Contribution ID: **143** Type: **Parallel session talk**

The Liquid Argon Instrumentation of GERDA and LEGEND-200

Tuesday 26 May 2020 16:18 (18 minutes)

The GERDA experiment reached the most stringent limit for the neutrinoless double-beta decay in ^{76}Ge. A median sensitivity of $1.1 \cdot 10^{26}$ years and a lower half-life limit of $0.9 \cdot 10^{26}$ years (90% C.L.) were achieved with a background index of $5.6^{+3.4}_{-2.4} \cdot 10^{-4}$ cts/(keV kg yr). This low background rate was obtained by a combination of pulse shape discrimination and operating bare germanium detectors in a large instrumented liquid argon (LAr) volume. The LAr instrumentation rejects events with coincident energy depositions in the germanium detectors and the surrounding LAr. In 2020 the GERDA infrastructure is handed over to the LEGEND collaboration. The first Phase, LEGEND-200, targets a background index below $2 \cdot 10^{-4}$ cts/(keV kg yr). Based on the success in GERDA, a LAr instrumentation for LEGEND-200 is currently being produced. This talk presents the results of GERDA's LAr system and describes the design of the LEGEND-200 LAr instrumentation.

Funding information

The work has been supported by the German Federal Ministry for Education and Research (BMBF) Verbundforschung.

Author: Mr KRAUSE, Patrick (Technische Universität München)

Presenter: Mr KRAUSE, Patrick (Technische Universität München)

Session Classification: Experiments: Neutrino

Track Classification: Experiments: Neutrino