

Contribution ID: 11

Type: **not specified**

Probing Sub-GeV Dark Matter with the HeRALD Detector

Friday, June 30, 2023 3:00 PM (45 minutes)

The TESSERACT collaboration will search for dark matter particles below the proton mass through interactions with two types of novel, ultra-sensitive detectors. These detectors, SPICE & HeRALD, aim to provide leading sensitivities to low mass dark matter candidates. The HeRALD experiment will use superfluid He4 as a target material, which is an ideal kinematic match for dark matter nuclear recoils. Both detectors will be read out by Transition Edge Sensors (TES) that are sensitive to phonon, roton, and light signals from LHe. In this talk I will be discussing the current R&D progress on HeRALD at LBNL, UC Berkeley, and UMASS Amherst. Lastly, I will briefly discuss progress on the eventual underground detector.

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