

Session Program

13-17 May 2024



DPF - PHENO 2024

Dark Matter

University of Pittsburgh / Carnegie Mellon University

Sunday 12 May

14:00

Dark Matter: DM at accelerators	
Session Location: University of Pittsburgh, David Lawrence Hall 104 Convener: Mudit Rai	
14:00-14:15	Implications of purity constraints on light higgsinos Speaker Stephen Martin
14:15-14:30	Search for emerging jets Speaker Claire Savard
14:30-14:45	Discovering Minimal Dark Matter at Muon Colliders Speaker Rodolfo Capdevilla
14:45-15:00	Light Dark Portals at a High Energy Muon Collider Speaker Sagar Airen
15:00-15:15	-
15:15-15:30	--

15:30

14:00

Dark Matter: Direct Detection	
Session Location: University of Pittsburgh, David Lawrence Hall 120 Convener: Matthew Szydagis	
14:00-14:15	New Techniques in Dark Matter Direct Detection Speaker Ben Lillard
14:15-14:30	Cosmic Ray Boosted Dark Matter at IceCube Speaker Christopher Cappiello
14:30-14:45	Boosted Dark Matter Resonant Scattering Speaker Zachary Orr
14:45-15:00	A Global Fit of Non-Relativistic Effective Dark Matter Operators Including Solar Neutrinos Speaker Neal Avis Kozar
15:00-15:15	Detecting Rare Species of Dark Matter with Terrestrial Detectors

Speaker
Anupam Ray

15:15-15:30 **Optimal antiferromagnets for dark matter detection**

Speaker
Shashin Pavaskar

15:30

16:00

Dark Matter: DM at accelerators

Session | **Location:** University of Pittsburgh, David Lawrence Hall 104 | **Convener:** Brooks Thomas

16:00-16:15

Search for dark photons decaying to lepton jets with the CMS experiment

Speaker
Prof. Paul Karchin

16:15-16:30

Search for Dark Matter Produced in Association with a Resonant Bottom-Quark Pair

Speaker
Erdem Yigit Ertorer

16:30-16:45

Dark Matter searches with photons at the LHC

Speaker
Subhojit Roy

16:45-17:00

Status of, and recent data results from, the LHC Run 3 milliQan detector

Speaker
Matt Joyce

17:00-17:15

New Physics Results from the FASER Experiment

Speaker
Ansh Sameer Desai

17:15-17:30

The Light Dark Matter eXperiment (LDMX)

Speaker
Jessica Pascadlo

17:30

16:00

Dark Matter: Direct Detection

Session | **Location:** University of Pittsburgh, David Lawrence Hall 120 | **Convener:** Rodolfo Capdevilla

16:00-16:15

Shining Light on the Dark Matter Problem With LZ

Speaker
Matthew Szydagis

16:15-16:30

The Photo Detection Units of the DarkSide-20k experiment for WIMPs direct detection

Speaker
Pablo Kunze

16:30-16:45

The Migdal Effect in Semiconductors for the Effective Field Theory of Dark Matter Direct Detection

Speaker

Megan McDuffie

16:45-17:00

(Super)heavy Z' -Portal Dark Matter Scenario and Complementarity between Direct Dark Matter Detection Experiments and Z' Boson Searches at the LHC

Speaker

PUJA DAS

17:00-17:15

Multiphonon Processes in Spin-Dependent Dark-Matter Scattering

Speaker

Bethany Suter

17:15-17:30

-

17:30

Monday 13 May

14:00

Dark Matter: Model Building

Session | **Location:** University of Pittsburgh, David Lawrence Hall 120 | **Convener:** Robert McGehee

14:00-14:15 **Probing Heavy Asymmetric Dark Matter with the Glashow Resonance**

Speaker

Qinrui Liu

14:15-14:30 **Phase Transition of Conformal Freeze-In Dark Matter**

Speaker

Lillian Luo

14:30-14:45 **Pure Glue Dark Sector Cosmology**

Speaker

Riku Mizuta

14:45-15:00 **Forbidden Conformal Dark Matter at a GeV**

Speaker

Steven Ferrante

15:00-15:15

Recycling: A New Mechanism for Producing Ultra Heavy Particle Dark Matter

Speaker

Thomas Gehrman

15:15-15:30 **Higgsino Signals from White Dwarfs in the Inner Galaxy**

Speaker

Javier Fernández Acevedo

15:30

14:00

Dark Matter: ULDM

Session | **Location:** University of Pittsburgh, David Lawrence Hall 104 | **Convener:** Erwin Tanin

14:00-14:15 **MagLev for Dark Matter**

Speaker

Zhen Liu

14:15-14:45 -

14:45-15:00 **Probing (ultra-) light Dark Matter Using Mössbauer Spectroscopy**

Speaker

Abhishek Banerjee

15:00-15:15 **Electron Trap as a meV Axion and Dark Photon Dark Matter Detector**

