Contribution ID: 131

Type: Parallel talk

LEGEND –200: A look at one year of physics data

Monday 14 October 2024 17:10 (20 minutes)

Whether the neutrino is a Majorana particle, i.e., whether it is its own antiparticle, remains an important open problem in modern physics. The observation of the hypothesized second order weak decay, Neutrinoless Double Beta Decay $(0\nu\beta\beta)$ would conclusively establish the Majorana nature of neutrinos. It would also demonstrate lepton number violation and could provide insight into the absolute neutrino mass scale. The LEGEND (Large Enriched Germanium Experiment for Neutrinoless $\beta\beta$ Decay) experimental program aims to have an ultimate discovery sensitivity to a $0\nu\beta\beta$ half-life beyond 10^{28} years for ⁷⁶Ge. Currently, the first phase of the experiment, LEGEND-200 has acquired a year of stable data with 142 kg of enriched germanium detectors. In this talk, we'll discuss the performance of LEGEND-200, and look at the first year of physics data. We'll conclude with the status of the second phase of the experiment 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 RDA; the Swiss SNF; the UK STFC; the Russian RFBR; the Canadian NSERC and CFI; the LNGS and SURF facilities.

Track type

Neutrino Physics

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Session Classification: Plenary