

Search for neutrinoless double beta decay with GERDA

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The GERmanium Detector Array (GERDA) collaboration searches for the hypothetical lepton number violating process neutrinoless double beta decay of Germanium-76 by operating 35 kg of enriched germanium diodes acting as both source and detector. The detectors are operated directly in liquid argon, which acts both as a coolant and as background shielding. Since the start of Phase II in 2015, the liquid argon is also instrumented with light detectors to readout scintillation light for further background suppression. The most recent limit on the half-life from GERDA is 8.0×10^{25} yr, the strongest limit set for this isotope. This was achieved with a background level of 10^{-3} counts/(keV kg yr), such that GERDA will remain "background-free" up to the entire design exposure. In May 2018, GERDA's projected half-life sensitivity will surpass 10^{26} yr, the first neutrinoless double beta decay experiment to do so. Results and analysis from this data release will be presented.

Subject

Neutrinos

Abstract Title

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