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Updates from the Majorana Demonstrator $0\nu\beta\beta$ Decay Search Experiment and Its Background Characterization[1] INWOOK KIM, Los Alamos National Laboratory, MAJORANA COLLABORATION — The Majorana Demonstrator aims to search for neutrinoless double-beta decay ($0\nu\beta\beta$) of ^{76}Ge in large arrays of germanium detectors. It is comprised of two modules of p-type point contact detectors, which are comprised of 15.1 kg of natural and 29.7 kg of ^{76}Ge-enriched germanium detectors. With its unprecedented energy resolution of 2.5 keV FWHM and the low background rate of 12 cts/(FWHM t yr) at the ^{76}Ge Q-value of 2039 keV, the Demonstrator probes $0\nu\beta\beta$, searching for new physics beyond the standard model (SM). The Demonstrator has been operating since 2016, at the 4850' level of the Sanford Underground Research Facility. Optimization of background-reducing analysis techniques and the development of a complete background model are expected to improve background rejection, and hence to increase the half-life limit. These background analysis techniques will also inform the design and background expectations in the next-generation LEGEND experiment. In this talk, new results from the improved analysis will be discussed. The model of backgrounds observed by the Majorana Demonstrator and the LEGEND experiment's background expectations from the model will also be discussed.

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