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Calibration of the LEGEND-200 experiment

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LEGEND is the successor of the GERDA and the MAJORANA DEMONSTRATOR experiments searching for neutrinoless double beta decay with high-purity germanium detectors enriched in the isotope ^{76}Ge . Its first phase, currently under commissioning at Laboratori Nazionali del Gran Sasso, will reach a half-life sensitivity of $\sim 10^{27}$ yr to this lepton-number violating process by employing 200 kg of Ge crystals. A later phase, with 1000 kg of enriched detectors, will extend the sensitivity to beyond 10^{28} yr. In this poster presentation, the details of the calibration of the LEGEND-200 experiment are presented. Radioactive ^{228}Th sources will be deployed into the liquid-argon cryostat regularly with a calibration system; positioning the sources next to the detector array with a vertical precision of a few mm. Known γ -ray energies are used to calibrate the energy scale of the detectors, to measure their energy resolutions, and to monitor the stability of these parameters.

In-person participation

Yes

Primary author: MUELLER, Yannick (Physik-Institut, University of Zurich)**Presenter:** MUELLER, Yannick (Physik-Institut, University of Zurich)**Session Classification:** Poster Session**Track Classification:** Neutrino Physics