

The search for neutrinoless double beta decay with a half-life beyond 10^{26} yr with the GERDA experiment

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The GERDA experiment searches for neutrinoless double beta decay of ^{76}Ge .

A discovery of this hypothetical decay would imply the Majorana nature of neutrinos and violation of lepton number conservation.

To find this decay, with a half-life beyond 10^{25} yr, gamma-ray spectrometers made from enriched ^{76}Ge are operated directly immersed in liquid argon.

Instrumenting the argon-filled cryostat with photosensors, scintillation light enables vetoing external background to push the background level below 10^{-3} cts/(keV kg yr).

Combined with the high energy resolution of germanium detectors, the sensitivity of GERDA will not be limited by background beyond an exposure of 100 kg yr.

With a major data release this year, the exposure has now reached almost 60 kg yr, making GERDA the first experiment in the field to reach a half-life sensitivity of 10^{26} yr.

We will present the latest results of GERDA in the search for neutrinoless double beta decay.

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