

Abstract Submitted
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Dead Layer Measurement in P-type Point Contact Germanium Detectors for the MAJORANA DEMONSTRATOR SOPHIA ELIA, University of California, Berkeley, THE MAJORANA COLLABORATION — The MAJORANA DEMONSTRATOR will search for the neutrinoless double beta decay ($0\nu\beta\beta$) of the isotope ^{76}Ge . In anticipation of the future large-scale experiments, its goal is to demonstrate a path forward to a background rate of one cnt/(ROI-t-y) in a 4 keV region around the Q-value of the ^{76}Ge $0\nu\beta\beta$. The MAJORANA DEMONSTRATOR consists of an array of high purity germanium detectors arranged in strings. Before installation in the cryostat, each string has been characterized. A vertical scan along the string (Z-scan) using radioactive sources is performed to measure the dead layer of each detector while an azimuthal scan is taken to measure the orientation of the crystal axes, useful for axion physics. Understanding the dead layer of the crystals is crucial to precisely determine the effective mass of the detectors. This poster presents Z-scan measurements and data analysis. The dead layer determination obtained through detailed comparison of simulation and data will be discussed.

Sophia Elia
University of California, Berkeley

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