



Contribution ID: 46

Type: **not specified**

GERDA: Recent Results and Future Plans

Thursday, 23 May 2013 17:45 (20 minutes)

The GERmanium Detector Array (GERDA) is an experiment designed to investigate the neutrinoless double beta decay ($0\nu\beta\beta$) in ^{76}Ge . An array of high purity germanium detectors enriched to 86% of ^{76}Ge is operated inside 65m^3 of liquid argon (LAr) inside the Laboratori Nazionali del Gran Sasso.

The experiment aims to explore the $0\nu\beta\beta$ half-life up to 1.4×10^{26} yr with a collected exposure of 100 kg yr separated into two physics phases. The data taking of Phase I started in November 2011 and is planned to finish in June 2013 with more than 20 kg yr of exposure and a background index of 2×10^{-2} cts / (keV kg yr) around the Q-value of 2039 keV. Phase II of the experiment is being prepared with 30 additional Broad Energy Germanium (BEGe) detectors and an additional instrumentation of the LAr, aiming at a background index reduction of a factor 10 w.r. to Phase I.

This talk will present the latest results of the GERDA collaboration including a new measurement of the $2\nu\beta\beta$ spectrum of ^{76}Ge and the decomposition of the background. Furthermore, the preparations for the blinded $0\nu\beta\beta$ analysis of Phase I data will be presented along with the roadmap and improvements planned for Phase II.

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Session Classification: Parallel Session G