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#11-253 Liquid Argon Instrumentation and Monitoring in LEGEND-200

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The LEGEND Collaboration aims to develop a phased, ^{76}Ge-based double-beta decay experimental program with discovery potential at a half-life beyond 10^{28} years. The first 200-kg phase, LEGEND-200, targets a discovery potential of 10^{27} years by a background index of $< 2{\cdot}10^{-4}$ cts/(keV·kg·yr).
Based on the success of GERDA a liquid argon (LAr) detector system will be deployed. It will offer secondary event information which will allow the identification of background events. The system utilizes the property of LAr to scintillate upon the interaction of ionizing radiation. The primary light, emitted at 128 nm, is shifted to the optical spectrum and read out by silicon photomultipliers mounted at the end of optical fibers.
Crucial parameters for the modeling the LAr detector's response are the light yield, the triplet lifetime and the attenuation length valid at the vacuum ultraviolet emission wavelength. These values are dependent on the actual impurity concentrations in the liquid. To this end, the dedicated LEGEND liquid argon monitoring apparatus (LLAMA) was designed and installed in the LEGEND-200 cryostat for permanent in-situ measurements of the mentioned parameters.
The design of the LEGEND-200 LAr instrumentation will be presented and discussed. Furthermore, an overview of LLAMA will be shown.

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