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The SuperCDMS Experiment at SNOLAB

Wednesday 9 July 2025 12:00 (20 minutes)

Located 2km underground at SNOLAB, the SuperCDMS (CryogenicDark Matter Search) experiment is currently being constructed and will focus on the detection of low-mass (<10 GeV/c2) dark matter particles. The experiment will utilize 6 silicon, and 18 germanium cryogenic calorimeters arranged in 4 detector towers. There are two types of individual detectors: HV and iZIP. The HV detectors are instrumented with phonon sensors and are operated at a high voltage (100V) to take advantage of the Neganov-Trofimov-Luke effect and achieve a lower threshold. In addition to the phonon sensors, the iZIP detectors have charge sensors, which allow for event-by-event particle discrimination between electron and nuclear recoils. Commissioning is expected to begin in mid-2025, with the first science run occurring in late 2025. This talk will provide an overview of the SuperCDMS experiment, detail its main science goals and key results from a recent testing of an HV detector tower inside the Cryogenic Underground TEst (CUTE) facility at SNOLAB.

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