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Signal readout electronics for LEGEND-200

LEGEND (Large Enriched Germanium Experiment for Neutrino-less Double-Beta Decay) is a ton-scale ^{76}Ge -based neutrinoless double beta decay experimental program with discovery potential at a half-life greater than 10^{28} years.

The first 200-kg phase (LEGEND-200) is currently under construction and will start data taking in 2021. A key to achieve the projected half-life sensitivity of 10^{27} years is a novel signal readout system for its HPGe detector array. This system is centered around the liquid Argon operated, ultra-clean and low-noise front-end electronics used to read out the HPGe detectors. In addition, a novel active room-temperature receiver, data monitoring system as well as data acquisition system is implemented. In this contribution, the design and realization of the signal readout electronics chain for LEGEND-200 will be presented.

Mini-abstract

LEGEND-200 implements a novel low-background signal readout system for a HPGe detector array

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