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Status of the development of the water tank Instrumentation of LEGEND1000

Wednesday 27 August 2025 18:00 (2 hours)

The LEGEND-200 experiment is a neutrinoless double beta decay ($0\nu\beta\beta$) search experiment located in the Laboratori Nazionali del Gran Sasso in Italy. LEGEND uses a maximum of 200kg of 76Ge enriched germanium mono-crystals as both source and detector for double beta decays. These crystals are housed in a cryostat filled with liquid argon to provide an optimal operation environment as well as a first stage muon veto. A surrounding water tank is used as both as a shielding against backgrounds and as a second stage muon (Cerenkov) veto.
The next stage of LEGEND will be LEGEND-1000, which will increase the detector mass to one tonne. Additionally, the experiment will be housed in a completely new setup which provides the opportunity to optimize the design of the support installations and the experimental instrumentation to the needs provided by the results of LEGEND-200.
This contribution will provide an overview of the current status of the water tank instrumentation development for the next stage of the experiment. It will focus on the water Cerenkov veto, the neutron tagger and the general water tank instrumentation geometry.

Collaboration you are representing

LEGEND

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