianpaolo Carosi, Lawrence Livermore National Laboratory <i>FA 054</i>
12:10 PM	Lunch Great Hall
1:00 PM	Dark Matter (3) <i>FA 056</i>
1:00 PM	Neutrino (3) <i>Executive Learning Center</i>
1:00 PM	New Technologies (2) <i>FA 055</i>
3:00 PM	Health Break Fraser Foyer + Executive Learning Center
3:30 PM	Dark Matter (4) <i>F 056</i>
3:30 PM	Neutrino (4) <i>Executive Learning Center</i>
3:30 PM	Cosmology, Gravitational Waves, & Cosmic Rays (2) <i>FA 055</i>
5:30 PM	End of Formal Day
7:00 PM	Poster Session <i>Alumni Hall</i>

8:45 AM	<p>Double Beta Decay Stefan Schönert, Technical University Munich <i>FA 054</i></p>
9:15 AM	<p>GERDA Results Luciano Pandola, INFN <i>FA 054</i></p>
9:35 AM	<p>Long Baseline Neutrinos - Present Scott Oser, University of British Columbia <i>FA 054</i></p>
10:05 AM	<p>Health Break <i>Fraser Foyer + Alumni Hall</i></p>
10:30 AM	<p>Long Baseline Neutrinos - Future Lisa Whitehead, University of Houston <i>FA 054</i></p>
11:00 AM	<p>Indirect Dark Matter Searches Carsten Rott, Sungkyun Kwan University <i>FA 054</i></p>
11:30 AM	<p>Dark Matter (New Technologies) Dan McKinsey, UC Berkeley <i>FA 054</i></p>
12:00 PM	<p>Lunch <i>Great Hall</i></p>
1:00 PM	<p>Dark Matter (5) <i>FA 055</i></p>
1:00 PM	<p>Labs and Low Background <i>Executive Learning Center</i></p>
1:00 PM	<p>Neutrino (5) <i>C 112</i></p>
1:00 PM	<p>New Technologies <i>C 114</i></p>
3:00 PM	<p>Health Break <i>Fraser Foyer, Classroom Building, Executive Learning Center</i></p>
3:30 PM	<p>Cosmology, Gravitational Waves, & Cosmic Rays <i>F 539</i></p>
3:30 PM	<p>Dark Matter (6) <i>C 114</i></p>
3:30 PM	<p>Labs and Low Background <i>Executive Learning Center</i></p>
3:30 PM	<p>Neutrino (6) <i>C 112</i></p>
5:30 PM	<p>End of Formal Day</p>
7:00 PM	<p>Public Lecture (Doors open at 6:30) Peter Shawhan, University of Maryland <i>Laurentian University Fraser Auditorium</i></p>

Thursday, July 27

8:45 AM	Solar Neutrinos: Overview and New Results from Borexino Gemma Testera, INFN <i>FA 054</i>
9:15 AM	Supernova Neutrinos Irene Tamborra, Niels Bohr Institute <i>FA 054</i>
9:45 AM	Xenon 1T REults Manfred Lindner, Max Planck Intitute für Kernphysik <i>FA 054</i>
10:05 AM	Health Break Fraser Foyer + Alumni Hall
10:30 AM	Status of Underground Labs Ianni Aldo, Gran Sasso Laboratory <i>FA 054</i>
11:00 AM	Low Background Frank Calaprice, Princeton University <i>FA 054</i>
11:30 AM	Directional Dark Matter Jason Kumar, University of Hawaii <i>FA 054</i>
12:00 PM	Lunch Great Hall
1:00 PM	Dark Matter (7) <i>C 112</i>
1:00 PM	Neutrino (7) <i>C 114</i>
1:00 PM	Outreach <i>Executive Learning Center</i>
3:00 PM	Health Break Fraser Foyer, Classroom Building, Executive Learning Center
3:30 PM	Dark Matter (8) <i>C 112</i>
3:30 PM	Neutrino (8) <i>C 114</i>
3:30 PM	New Technologies (4) <i>Executive Learning Center</i>
5:30 PM	End of Formal Day
6:30 PM	Gala Dinner <i>Caruso Club</i> <i>(Transportation provided from Fraser Auditorium + hotels)</i>

9:00 AM	Cosmology Overview Jan Hamann, University of New South Wales Sydney <i>FA 054</i>
9:30 AM	Multimessenger Astronomy Doug Cowan, Pennsylvania State University <i>FA 054</i>
10:00 AM	Health Break Fraser Foyer + Alumni Hall
10:30 AM	Conference Overview Antonio Masiero, INFN <i>FA 054</i>
11:30 AM	End of Formal Day

Instructions for Oral Presenters

Invited talk duration: 25 minutes plus five-minute question period

Results talk duration: 17 minutes plus three-minute question period

Contributed talk duration: 12 minutes plus three-minute question period

It is important to respect the time allocation to ensure that the session runs smoothly, efficiently and finishes on time. Session chairs and student volunteers will be timing sessions and maintaining the schedule.

