Contribution ID: **313** Type: **Neutrino Sector**

Results from the LEGEND-200 experiment in the search for neutrinoless double beta decay

Wednesday 27 August 2025 12:00 (20 minutes)

The discovery of Neutrinoless double beta decay (0νββ) would provide unambiguous evidence for the Majorana nature of neutrinos, lepton number non-conservation and a measurement of the absolute neutrino mass scale. The Large Enriched Germanium Experiment for Neutrinoless ββ decay (LEGEND) is a phased search for 0νββ in the 76Ge isotope with enriched high-purity germanium (HPGe) detectors. The LEGEND experiment brings together the innovation and expertise from its very successful, 76Ge-based predecessors, GERDA and MAJORANA DEMONSTRATOR. The first phase, LEGEND-200, located at LNGS, Italy, is presently acquiring physics data with close to 100 kg of HPGe detectors. With an exposure of 1 ton-year and a background index in the region of interest of less than 2 ´ 10-4 cts/(keV kg yr), LEGEND-200 will reach a discovery sensitivity of a half-life of 1027 years.

This talk will provide an overview of the LEGEND experiment, including the latest results from the LEGEND-200 and the prospects for the upcoming LEGEND-1000 phase.

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 Canadian NSERC and CFI; the LNGS, SNOLAB, and SURF facilities.

Author: KRISHNAMOORTHY, Harisree (Postdoc)

Presenter: KRISHNAMOORTHY, Harisree (Postdoc)

Session Classification: Parallel