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The calibration system of the LEGEND-200 experiment

LEGEND is a new experimental program to search for neutrinoless double beta decay with high-purity germanium detectors enriched in the isotope 76Ge. Its first phase, currently under construction at Laboratori Nazionali del Gran Sasso, will reach a half-life sensitivity to this lepton-number violating process of ~10e27 yr by employing 200 kg of Ge crystals. A later phase, with 1000 kg of enriched detectors, will extend the sensitivity to beyond 10e28 yr. In this contribution, the LEGEND-200 calibration system is presented. Radioactive Th-228 sources are deployed into the liquid-argon cryostat regularly, in order to ensure both a stable energy scale and an optimal energy resolution of the detectors. Two independent position-sensing systems will be employed to obtain a source position precision of a few mm over a 10 m scale during the calibration.

Mini-abstract

The LEGEND-200 calibration system deploys sources to calibrate the 76Ge detector energy response.

Experiment/Collaboration

LEGEND

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