

Abstract Submitted
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Geant4 Simulations of SuperCDMS iZip Detector Charge Carrier Propagation ROBERT AGNESE, Univ of Florida - Gainesville, DANIEL BRANDT, SLAC National Accelerator Laboratory, PETER REDL, Stanford University, MAKOTO ASAI, SLAC National Accelerator Laboratory, DANA FAIEZ, University of California Berkeley, MIKE KELSEY, ENRICO BAGLI, SLAC National Accelerator Laboratory, ADAM ANDERSON, CHANDLER SCHLUPF, Massachusetts Institute of Technology, SUPERCDMS COLLABORATION — The SuperCDMS experiment uses germanium crystal detectors instrumented with ionization and phonon readout circuits to search for dark matter. In order to simulate the response of the detectors to particle interactions the SuperCDMS Detector Monte Carlo (DMC) group has been implementing the processes governing electrons and phonons at low temperatures in Geant4. The charge portion of the DMC simulates oblique propagation of the electrons through the L-valleys, propagation of holes through the Γ -valleys, inter-valley scattering, and emission of Neganov-Luke phonons in a complex applied electric field. The field is calculated by applying a directed walk search on a tetrahedral mesh of known potentials and then interpolating the value. This talk will present an overview of the DMC status and a comparison of the charge portion of the DMC to experimental data of electron-hole pair propagation in germanium.

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