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

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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 ^{76}Ge. 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.

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Neutrino Physics

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