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Rare Low-Energy Event Searches with the MAJORANA DEMONSTRATOR

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The MAJORANA DEMONSTRATOR is currently searching for neutrinoless double-beta decay in ^{76}Ge and will demonstrate the feasibility to deploy a tonne-scale experiment in a phased and modular fashion. It consists of two modular arrays of natural and ^{76}Ge-enriched germanium detectors totaling 44.1 kg, of which 29.7 kg is enriched, located at the 4850' level of the Sanford Underground Research Facility in Lead, South Dakota, USA. The low-backgrounds and low thresholds (< 1 keV) achieved by the DEMONSTRATOR allow for additional rare-event searches at low-energies, e.g. searches for low-mass WIMPs, bosonic dark matter, and solar axions. In this work, we will present results and ongoing efforts related to these rare-event searches and discuss the future reach of MAJORANA.

Summary

Searches for low-mass WIMPs, bosonic dark matter, and solar axions with the MAJORANA DEMONSTRATOR.

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