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Recent Results from the MAJORANA DEMONSTRATOR

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The MAJORANA Collaboration has completed construction and is now operating an array of high purity Ge detectors searching for neutrinoless double-beta decay in 76Ge. The array, known as the MAJORANA DEMONSTRATOR, is comprised of 44 kg of Ge detectors (30 kg enriched to 88% in 76Ge) installed in an ultra-low background compact shield at the Sanford Underground Research Facility in Lead, South Dakota. The initial goals of the DEMONSTRATOR are to establish the required background and scalability of a Ge-based next-generation ton-scale experiment. We will report initial background levels in the $0\nu\beta\beta$ region of interest. Recent physics results will also be presented, which utilize P-type point-contact detectors with sub-keV energy thresholds to search for physics beyond the standard model at low energies; first results for searches of bosonic dark matter, solar axions, Pauli exclusion principle violation, and electron decay have been published. Finally, we will discuss the implications for the proposed future ton-scale 76Ge $0\nu\beta\beta$ LEGEND experiment.

Presenter: GILLISS, Thomas (U)

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