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Gulden Othman (U. of North Carolina-Chapel Hill): Low-Mass WIMP Search Using the MAJORANA DEMONSTRATOR

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The MAJORANA DEMONSTRATOR is currently searching for neutrinoless double-beta decays in germanium-76 with the aim of demonstrating 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, operating 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 enable additional rare-event searches at low-energies. Taking advantage of low detector thresholds and accumulated exposure allows for the opportunity to search for light-WIMPs (~ 10 GeV/ c^2). In this work, we will focus on the prospect of a light-WIMP search using the MAJORANA DEMONSTRATOR, as well as efforts to extend the search to WIMP masses below 10 GeV/ c^2 .

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