

Abstract Submitted  
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**A High Purity Germanium Diode Operated as a Radiation Detector in Liquid Argon** JOHN L. ORRELL, Pacific Northwest National Laboratory, MAJORANA COLLABORATION — Guided by the pioneering work of the GERDA Collaboration on next generation neutrinoless double beta decay experiments, we have begun an investigation of the operation of bare germanium (Ge) radiation detectors in liquid argon. Liquid argon (LAr) serves both as a cryogenic medium to cool the Ge crystal and as a scintillating veto shield. The veto shield has two distinct functions. First, the LAr tags and rejects radiation from external sources. Second, the LAr suppresses the Compton background arising from gamma-rays that only partly deposit their energy inside the Ge crystal. Current results from operating the Ge crystal as a radiation detector in LAr are presented. The value of this type of radiation detector is discussed regarding two potential applications. The first is the need for increasingly low-background, high-sensitivity radiation counters. The second is the next generation of neutrinoless double beta decay experiments currently under development. The Majorana Experiment is one such project that will benefit from this line of research.

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