

Detector Development for the MAJORANA Demonstrator Project

MAJORANA is a tonne-scale ^{76}Ge neutrinoless double-beta decay experiment with the goal of probing the Majorana neutrino mass in the inverted mass hierarchy scenario. The experiment must meet the stringent requirement of fewer than 1 background count/(keV tonne yr) in the 4-keV region around the Q value of 2039 keV. The Collaboration is building a ~60-kg prototype, the MAJORANA Demonstrator, of high purity germanium detectors, half of which will be enriched in ^{76}Ge . Several detector options were pursued in order to assess and optimize their ability in rejecting radioactive background events that interact at multiple sites in the detectors. The most promising option is the class of p-type point-contact detectors. In this poster, the detector development program of MAJORANA is presented.

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