CONFERENCE ROOM AV EQUIPMENT

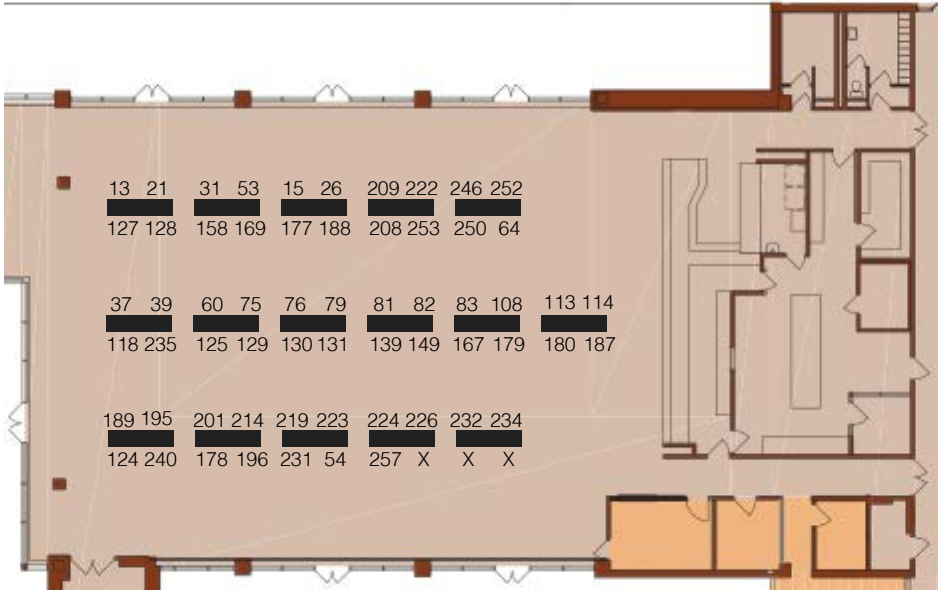
Rooms are equipped with internet access and a Windows computer. Technical assistance will be provided by student volunteers.

Presenters are asked to put their talks into PDF format and upload them via the conference program website at least 12 hours prior to the start of the session (instructions below). They could also bring a PDF backup on a USB key to be downloaded onto the computer 15 minutes prior to the start of the session. Presenters are strongly encouraged not to use their own computers. Those who do use their own computers risk having their talk shortened if technical difficulties arise, as we need to adhere to the published schedule. Note that if an adaptor is required, presenters need to bring their own.

UPLOADING PRESENTATIONS TO TAUP-2017 INDICO WEBSITE:

- Go to <http://indico.cern.ch/e/taup2017>.
- Log in to your account.
- Select “My contributions” under the “My Conference” link.
- In “My contributions” area, click on the title of a contribution.
- To submit material, click on the Pencil icon beside Presentation Materials. A dialog box will open.
- Click “*Upload files*”, and follow the instructions.
- Your file will now appear in the contribution details and will be accessible through the session timetable.

The Poster Session will be held on Tuesday, July 25 from 7:00-9:00 pm in the Alumni Hall at Laurentian University.



Poster Number	Title	Author(s)
13	Detection of primary photons in high energy cosmic rays using $\backslash{v}{C}$ erenkov imaging and surface detectors	Fausto Casaburo
15	Different Conception to the Universe: The Nested Vortexes	Khaled Ibrahim
21	Study of solar Transients causing intense GMSs with Dst \leq -100nT during the period 1999-2010	Rajiv Kumar
26	Consequences of correspondence between Modified Chaplygin gas and extended holographic Ricci dark energy in the framework of bulk viscosity	Surajit Chattopadhyay
31	Extensive air showers event reconstruction using spatial and temporary particle distribution at Horizon-T experiment.	Khalykbek Yelshibekov
37	Improved detector simulation and neutron tagging study for the SK-Gd project	Ka Ming Tsui
39	The Main Structure of the Central Detector of JUNO	Yuekun Heng
53	Time dependence of the proton and helium flux measured by PAMELA	Beatrice Panico
54	The High Energy Particle Detector calorimeter	Beatrice Panico

Posters Cont'd.

