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Current and Future Dark Matter Searches with SuperCDMS Experiment

Friday, August 12, 2011 8:00 AM (20 minutes)

The Cryogenic Dark Matter Search (CDMS) experiment and its successor, SuperCDMS, use solid-state detectors operated near 40 mK to search for Weakly Interacting Massive Particles (WIMPs). The experiment measures the ionization and athermal phonons from particle interactions to discriminate WIMP candidate events (nuclear recoils) from background events (electron recoils) with very high efficiency. To further increase the discrimination power, and the resulting sensitivity of the experiment, SuperCDMS has developed an improved detector technology and produced interleaved Z-sensitive Ionization and Phonon (iZIP) detectors. In addition, to reduce the background induced by cosmic-ray particles, SuperCDMS is planning to relocate from the present site at the Soudan Underground Laboratory (Minnesota, USA) to a deeper underground site at SNOLAB (Sudbury, Canada). In this talk I will describe the experiment, the performance of the iZIP detectors, and future plans for SuperCDMS at SNOLAB.

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