

Abstract Submitted  
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**Dark matter search with a SuperCDMS single-charge-sensitive device** VALENTINA NOVATI, Pacific Northwest National Laboratory, SUPER-CDMS COLLABORATION — The Super Cryogenic Dark Matter Search (SuperCDMS) uses high-sensitivity silicon and germanium detectors to directly search for interactions from galactic dark matter (DM). New devices instrumented with ultra-high-resolution phonon sensors exhibit single-charge sensitivity, making it possible to search for sub-GeV-mass DM candidates such as electron-recoiling DM, dark photons and axion-like particles. Improved sensitivity to very small energy depositions is achieved thanks to new phonon-sensor designs and through use of the Neganov-Trofimov-Luke effect, which enables amplification of the phonon signal via application of an electric field. Because of the phenomenal energy sensitivity, new searches for sub-GeV DM candidates are possible, even with these devices operated in an above-ground (unshielded) laboratory. In this talk, I will present results from a new search for sub-GeV DM candidates using a modest 1.3 gram-day exposure, acquired with a new 1-gram silicon device characterized by a 3 eV baseline energy resolution and with a charge resolution equal to 0.03 of a single electron-hole pair.

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