The 10th LCTP Spring Symposium : Hunting for Particle Dark Matter

Report of Contributions

https://indico.global/e/1382

Contribution ID: **1** Type: **not specified**

Ultraheavy Dark Matter and Neutrinos from Muon Pair Production

Monday 5 May 2025 09:40 (35 minutes)

Presenter: HOOPER, Dan (University of Wisconsin, Madison)

Contribution ID: **2** Type: **not specified**

The CCD program for rare-event searches

Monday 5 May 2025 10:15 (35 minutes)

Presenter: BOTTI, Ana Martina (Fermilab)

Contribution ID: **3** Type: **not specified**

Solving the Fundamental Challenges of meV-GeV Dark Matter Searches with Calorimeters

Monday 5 May 2025 11:20 (35 minutes)

Presenter: PYLE, Matt (Berkeley)

Contribution ID: **4** Type: **not specified**

The Role of Molecules in the Search for Dark Matter.

Monday 5 May 2025 11:55 (35 minutes)

Presenter: BLANCO, Carlos

Contribution ID: **5** Type: **not specified**

A Moving Target: Direct Detection in the Light DM Landscape

Monday 5 May 2025 14:00 (35 minutes)

Presenter: MCGEHEE, Robert (University of Minnesota)

Contribution ID: **6** Type: **not specified**

Breathing new life into 131 GeV scattering targets

Monday 5 May 2025 14:35 (35 minutes)

Presenter: Dr SORENSEN, Peter (LBL / Berkeley Lab)

Contribution ID: **7** Type: **not specified**

The SuperCDMS SNOLAB Experiment and Beyond

Monday 5 May 2025 15:40 (35 minutes)

Presenter: Prof. FIGUEROA-FELICIANO, Enectali (Northwestern University)

Contribution ID: **8** Type: **not specified**

Probing benchmark models of hidden-sector dark matter with DAMIC-M

Monday 5 May 2025 16:15 (35 minutes)

Presenter: NORCINI, Danielle (Johns Hopkins University)

Contribution ID: **9** Type: **not specified**

Direct Detection With Magnons

Monday 5 May 2025 16:50 (35 minutes)

To directly detect dark matter significantly lighter than a GeV, experiments must utilize the sub-eV energy excitations in condensed matter systems. Phonons, collective excitations of lattice vibrations, naturally have energies in the 1-100 meV range and are promising targets for spin-independent dark matter interactions. However, their response is generally suppressed for spin-dependent dark matter couplings. In such cases, magnons, collective excitations of spin waves, offer a more favorable detection pathway, exhibiting similar kinematic properties to phonons but enhanced sensitivity to spin-dependent interactions. In this talk we'll discuss calculating the dark matter-magnon scattering rate from both a first-principles approach and a data-driven approach using neutron scattering data collected with the MAPS spectrometer at the ISIS Neutron and Muon Source. Additionally, we'll explore how magnons can also be used to search for electron-coupled axion dark matter.

Presenter: TRICKLE, Tanner

Contribution ID: **10** Type: **not specified**

Cosmic Stability of Dark Matter from Pauli Blocking

Tuesday 6 May 2025 09:30 (35 minutes)

Presenter: BATELL, Brian Thomas

Contribution ID: **11** Type: **not specified**

Dark QCD: the Next Frontier in Dark Matter

Tuesday 6 May 2025 10:05 (35 minutes)

There has been a surge of interest in hidden valley models with new, strong forces, sometimes called “dark QCD”. These models propose asymmetric, composite dark matter in the form of “dark hadrons” that would evade direct and indirect bounds as well as typical collider DM searches for large missing transverse momentum accompanied by radiation. However, evidence of these models can still be found in collider datasets by targeting their unique phenomenological signatures, which include semivisible jets, emerging jets, and soft unclustered energy patterns. We will present the latest experimental results for these signatures and discuss the significant strides in exploring the vast space of dark QCD models. We will further discuss the prospects for dramatic expansions in sensitivity via machine learning.

Presenter: PEDRO, Kevin (Fermi National Accelerator Lab. (US))

Contribution ID: **12** Type: **not specified**

Searches for Dark Sector Particles at CMS and SpinQuest/DarkQuest

Tuesday 6 May 2025 11:45 (35 minutes)

Presenter: SPERKA, David (Boston University (US))

Contribution ID: **13** Type: **not specified**

Dark Sector Searches at Fixed (Thin) Target Experiments

Tuesday 6 May 2025 11:10 (35 minutes)

Author: TOMPKINS, Lauren Alexandra (Stanford University (US))

Presenter: TOMPKINS, Lauren Alexandra (Stanford University (US))

Contribution ID: **14** Type: **not specified**

Gravitational Wave and Ultralight Dark Matter Detection with Binary Resonances

Tuesday 6 May 2025 14:00 (35 minutes)

Presenter: FOSTER, Josh (Fermilab)

Contribution ID: **15** Type: **not specified**

Finding the Unknown

Tuesday 6 May 2025 14:35 (35 minutes)

Presenter: HAYDEN, Dan

Contribution ID: **16** Type: **not specified**

Using Ancient Rocks to Look for Neutrinos and Dark Matter

Tuesday 6 May 2025 15:10 (35 minutes)

Presenter: Prof. SPITZ, Joshua (University of Michigan)

Contribution ID: **17** Type: **not specified**

Observing Dark Matter Decays to Gravitons via Graviton-Photon Conversion

Tuesday 6 May 2025 16:15 (35 minutes)

Presenter: KRNJAIC, Gordan (Fermilab)

Contribution ID: **18** Type: **not specified**

Searching for millicharged particles from the LHC to LANL

Tuesday 6 May 2025 16:50 (35 minutes)

Presenter: CITRON, Matthew Daniel (University of California Davis (US))

Contribution ID: **19** Type: **not specified**

Higgs and Flavor Physics, and Quantum Entanglement

Wednesday 7 May 2025 09:30 (35 minutes)

Presenter: WAGNER, Carlos E.M.

Contribution ID: **20** Type: **not specified**

Dark Matter Direct Detection with Xenon

Wednesday 7 May 2025 10:05 (35 minutes)

Presenter: Prof. KRAVITZ, Scott (University of Texas at Austin)

Contribution ID: **21** Type: **not specified**

Progress on liquid-noble bubble chambers: The SBC-LAr10 detector at Fermilab

Wednesday 7 May 2025 11:10 (35 minutes)

Presenter: DAHL, Eric

Contribution ID: **22** Type: **not specified**

Qubit sensors with meV resolution for rare-event searches

Wednesday 7 May 2025 11:45 (35 minutes)

Presenter: RAMANATHAN, Karthik

Contribution ID: **23** Type: **not specified**

Superradiant interactions of cosmic noise

Wednesday 7 May 2025 12:20 (35 minutes)

Presenter: ARVANITAKI, Asimina (Perimeter Institute)