Speaker

Yawen Xiao

15:15-15:30 **Atom interferometer detection of dark matter**

15:30	<p>Speaker Yufeng Du</p>
16:00	<p>Dark Matter: Model Building Session Location: University of Pittsburgh, David Lawrence Hall 120 Conveners: Julian Heeck, Julian Heeck</p>
	<p>16:00-16:15 Weaker gravity and thermal relic abundance</p> <p>Speaker Matthew Sullivan</p>
	<p>16:15-16:30 The Power of the Dark Sink</p> <p>Speaker Robert McGehee</p>
	<p>16:30-16:45 Indirect searches for dark matter in the time domain</p> <p>Speaker Ngan Nguyen</p>
	<p>16:45-17:00 Signals of ALP-Mediated Dark Matter and its UV Completions</p> <p>Speaker John Coffey</p>
	<p>17:00-17:15 QCD Axion-mediated Dark Matter</p> <p>Speaker Pankaj Munbodh</p>
17:30	<p>17:15-17:30 -</p>

Tuesday 14 May

14:00

Dark Matter: PBH and Atomic DM

Session | **Location:** University of Pittsburgh, David Lawrence Hall 120 | **Conveners:** Yue Zhao, Yue Zhao

14:00-14:15

Close encounters of the primordial kind: a new observable for primordial black holes as dark matter

Speaker

Benjamin Lehmann

14:15-14:30

Feedback in the dark: a critical examination of CMB bounds on primordial black holes

Speaker

Gregory Suzcwski

14:30-14:45

Dissipative Dark Matter in a Slow Cooker: Delayed Dark Clumps and Primordial Black Holes

Speaker

J. Leo Kim

14:45-15:00

Constraining atomic dark matter with the high-redshift UV luminosity function

Speaker

Jared Barron

15:00-15:15

Atomic Dark Matter Capture in the Earth

Speaker

Keegan Humphrey

15:15-15:30

Lyman-alpha Constraints on Atomic Dark Matter with N-body Simulation

Speaker

Linda Yuan

15:30

16:00

Dark Matter: Astrophysical Probes

Session | **Location:** University of Pittsburgh, David Lawrence Hall 120 | **Convener:** Benjamin Lehmann

16:00-16:15

Probing the pulsar explanation of the Galactic-Center GeV excess using continuous gravitational-wave searches

Speaker

Yue Zhao

16:15-16:30

Optimal Celestial Bodies for Dark Matter Detection

Speaker

Joshua Tong

16:30-16:45

Effects of low boosted dark matter annihilation on galactic signals

Speaker

Steven Clark

16:45-17:00

Dark Kinetic Heating of Exoplanets and Brown Dwarfs

Speaker

Aidan Reilly

17:00-17:15

Milky Way White Dwarfs as Sub-GeV to Multi-TeV Dark Matter Detectors

Speaker

Lillian Santos-Olmsted

17:15-17:30

Constraining bosonic asymmetric dark matter with neutron star mass-radius measurements

Speaker

Nathan Rutherford

17:30

Wednesday 15 May

14:00

Dark Matter: ULDM and Freeze-in

Session | **Location:** University of Pittsburgh, David Lawrence Hall 120 | **Convener:** Matthew Sullivan

14:00-14:15 **Dark Matter Searches on a Photonic Chip**
Speaker
 Christina Gao

14:15-14:30 **Boosted Dark Photons - Looking for Light Dark Matter with Dark Light**
Speaker
 R. Andrew Gustafson

14:30-14:45 **Thermal effects in freeze-in neutrino dark mater production**
Speaker
 Dr Michele Lucente

14:45-15:00 **Dark Matter Production During Warm Inflation via Freeze-In**
Speaker
 Barmak Shams Es Haghi

15:00-15:15 **Freeze-in Cogenesis of Asymmetric Dark Matter**
Speaker
 Michael Shamma

15:15-15:30 **Majoron echoes of Leptogenesis**
Speaker
 Swapnil Dutta

15:30

16:00

Dark Matter: WIMPs, DM Simulation and ML

Session | **Location:** University of Pittsburgh, David Lawrence Hall 120 | **Convener:** Barmak Shams Es Haghi

16:00-16:15
A WIMP Status Report: Constraints and Discovery Prospects for Singlet-Doublet Dark Matter
Speaker
 Evan Petrosky

16:15-16:30 **The Inner Dark Matter Distribution in Hydrodynamic Simulations**
Speaker
 Abd El Aziz Hussein

16:30-16:45
Kinetic Simulations of Collisionless Shock Formation in the Dark Sector
Speaker
 Pierce Giffin

16:45-17:00

Sweeping the Dust Away: An unbiased map of the Milky Way's gravitational potential using unsupervised ML

Speaker

Eric Putney

17:00-17:30

-

17:30