Abstract Submitted
for the DNP20 Meeting of
The American Physical Society

Latest Results from the Majorana Demonstrator[1] ANNA REINE, University of North Carolina at Chapel Hill, MAJORANA COLLABORATION — The MAJORANA DEMONSTRATOR is a Ge-based neutrinoless double-beta decay ($0\nu\beta\beta$) experiment currently operating at the 4850' level of the Sanford Underground Research Facility. The DEMONSTRATOR contains 44 kg of p-type point contact Ge detectors (30 kg enriched in Ge-76) in two modules that are surrounded by a low background passive shield. The experiment has a leading energy resolution of 2.5 keV FWHM as well as one of the lowest backgrounds in the region of interest surrounding the double-beta decay Q-value. The DEMONSTRATOR's high-resolution electronics and use of ultrapure materials to control backgrounds will form one component of LEGEND-200's approach to increasing sensitivity to $0\nu\beta\beta$. In this talk, I will review the MAJORANA DEMONSTRATOR's latest results after analysis improvements and discuss the recent performance of the array following a hardware upgrade.

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

Anna Reine
University of North Carolina at Chapel Hill

Date submitted: 26 Jun 2020 Electronic form version 1.4