Poster Number	Title	Author(s)
60	Thermal management and modeling for precision measurements in Borexino's SOX and solar neutrino spectroscopy programs	David Bravo Berguño
64	Multi purpose detector using high light yield Ca2 crystal	Takashi Iida
75	Calibration campaign of the Borexino detector for the search of sterile neutrinos with Sox	Laura Collica
76	Calibration of the high voltage and the energy scale of the KATRIN experiment	Oliver Rest
79	Initial performance of the CUORE detector	Jeremy Cushman
81	New results from CUORE-0: double beta decay to excited states and low energy rare event searches	Ke Han
82	Data selection strategy for the solar neutrino analysis with Borexino	Silvia Caprioli
83	Analytical response function for the Borexino solar neutrino analysis	Zara Bagdasarian
108	GPU based spectral-fitter for Borexino solar neutrino analysis	Xuefeng Ding
113	Potential to constrain the relic neutrino background with KATRIN	Florian Heizmann
114	Sterile neutrino oscillation studies with the T2K far detector Super-Kamiokande	Ka Ming Tsui
118	Search for sterile neutrinos with SOX: Monte Carlo studies of the experiment sensitivity and systematic effects related to the position reconstruction	Davide Basilico
124	Electromagnetic interactions of neutrinos in processes of low-energy elastic neutrino-electron scattering	Konstantin Kouzakov Alexander Studenikin
125	The INFN-TUM calorimeter for the sterile neutrino hunt	Lea Di Noto
127	CUTE - A Cryogenic Underground TEst facility at SNOLAB	Wolfgang Rau
128	Cosmogenic Background in CDMSlite	Eleanor Fascione
129	Neutrino spin and spin-flavour precession in transversally moving or polarized matter and arbitrary constant magnetic field	Artem Popov
		Pavel Pustoshny
130	Neutrino quantum decoherence due to entanglement with magnetic field	Konstantin Stankevich

Poster Number	Title	Author(s)
131	Spin-light of neutrino in astrophysical media	Alexander Grigoriev
139	Studies on muon veto in the JUNO liquid scintillator neutrino detector	Christoph Genster
149	Data quality assurance for the MAJORANA DEMONSTRATOR	Jordan Myslik
158	Preliminary Design of Readout Electronics for CDEX-10 in CJPL	Xue Tao
167	Data-Quality and Run Selection for the SNO+ experimen	Gersende Prior Kalpana Singh
169	Nuclear recoil calibration for PICO bubble chambers	Miaotianzi Jin
177	DynHo: A New Trap For Dark Matter	Thierry Lasserre
178	A Sensitive Assay Technique for 210Pb In Water Developed For The SNO+ Experiment	Dimpal Chauhan Oleg Chkvorets Clarence Virtue
179	Supernovae and SNO+	Ryan Bayes
180	SNO+ Calibration Hardware	Thomas Gilliss
187	Progress toward a two-neutrino double-beta decay measurement for the MAJORANA DEMONSTRATOR	Usman Chowdhury
188	PICO-60: World's largest bubble chamber for dark matter detection	Ian Coulter
189	Search for Invisible Nucleon Decay in the SNO+ Experiment	Kevin Labe
195	Design Improvements to Cables and Connectors in the MAJORANA DEMONSTRATOR	Anna Reine Christopher Haufe
196	High precision modeling of germanium detector waveforms using MCMC machine learning	Sam Meijer
201	Liquid scintillator for search of double beta decay with Tin	Oleg Chkvorets
208	The PICO-40L Detector Design	Ben Loer
209	Search for CPT-violation in Positronium	Chelsea Bartram

Posters Cont'd.

Poster Number	Title	Author(s)
214	Interval estimation of bounded parameters	Alexey Lokhov Fyodor Tkachov
219	Electromagnetic interactions of massive neutrinos and neutrino oscillations	Carlo Giunti Konstantin Kouzakov Alexander Studenikin
222	The Euclid Near Infrared Spectro-Photometer (NISP) instrument and science	Nicoletta Mauri
223	Background modeling for the nEXO neutrinoless double beta decay experiment	John Orrell
224	Background Studies for the EChO Experiment	Stephan Scholl
226	PEV NEUTRINOS AND UHECRS CONNEXION AROUND THE LOBES OF CENTAURUS A	Edilberto Aguilar Ruiz
231	Resistive Materials for Low Background Time Projection Chambers	Richard Saldanha
232	Underwater Photometry System of the SNO+ experiment	Kalpana Singh
234	The nEXO radioassay program	Ryan MacLellan
235	The ν -cleus experiment: Gram-scale cryogenic calorimeters for a discovery of coherent neutrino scattering	Raimund Strauss
240	Stimulated X-rays in resonant atom Majorana mixing	Alejandro Segarra
246	Thermal Behaviors of the Strong Form Factors of Charmonium and Charmed Beauty Mesons from Three Point Sum Rules	Enis Yazıcı
250	ARAPUCA: a highly efficient device for photon collection in LArTPCs	Ernesto Kemp
252	RED SHIFT OF LIGHT FROM THE GALAXIES YES, EXPANDING UNIVERSE NO!	satish malhotra
253	Current Status and Projected Sensitivity of COSINE-100	William Thompson
257	Enriched isotopes for low background experiments: Supplier's vision	Olga Babintceva

