

# **GUINEAPIG 2023 Workshop on Light Dark Matter**



## **Report of Contributions**

Contribution ID: 2

Type: **not specified**

## **Probing cosmic histories in the lab**

*Tuesday, 11 July 2023 10:15 (30 minutes)*

**Presenter:** SHELTON, Jessie (UIUC)

Contribution ID: 3

Type: **not specified**

## **New Opportunities to Detect Axion Dark Matter**

*Tuesday, 11 July 2023 10:45 (30 minutes)*

**Presenter:** BERLIN, Asher (Fermilab)

Contribution ID: 4

Type: **not specified**

## **QUEST-DMC: Probing Dark Matter with Nanowires, Superfluid Helium-3 and Quantum Sensors**

*Wednesday, 12 July 2023 13:15 (30 minutes)*

**Presenter:** FRANCHINI, Paolo (University of Lancaster)

Contribution ID: 5

Type: **not specified**

## **New directions for direct detection with dielectrics**

*Tuesday, 11 July 2023 13:15 (30 minutes)*

**Presenter:** LEHMANN, Ben (MIT)

Contribution ID: 6

Type: **not specified**

## **Reaching the meV Scale for Direct Detection with Quantum Sensors**

*Wednesday, 12 July 2023 10:45 (30 minutes)*

**Presenter:** KURINSKY, Noah (SLAC)

Contribution ID: 7

Type: **not specified**

## **Leveraging Quantum Sensors for Dark Matter Detection**

*Tuesday, 11 July 2023 15:15 (30 minutes)*

**Presenter:** BAXTER, Daniel (University of Chicago)

Contribution ID: 8

Type: **not specified**

## Progress Toward Low-Mass Dark Matter Detection with Superfluid He (HeRALD) and Polar Crystals (SPICE)

*Thursday, 13 July 2023 10:15 (30 minutes)*

We report on the recent progress of the SPICE/HeRALD (or TESSERACT) collaboration in developing detectors for dark matter masses down to 10MeV with the potential to upgrade for reach down to sub-MeV masses. SPICE and HeRALD are currently in an R&D phase of pushing the recoil energy thresholds of Transition Edge Sensors (TES) down to the sub-eV range, which can then be applied to well-motivated target materials. HeRALD uses superfluid  $^4\text{He}$  as a target, which has the advantage of a low-mass target nucleus and quantum evaporation-based detection of phonon energy. SPICE employs crystalline targets such as the polar crystals GaAs and Sapphire, which couple strongly to dark photon mediated DM. Both experiments are currently making pushes to reduce the ubiquitous low-energy excess background, which originates from spontaneous phonon emission by the calorimeter materials themselves and likely is the primary background in phonon-based detector experiments at eV-scales.

**Presenter:** OSTERMAN, David (University of Massachusetts)



Contribution ID: 9

Type: **not specified**

## **Searching for sub-GeV dark matter with SuperCDMS**

*Wednesday, 12 July 2023 10:15 (30 minutes)*

**Presenter:** HONG, Ziqing (University of Toronto)

Contribution ID: **10**

Type: **not specified**

## **The entanglement of quantum computing and dark matter searches**

*Tuesday, 11 July 2023 14:45 (30 minutes)*

**Presenter:** WILSON, Christopher (University of Waterloo)

Contribution ID: 11

Type: **not specified**

## Latest results from the NEWS-G experiment

*Wednesday, 12 July 2023 12:45 (30 minutes)*

**Presenter:** COQUILLAT, Jean-Marie (Queen's University)

Contribution ID: 12

Type: **not specified**

## **Improving dark matter sensitivities with new ionization detectors**

*Tuesday, 11 July 2023 12:45 (30 minutes)*

**Presenter:** EGAÑA-UGRINOVIC, Daniel (Perimeter Institute)

Contribution ID: 13

Type: **not specified**

## **Expanding Dark Matter Direct Detection Reach Through Loops**

*Wednesday, 12 July 2023 14:45 (30 minutes)*

**Presenter:** DIAMOND, Melissa (Queen's University)

Contribution ID: 14

Type: **not specified**

## **Update on the Montreal X17 Search Experiment**

*Wednesday, 12 July 2023 15:45 (30 minutes)*

**Presenter:** ZACEK, Viktor (University of Montreal)

Contribution ID: 15

Type: **not specified**

## Thermal-ish targets for Dirac-ish dark matter

*Wednesday, 12 July 2023 15:15 (30 minutes)*

**Presenter:** HEEBA, Saniya (McGill University)

Contribution ID: 17

Type: **not specified**

## **CUTE: A Cryogenic Underground TEST Facility at SNOLAB**

*Thursday, 13 July 2023 10:45 (30 minutes)*

**Presenter:** KUBIK, Andy (SNOLAB)



Contribution ID: **18**

Type: **not specified**

## **Sub-GeV DM Detection using Superconducting Tunnel Junction Sensors**

*Tuesday, 11 July 2023 15:45 (30 minutes)*

**Presenter:** KIM, Geon-Bo (Lawrence Livermore National Laboratory)

Contribution ID: 19

Type: **not specified**

## **Developments in sub-GeV dark matter direct detection with novel targets: Nanomaterials and Molecules**

**Presenter:** BLANCO, Carlos (Princeton University/Stockholm)

Contribution ID: 20

Type: **not specified**

# **An Analytic Approach to Light Dark Matter Attenuation**

*Thursday, 13 July 2023 11:15 (30 minutes)*

**Presenter:** CAPPIELLO, Christopher (Queen's University)