

Muon Veto of the LEGEND Experiment

Tuesday, 18 June 2024 17:30 (2 hours)

The Large Enriched Germanium Experiment for Neutrinoless $\beta\beta$ Decay (LEGEND) is an experimental program dedicated to the search for the neutrinoless $\beta\beta$ decay of ^{76}Ge . The experiment is being designed to reach a half-life sensitivity of 10^{28} yr in the next experimental phase, LEGEND-1000, which requires a background rate of 10^{-5} cts/(keV·kg·yr). Attaining such rare event rate requires a number of measures to reduce background due to more frequent phenomena. For the current experimental phase, LEGEND-200, a muon veto system uses a water-based Cherenkov detector to actively reduce background. It uses photomultiplier tubes as light detectors in a water tank covered with a reflective foil to increase the light collection efficiency inside the water volume. In this poster we present the operating principle and latest data analysis of the current muon veto and discuss plans for its future developments for LEGEND-1000.

This work is supported by the U.S. DOE and the NSF, the LANL, ORNL and LBNL LDRD programs; the European ERC and Horizon programs; the German DFG, BMBF, and MPG; the Italian INFN; the Polish NCN and MNiSW; the Czech MEYS; the Slovak SRDA; the Swiss SNF; the UK STFC; the Russian RFBR; the Canadian NSERC and CFI; the LNGS, SNOLAB, and SURF facilities.

Poster prize

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Session Classification: Poster session and reception 1

Track Classification: Neutrinoless Double Beta Decay