Dark Matter 1 Chair: Mark Boulay FA 055	
1:00	Dark matter hunt with XENON1T: the analysis challenge: Jelle Aalbers
1:15	Recent PandaX-II results on dark matter search and PandaX-4T upgrade plan: Ning Zhou
1:30	WIMP search from the XMASS-I fiducial volume data with background prediction: Atsushi Takeda
1:45	Annual modulation search by XMASS-I: Masaki Yamashita
2:00	Energy response and position reconstruction in the DEAP-3600 dark matter experiment: Stefanie Langrock
2:15	Backgrounds in the DEAP-3600 Dark Matter Experiment: Bjoern Lehnert
2:30	Darkside Status and Prospects: David Asner
2:45	Update on the MiniCLEAN Experiment: Steven Linden
Neutrino 1 Chair: Hiro Tanaka FA 056	
1:00	Overview on neutrino electromagnetic properties: Alexander Studenikin
1:15	Updating neutrino magnetic moment constraints: Alexander Parada
1:30	Limiting the effective magnetic moment of Solar neutrinos with the Borexino detector: Livia Ludhova
1:45	Atomic Many-Body Effects in Neutrinos and Dark Matters Detection: Chih-Pan Wu
2:00	Flavor evolution in astrophysical environments and nonlinear feedback: Amelie Chatelain
2:15	Local density of relic neutrinos with minimal mass: Segio Pastor
2:30	Sensitive search for double electron capture on ^{124}Xe in XMASS: Katsuki Hiraide
2:45	Search for the Two Neutrino Double Electron Capture with XENON1T: Alexander Fieguth
New Technologies 1 Chair: Mark Vagins Executive Learning Center	
1:00	Dark Matter Searches with the Micro-X Sounding Rocket: Antonia Hubbard
1:15	First Demonstration of a Scintillating Xenon Bubble Chamber for Dark Matter and CE ν NS Detection: Jianjie Zhang
1:30	Indirect searches for Dark Matter Signatures at INO: Deepak Tiwari
1:45	MADMAX: A new road to axion dark matter detection: Bela Majorovits
2:00	MADMAX: A new way of probing QCD Axion Dark Matter with a Dielectric Haloscope - Foundations: Stefan Knirck
2:15	Results of the first NaI scintillating calorimeter prototypes by COSINUS: Florian Reindl
2:30	Status of the TREX-DM experiment at the Canfranc Underground Laboratory: Susana Cebrian
2:45	Threshold verification in the PICO-60 detector and study of the growth and motion of nucleation bubbles: Pitam Mitra

