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The Majorana Demonstrator Low-Energy Program MICHAEL MILLER, University of Washington, MAJORANA COLLABORATION — The MAJORANA DEMONSTRATOR is a 60 kg germanium detector array currently being constructed for operation at the 4850 ft level of the Sanford Underground Lab. The core physics program is to probe the Majorana/Dirac nature of neutrinos by searching for neutrinoless double beta decay. However, recent developments in germanium detector technology have dramatically lowered the detector energy threshold from approximately 2-4 keV to as low as 100-400 eV. Combined with the ultra-low-background design, the low-energy threshold enables additional physics opportunities for the MAJORANA DEMONSTRATOR such as searches for low-mass WIMPS and axions. We present (i) highlights from the ongoing R&D towards low-background low-noise detectors, including updates on readout, digitization and trigger; (ii) sensitivity limits from prototype detectors currently operating in deep-underground locations; and (iii) sensitivity projections for the 60 kg MAJORANA DEMONSTRATOR array.

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