

Abstract Submitted
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Measurement of Charge Transport in Large-Size Ge Detectors Made from USD-Grown Crystals Below 100 mK¹ PRAMOD ACHARYA, University of South Dakota, MATTHEW FRITTS, NICHOLAS MAST, DEREK SINCAVAGE, ZACHARY WILLIAMS, MICHAEL GARDNER, VUK MANDIC, University of Minnesota, DONGMING MEI, University of South Dakota — The main goal of this study is to understand charge transport and measure the charge collection efficiency within a SuperCDMS-style detector made from a USD-grown crystal. We use Am-241 source to observe the 59.54 keV peak in spectra from each channel to characterize the charge collection efficiency as a function of the bias voltage. The measurements will help to understand the charge transport, charge trapping, and the charge generation processes inside the detector at mK temperature. The results will also characterize the USD crystal for whether it is reliable in making large-sized detectors. We investigate the charge breakdown and charge generation processes correlated to the impurity level.

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