Monday Parallel Sessions: 3:30 PM - 5:30 PM

	Dark Matter 2 Chair: Ubi Wichoski FA 055
3:30	Recent Results from the SuperCDMS Soudan Experiment: Jodi Cooley
3:45	Low-mass WIMP searches with the EDELWEISS experiment: Jules Gascon
4:00	Direct dark matter search with the CRESST-III experiment: Federica Petricca
4:15	Status and prospect of the ANKOK project: Low mass WIMP dark matter search using double phase argon detector: Masato Kimura
4:30	NEWS-G, a spherical TPB with low Z target to search for sub-GeV Weakly Interacting Particles: Pierre Gorel
4:45	Toward a next-generation dark matter search with the PICO-40L bubble chamber: Scott Fallows
5:00	CDEX dark matter experiment: status and prospects: Hao Ma
5:15	The DAMIC Experiment at SNOLAB: Alvaro Chavarria
	Neutrino 2 Chair: Jeanne Wilson FA 056
3:30	Status of the SNO+ Experiment: Erica Caden
3:45	First results from the CUORE experiment: Oliviero Cremonesi
4:00	First results of CUPID-0: Stefano Pirro
4:15	Latest Results of EXO-200: Caio Licciardi
4:30	Initial Results from the MAJORANA DEMONSTRATOR: Thomas Caldwell
4:45	The NEXT experiment for neutrinoless double beta decay searches: Ander Simón Estévez
5:00	Latest results from NEMO-3 and commissioning status of SuperNEMO: Thibaud Le Noblet
5:15	Discovery probability of next-generation neutrinoless double-beta decay experiments: Matteo Agostini
	Cosmology, Gravitational Waves, & Cosmic Rays 1 Chair: Christine Kraus Executive Learning Center
3:30	Gravity and antimatter: the AEgIS experiment at CERN: Davide Pagano
3:45	Advanced Virgo Status: Antonio Chiummo
4:00	Optically Levitated Microspheres as a Probe for New Interactions: Alexander Rider
4:15	Cosmic Inflation and Neutrino Masses at POLARBEAR and the Simons Array: Masaya Hasegawa
4:30	A study on the reconstruction of $f(T)$ gravity with interacting variable generalized Chaplygin gas and the consequence: Surajit Chattopadhyay
4:45	Distinguishing between Warm Dark Matter and Late Kinetic Decoupling using CMB spectral distortions: James Diacoumis
5:00	N/A
5:15	N/A

Dark Matter 3 Chair: Ken Clark FA 056	
1:00	Surface background rejection using tetraphenyl-butadiene: Chris Stanford
1:15	Calibrating Inner-Shell Electron Recoils in a Xenon Time Projection Chamber: Daniel Baxter
1:30	Dark matter search with the SABRE experiment: Giulia D'Imperio
1:45	The ANAIS-112 experiment at the Canfranc Underground Laboratory: Susana Cebrian
2:00	COSINE-100: Reina Maruyama
2:15	Highly radio-pure NaI(Tl) for PICOLON dark matter search experiment: Yasuhiro Takemoto
2:30	KDK: measuring a rare decay of potassium with implications for dark matter searches: Philippe Di Stefano
2:45	The R&D progress of the Jinping Neutrino Experiment: Shaomin Chen
Neutrino 3 Chair: Susanne Mertens Executive Learning Center	
1:00	Investigation of double beta decay of ^{58}Ni at the Modane Underground Laboratory: Ekaterina Rukhadze
1:15	The Large Enriched Germanium Experiment for Neutrinoless Double Beta Decay (LEGEND): John Wilkerson
1:30	Neutrino-less double beta decay of ^{48}Ca studied by CaF_2 (pure) scintillators: Saori Umehara
1:45	Spectral analysis for the MAJORANA DEMONSTRATOR experiment: Lukas Hehn
2:00	The neutrino mass experiment KATRIN: Florian Fraenkle
2:15	The electron capture in ^{163}Ho Experiment: Stephan Scholl
2:30	Overview of Project 8 and progress towards tritium operation: Walter Pettus
2:45	Rare low-energy event searches with the MAJORANA DEMONSTRATOR: Gulden Othman
New Technologies 2 Chair: Mark Vagins FA 055	
1:00	nEXO: a tonne-scale next-generation double-beta decay experiment: Ryan MacLellan
1:15	Progress in Barium tagging at the single atom/ion level for nEXO: Chris Chambers
1:30	PandaX-III: Searching for neutrinoless double beta decay with high pressure Xe-136 gas time projection chambers: Ke Han
1:45	Status of the AMoRE experiment searching for neutrinoless double beta decay of ^{100}Mo : Hyon-Suk Jo
2:00	Neutrinoless double-beta decay search with CMOS pixel charge plane in gainless TPC: Yuan Mei
2:15	Results of nEXO detector experiment: Thomas Brunner
2:30	ZICOS- neutrinoless double beta decay experiment using Zr-96 in organic liquid scintillator: Yoshiyuki Fukuda
2:45	N/A

