

The first year of LEGEND-200 physics data in the quest for $0\nu\beta\beta$ decay

Tuesday, June 18, 2024 2:30 PM (20 minutes)

The LEGEND experimental program is dedicated to the search for the neutrinoless double-beta ($0\nu\beta\beta$) decay of ^{76}Ge with isotopically-enriched high-purity germanium (HPGe) detectors and a discovery sensitivity beyond a half-life of 1028 years. The first phase of the project, LEGEND-200, is stably accumulating physics data at LNGS since more than one year with 140 kg of HPGe detectors, and plans to install more in the coming months. The Collaboration has scrutinized this first data to assess the sensitivity of the experiment and study the composition of the LEGEND-200 residual background. In this talk, we will present the performance of the experiment in terms of background rejection and signal acceptance, the current observed background in the region of interest, and a first model of the background composition before analysis cuts. We will conclude with an update on the status of the experiment's future phase, LEGEND-1000.

Poster prize

Given name

Surname

First affiliation

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Gender

Collaboration (if any)

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Session Classification: S6: Neutrino properties 1