Poster

Phonon-Only Event Analysis in SuperCDMS iZIP Detectors

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SuperCDMS is currently operating a 10-kg array of cryogenic germanium detectors in the Soudan underground laboratory to search for weakly interacting massive particles, a leading dark matter candidate. These detectors, known as iZIPs, measure both ionization and athermal phonons from particle interactions with sensors on both sides of a Ge crystal. In addition, the iZIP has a veto electric field that efficiently identifies events on the top and bottom surfaces of the detectors. We demonstrate methods of identifying surface events using only information from the phonon signal of the detector. Though less powerful than the charge-based discrimination, the superior resolution of TES-based phonon sensors permits surface event discrimination at much lower energies than charge- based approaches.