

Abstract Submitted
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Recent Results from The Cryogenic Dark Matter Search II (CDMSII) PETER REDL, Stanford University, CRYOGENIC DARK MATTER SEARCH COLLABORATION — The Cryogenic Dark Matter Search II (CDMS II) operated a 4.75 kg array of Ge and Si ZIP detectors at the Soudan Underground Laboratory. Recent results using the Si detectors provide 3 events which are consistent with being from low-mass ($<10 GeV^2$) dark matter. To explore further this interesting region of parameter space we use Geant4 simulations, that demonstrate excellent agreement with recent SuperCDMS data, to simulate the CDMS II surface-event background. An accurate low-energy background model is constructed from the simulation in order to test a low-mass dark matter hypothesis in the lowest-energy Ge recoils using a maximum-likelihood technique. I will present results from this model that demonstrate a good understanding of our low-energy backgrounds. Additionally, I will discuss results obtained from extending the CDMS II background-free (higher-threshold) WIMP searches by lowering the energy thresholds for both the Ge and Si detectors (while maintaining near-zero background) to gain additional sensitivity to low-mass dark matter. The improvements in background modeling and analysis techniques presented here give important insights moving forward to the next generation of direct detection experiments.

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