

Abstract Submitted
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Estimation and Optimization of Surface Event Background Leakage in CDMS-II DAVID C. MOORE, California Institute of Technology, CDMS COLLABORATION — The Cryogenic Dark Matter Search (CDMS) measures both the ionization and phonon energy of interactions in the detectors to discriminate between electromagnetic backgrounds and nuclear recoils from possible WIMP interactions. For a given phonon energy, nuclear recoils produce a smaller amount of ionization than electromagnetic backgrounds. However, electromagnetic interactions near the surface of the detectors can also have suppressed ionization and constitute the dominant background for the CDMS-II experiment. Surface interactions can be distinguished from bulk nuclear recoils by measuring the promptness of the athermal phonon signal, allowing the rejection of $> 99.5\%$ of these surface events while maintaining significant acceptance of nuclear recoils. I will describe the estimation of the surface event background from ^{133}Ba calibration data, accounting for the differences in the energy spectrum and spatial distribution of surface events between calibration and WIMP search data. I will also discuss the optimization of the surface event rejection cut to maximize signal efficiency for a given expected leakage.

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