Tuesday Parallel Sessions: 3:30 PM - 5:30 PM

Dark Matter 4 Chair: Pierre Gorel <i>FA 056</i>	
3:30	An Overview of the LUX-ZEPLIN Experiment: Kimberly Palladino
3:45	LZ Backgrounds and Mitigation: Christina Ignarra
4:00	SuperCDMS SNOLAB - Status and Plans: Wolfgang Rau
4:15	Backgrounds in the planned SuperCDMS SNOLAB dark matter experiment: John L. Orrell
4:30	PICO-500L: Simulations for a 500L Bubble Chamber for Dark Matter Search: Eric Vazquez-Jauregui
4:45	The DARWIN Observatory: Rafael Lang
5:00	Radiogenic neutron background predictions in DEAP-3600 and in situ measurements: Shawn Westerdale
5:15	Studies of Neutrino Properties and Interactions at the Kuo-Sheng Reactor Neutrino Laboratory with Sub-KeV Germanium Detectors: Lakhwinder Singh
Neutrino 4 Chair: Clarence Virtue <i>Executive Learning Center</i>	
3:30	Three-flavour neutrino oscillations and beyond: Miriam Tórtola
3:45	New measurement of atmospheric neutrino oscillations with IceCube: Tyce DeYoung
4:00	Testing the neutrino mass ordering with multiple years of IceCube/DeepCore: Martin Leuermann
4:15	Searches for tau neutrino appearance in IceCube-DeepCore: Michael Larson
4:30	Neutrino oscillation physics with IceCube Gen2/Phase1: Ken Clark
4:45	The ICARUS detector: Daniele Gibin
5:00	More results from the OPERA experiment: Nicoletta Mauri
5:15	The latest T2K results on neutrino oscillations and neutrino-nucleus interactions: Mark Scott
Cosmology, Gravitational Waves, & Cosmic Rays 2 Chair: Nigel Smith <i>FA 055</i>	
3:30	VERITAS: Michael Daniel
3:45	Results from the Pierre Auger Observatory: Lorenzo Perrone
4:00	The observations of the very-high-energy gamma-ray sky by HAWC: Adiv Gonzalez Muñoz
4:15	Annual modulation of the atmospheric muon flux measured by the OPERA experiment: Nicoletta Mauri
4:30	Cosmic rays investigation by the PAMELA experiment: Beatrice Panico
4:45	High energy neutrino astronomy with KM3NeT: Piera Sapienza
5:00	Horizon-T experiment and detection of extensive air showers with unusual structure: Dmitriy Beznosko
5:15	PeVatron search using radio measurement of extended air showers at the South Pole: Aswathi Balagopal V.

Wednesday Parallel Sessions: 1:00 PM - 3:00 PM

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Dark Matter 5 Chair: Mark Boulay FA 055	
1:00	Directional detection of Dark Matter with a nuclear emulsion based detector: Ali Murat Guler
1:15	Direction-sensitive dark matter search with three-dimensional gaseous tracking detector: Ryota Yakabe
1:30	Directional Dark Matter Detection with MIMAC: Fabrice Naraghi
1:45	Solar axion search by annual modulation with XMASS-I detector: Koichi Ichimura
2:00	Rare Particle Search Results from the LUX Experiment: Richard Gaitskell
2:15	International Axion Observatory (IAXO): status and prospects: Biljana Lakic
2:30	N/A
2:45	N/A
Neutrino 5 Chair: Hiro Tanaka C 112	
1:00	Recent results from NOvA: Kirk Bays
1:15	CAPTAIN: Current Neutron and Future Stopped Pion Neutrino Measurements: Lisa Whitehead
1:30	Hyper-Kamiokande: Hidekazu Tanaka
1:45	The 2nd Hyper-Kamiokande detector in Korea: Seon-Hee Seo
2:00	The Hyper-K near detector programme: Jeanne Wilson
2:15	Sensitivity of the DUNE Experiment to CP Violation: Lisa Whitehead
2:30	Measurements of the Neutrino Flux Using the DUNE Near Detector: James Robert Sinclair
2:45	The Monte Carlo simulation of the Borexino detector: Simone Marocci
New Technologies 3 Chair: Gabriel Orebi-Gann C 113	
1:00	3D digital SiPM for large area and low background experiments: Serge Charlebois
1:15	CALDER: Cryogenic light detectors with excellent resolution for rare event searches: Marco Vignati
1:30	Towards 60eV FWHM Pulsar Resolution in 2.5kg HPGe Point Contact Detectors: Quirin Pascal
1:45	Metal Loading in Organic Liquid Scintillator: Mark Chen
2:00	Status and Physics of the SHiP experiment at CERN: Daniel Bick
2:15	New Technologies for Gadolinium loading Super Kamiokande: Matthew Murdoch
2:30	N/A
2:45	N/A

Wednesday Parallel Sessions: 1:00 PM - 3:00 PM Cont'd.

