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Constraints on Light WIMPs with SuperCDMS

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The SuperCDMS experiment has operated a 9kg array of cryogenic detectors to search for weakly interacting massive particles (WIMPs) in the Soudan Underground Lab since early 2012. We have recently analyzed 577 kg-d of low-energy data on a subset of detectors with 1.6 keVnr energy threshold. The athermal phonon measurement of the detectors provides position sensitivity, and therefore signal/background discrimination, near the energy threshold of the experiment. Using boosted decision trees and background simulations to optimize our sensitivity to light WIMPs, we set an upper limit on the WIMP-nucleon cross section of 1.2e-42 cm2 at 90% CL. This talk will present the results of this low-energy analysis in the context of other recent CDMS results using CDMSlite and CDMSII-Si data.

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Classification de Session: Astrophysical neutrinos - Dark Matter

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