

76Ge detector R&D strategy for LEGEND

Neutrinoless double decay ($0\nu\beta\beta$) is a powerful observable for probing new physics.

Based on the experience of GERDA and MJD experiments, the LEGEND (Large Enriched Germanium Experiment for Neutrinoless $\beta\beta$ Decay) collaboration has been founded with the goal to build a ton scale experiment and boost the $0\nu\beta\beta$ half-life sensitivity in the ^{76}Ge by two orders of magnitude with a phased approach by first making use of existing GERDA infrastructures at LNGS in Italy. This poster will present the LEGEND collaboration strategy to produce a new Ge detector design called “Inverted Coaxial Point Contact (ICPC) Ge detector” for the 200 kg phase. ICPC detector mass can be as high as 3 kg and surface to volume ratio 30% lower as compared to Gerda BEGe or MJD PPC Ge detectors. These two points are of great interest to further reduce the background coming from holders, cables, electronics and surface events that significantly contribute to running experiments.

Session and Location

Monday Session, Poster Wall #41 (Auditorium Gallery Right)

Poster included in proceedings:

yes

Primary author: Dr KERMAIDIC, Yoann (MPI Kernphysik)

Co-author: Dr RADFORD, David (Oak Ridge National Laboratory)

Presenters: Dr RADFORD, David (Oak Ridge National Laboratory); Dr KERMAIDIC, Yoann (MPI Kernphysik)

Track Classification: Poster (participating in poster prize competition)