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Backgrounds and Discrimination Algorithms for Low-energy SuperCDMS Soudan Data ADAM ANDERSON, Massachusetts Institute of Technology, SUPERCDMS COLLABORATION — The SuperCDMS experiment at Soudan uses an array of cryogenic germanium detectors called iZIPs to search for weakly interacting massive particles (WIMPs), a leading dark matter candidate. A key feature of the iZIP is its measurement of athermal phonons from WIMP interactions, which provides some position sensitivity and background rejection at energies near the ~1.6 keVnr threshold of the experiment. This talk describes the detector and background models that allow us to simulate the expected WIMP signal and backgrounds for a dedicated low-mass (5-15 GeV/c^2) WIMP search. We then optimize background discrimination using rectangular cuts and boosted decisions tree classifiers. These algorithms are used to maximize the sensitivity of an analysis of low-energy SuperCDMS Soudan data.

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