Labs and Low Background 1

Chair: Richard Ford *Executive Learning Center*

- | | |
|------|---|
| 1:00 | Characterization of a High-Sensitivity Radon Emanation System: Daniel Jardin |
| 1:15 | Measurement of the cosmogenic activation of germanium detectors in EDELWEISS-III: Silvia Scorza |
| 1:30 | An ultra-low radioactivity measurement facility at the Center for Underground Physics in Korea: Moo Hyun Lee |
| 1:45 | Ultra-Low-Background Material Screening with the BetaCage Time Projection Chamber: Michael Bowles |
| 2:00 | The DUNE Far Detector: Ernesto Kemp |
| 2:15 | The Sanford Underground Research Facility: Jaret Heise |
| 2:30 | SuperCDMS & Radon: Raymond Bunker |
| 2:45 | Low Background Measurement Capabilities At SNOLAB: Ian Lawson |

Dark Matter 6 Chair: Ken Clark C 114	
3:30	Effects of Threshold Energy on Determinations of Properties of Low-Mass WIMPs from Direct Dark Matter Detection Experiments: Chung-Lin Shan
3:45	Impeded Dark Matter: Xiaoping Wang
4:00	Dark Gamma Ray Bursts: Jia Liu
4:15	Dark matter self-interactions from a general spin-0 mediator: Sebastian Wild
4:30	A method to reanalyze Dark Matter experimental results in different theoretical scenarios: Franco Giuliani
4:45	Singlet-Doublet fermion dark matter, neutrino mass and collider signatures: Narendra Sahu
5:00	Solar Atmospheric Neutrinos: A New Neutrino Floor for Dark Matter Searches: Kenny Chun Yu Ng
5:15	Dark matter velocity spectroscopy: Ranjan Laha
Neutrino 6 Chair: Chris Jillings C 112	
3:30	Recent Solar neutrino Results from Super-Kamiokande: Yuuki Nakano
3:45	The Super-Kamiokande Gadolinium Project: Hiroyuki Sekiya
4:00	Solar neutrino flux at keV energies: Edoardo Vitagliano
4:15	Astroparticle Physics in Hyper-Kamiokande: Takatomi Yano
4:30	Supernova Neutrinos at the DUNE Experiment: Amanda Weinstein
4:45	Recent Results from the ANTARES Neutrino Telescope: Vincent Bertin
5:00	Scanning the Earth with solar neutrinos and DUNE: Ara Ioannisyan
5:15	The Diffuse Supernova Neutrino Background: an update on the theory and detection prospects: Cecilia Lunardini
Cosmology, Gravitational Waves, & Cosmic Rays 3 Chair: Christine Kraus F 539	
3:30	A new method of determination of the mass of primary cosmic ray particles: Rajat K. Dey
3:45	Measurement of the knees of proton and H&He spectra below 1 PeV: Zhen Cao
4:00	Exploring calorimetry new dimensions: a novel approach to maximize the performances of space experiments for high-energy cosmic rays: Gabriele Bigongiari
4:15	The status of KAGRA underground cryogenic gravitational wave telescope: Yuta Michimura
4:30	N/A
4:45	N/A
5:00	N/A
5:15	N/A

Wednesday Parallel Sessions: 3:30 PM - 5:30 PM Cont'd.

Labs and Low Background 2

Chair: Richard Ford *Executive Learning Center*

3:30 The new LUNA-MV facility at Gran Sasso: **Paolo Prati**

3:45 Low Radioactivity Argon for Rare Event Searches: **Andrew Renshaw**

4:00 VIP2 at Gran Sasso - Test of the validity of the spin statistics theorem for electrons with X-ray spectroscopy: **Johann Marton**

4:15 GINGERino and the GINGER Project: **Angela Di Virgilio**

4:30 SiPM at Cryogenic Temperatures for Dark Matter Searches: **Graham Giovanetti**

4:45 The purification study on the Liquid Scintillator for JUNO: **Boxiang Yu**

5:00 N/A

5:15 N/A

Dark Matter 7 Chair: Pierre Gorel C 112	
1:00	Modulations in Spectra of Galactic Gamma-ray sources as a result of Photon-ALPs mixing: Jhilik Majumdar
1:15	GAPS: A search for dark matter signals in cosmic ray antinuclei: Rachel Carr
1:30	Impact of Galactic subhalos on indirect dark matter searches with cosmic-ray antiprotons: Martin Stref
1:45	Dark Kinetic Heating of Neutron Stars: Joseph Andrew Bramante
2:00	Dark matter in models with Higgs aligned gauge groups: Rainer Dick
2:15	Global Fits with GAMBIT: Jonathan Cornell
2:30	N/A
2:45	N/A

