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LEGEND-1000 Overview

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Building upon the LEGEND-200 experimental program, LEGEND-1000 is an upcoming ton-scale experiment in search of Neutrinoless Double Beta Decay ($0\nu\beta\beta$). Consisting of over 300 $\sim$3 kg germanium detectors surrounded by an instrumented liquid argon shield, L-1000 aims to make a 99.7% CL discovery of $0\nu\beta\beta$ with sensitivity covering the full inverted neutrino mass ordering, a 10^{28} yr half-life discovery potential after 10 years of exposure. We present the progress of the conceptual design of L-1000 and site preparation, and materials sourcing and deployment timeline. L-1000 will utilize 1000 kg of ^{76}Ge-enriched high purity germanium (HPGe) semiconductor detectors, whose large mass is enabled by the inverted-coaxial point contact (ICPC) design. We review detector characterization efforts for L-1000, including avenues of characterization R&D.

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Poster prize

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