

The MAJORANA DEMONSTRATOR's search for double beta decay of ^{76}Ge to excited states of ^{76}Se

Tuesday, June 18, 2024 5:30 PM (2 hours)

The MAJORANA DEMONSTRATOR concluded its search for neutrinoless double-beta decay in ^{76}Ge in 2021. The experiment operated an array of up to 40.4 kg of p-type point contact high-purity germanium detectors, 29.7 kg of which were isotopically enriched in ^{76}Ge . The experiment is also searching for double-beta decay of ^{76}Ge to excited states of ^{76}Se . Six possible decay modes exist, each of which produce events spanning multiple detectors that can be separated from backgrounds. The DEMONSTRATOR previously set world-leading limits in the range of $(0.75 - 4.0) \times 10^{24}$ yrs (90% C.I.) on the various decay modes of ^{76}Ge . Since then, the DEMONSTRATOR has collected over twice as much exposure, and several improvements have been implemented to the analysis techniques. This poster will present the MAJORANA DEMONSTRATOR's search for double-beta decay of ^{76}Ge to excited states of ^{76}Se .

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.

Poster prize

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Session Classification: Poster session and reception 1

Track Classification: Neutrinoless Double Beta Decay