Abstract Submitted
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Automation of the Characterization of High Purity Germanium Detectors[1] CHARLES "CHIP" DUGGER, Los Alamos National Laboratory, WEAK INTERACTIONS TEAM[2] — Neutrinoless double beta decay is a rare hypothesized process that may yield valuable insight into the fundamental properties of the neutrino. Currently there are several experiments trying to observe this process, including the Majorana DEMONSTRAOR experiment, which uses high purity germanium (HPGe) detectors to generate and search for these events. Because the event happens internally, it is essential to have the lowest background possible. This is done through passive detector shielding, as well as event discrimination techniques that distinguish between multi-site events characteristic of gamma-radiation, and single-site events characteristic of neutrinoless double beta decay. Before fielding such an experiment, the radiation response of the detectors must be characterized. A robotic arm is being tested for future calibration of HPGe detectors. The arm will hold a source at locations relative to the crystal while data is acquired. Several radioactive sources of varying energy levels will be used to determine the characteristics of the crystal. In this poster, I will present our work with the robot, as well as the characterization of data we took with an underground HPGe detector at the WIPP facility in Carlsbad, NM (2013).

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