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Front-End Electronics for the LEGEND Neutrinoless Double Beta Decay Experiment

Authorship annotation

for the LEGEND collaboration

Session and Location

Monday Session, Poster Wall #68 (Auditorium Gallery Right)

Abstract content

Two mysteries in cosmology and astroparticle physics are whether lepton number is conserved and whether the neutrino is its own anti-particle. The most practical technique to answer these questions is to search for neutrinoless double beta decays.
A highly promising way to search for this extremely rare decay is to use high-purity germanium detectors enriched in the isotope ^{76}Ge. The LEGEND experiment is a next-generation ton-scale ^{76}Ge experiment, combining the efforts of both the European GERDA- and the US Majorana experiment, as well as additional expert groups.
The signal readout is an important part of the experiment since its performance has significant impact on the background suppression capabilities and it also has to conform to stringent radiopurity constraints. In this contribution the front-end electronics concept for the first 200kg phase of the experiment (LEGEND-200) as well as the R&D efforts for the ton-scale phase (LEGEND-1000) will be presented.

Poster included in proceedings:

yes

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