Abstract Submitted
for the DNP15 Meeting of
The American Physical Society

Performance of the Majorana Demonstrator Muon Veto System[1]

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— The MAJORANA DEMONSTRATOR is a neutrinoless double beta decay experiment operating at the 4850-ft. level of the Sanford Underground Research Facility in Lead, SD. The low-background goals of this Ge-based experiment require a muon veto system. The operation of the partial veto panel array (2/3 coverage) provides the first opportunity to study muon events during the commissioning of the Ge detectors. The Prototype Ge detector module operated in the DEMONSTRATOR shield for a total exposure of over 600 kg*day with the partial veto system. The operation of Module 1, consisting of 22.5 kg of Ge mass, in the shield with full veto panel coverage will provide a complete array to study muon-induced events in the experiment. The veto panels are synchronized with Ge detectors using a common 100MHz clock, presenting a unique opportunity to 1) study the flux and angular distribution of muons incident on the DEMONSTRATOR using the experiment's modular veto panel design, and 2) examine the effect of muon-related events on the Ge detectors. In this talk the performance of the muon veto system, including an analysis of the coincidence patterns of the incident muons and the corresponding spectra produced in the Ge detectors, is presented.

[1]This material is based upon work supported by the U.S. Department of Energy, Office of Science, Office of Nuclear Physics, the Particle Astrophysics Program of the National Science Foundation, and the Sanford Underground Research Facility.

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Date submitted: 27 Jun 2015 Electronic form version 1.4