Neutrino 7 Chair: Jeanne Wilson C 114	
1:00	Latest Results from Double Chooz: Ralitsa Sharankova
1:15	New Results from RENO: Seon-Hee Seo
1:30	Recent results of Daya Bay Reactor Neutrino Experiment: Haoqi Lu
1:45	PROSPECT: The Precision Reactor Oscillation and Spectrum Experiment: Karsten Heeger
2:00	Status of JUNO: Zhimin Wang
2:15	Neutrino geoscience and reactor monitoring with direction-sensitive detectors: Michael Leyton
2:30	Crustal geoneutrino signal expected at SNO+: Marica Baldoncini
2:45	Non-Standard Interactions: oscillation versus scattering data: Pilar Coloma

Outreach Chair: Samantha Kuula Executive Learning Center	
1:00	Muon Hunter: a Zooniverse project: Michael Daniel
1:15	How to translate $(A, Z) \rightarrow (A, Z + 2) + 2e^-$ into a Public Knowledge?: Hoi Cheu
1:30	ROUND TABLE
1:45	N/A
2:00	N/A
2:15	N/A
2:30	N/A
2:45	N/A

Thursday Parallel Sessions: 3:30 PM - 5:30 PM

Dark Matter 8 Chair: Ubi Wichoski C 112	
3:30	Dark matter searches at Super-Kamiokande: Piotry Mijakowski
3:45	Indirect dark matter searches in IceCube: Morten Medici
4:00	Dark Matter Searches with HAWC: James Thomas Linnemann
4:15	MiniBooNE-DM: a dark matter search in a proton beam dump: Alexis Aguilar-Arevalo
4:30	N/A
4:45	N/A
5:00	N/A
5:15	N/A
Neutrino 8 Chair: Susanne Mertens C 114	
3:30	The SoLid experiment: Search for sterile neutrinos at the SCK•CEN BR2 reactor: Luis Manzanillas
3:45	Search for light sterile neutrinos with the CeSOX experiment: Thierry Lasserre
4:00	Status of the DANSS project: in pursuit of a light sterile neutrino: Yury Shitov
4:15	Search for eV Sterile Neutrinos – The Stereo Experiment: Stefan Schoppmann
4:30	Secret interactions for sterile neutrinos and cosmological implications: Ninetta Saviano
4:45	The sterile neutrino: a combined view of cosmological limits with oscillation searches: Jack Elvin-Poole
5:00	Updates on atmospheric neutrino and proton decay results in Super-Kamiokande: Kimihiko Okumura
5:15	Measuring the neutrino mass hierarchy with KM3NeT/ORCA: Jannik Hofestädt
New Technologies 4	
Chair: Gabriel Orebi-Gann Executive Learning Center	
3:30	Probing the absolute neutrino mass scale with the Ho-163: the HOLMES project: Matteo De Gerone
3:45	CONUS: Towards the detection of coherent elastic neutrino nucleus scattering: Janina Hakenmüller
4:00	Status of the Project 8 Phase II: Mathieu Guigue
4:15	Results from ANNIE Phase 1 and Plans for Phase 2: Robert Svoboda
4:30	Theia - A water-based liquid scintillator detector: Leon Pickard
4:45	Event Reconstruction Techniques for a (Water-based) Liquid Scintillator Detector: Andrey Elagin
5:00	The WATCHMAN Demonstration: Remote Reactor Monitoring Using a Gadolinium-Doped Water Cherenkov Detector: Teal Pershing
5:15	N/A

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 Mu-Chun Chen, University of California Irvine, USA
 Michelle Galloway and Laura Baudis, University of Zuerich, Switzerland
 Jianguai Liu, Shanghai Jiao Tong University, China

Neutrinos

Susanne Mertens, TU Munich, Germany
 Hiro Tanaka, University of Toronto, Canada
 Jeanne Wilson-Hawke, Queen Mary University, UK

High Energy Astro Physics and Cosmic Rays, Cosmology, Gravitational Waves

Jim Beatty, University of Chicago, USA
 Elisa Resconi, TU Munich, Germany
 Licia Verde, Institute of Cosmological Sciences, Spain

Low Background and Underground Labs

R. Ford, SNOLAB, Canada
 Matthias Laubenstein, INFN, Italy

New Technologies

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Outreach

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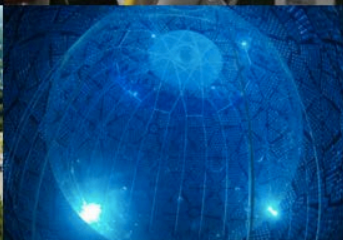
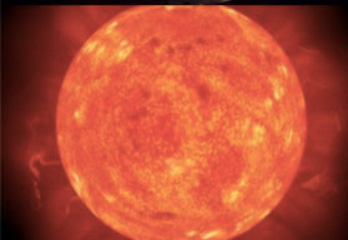
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