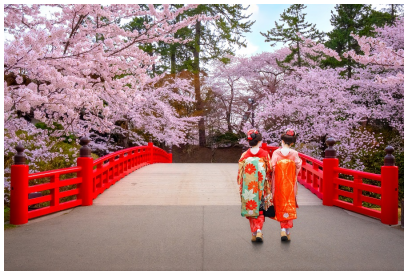

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The LEGEND experiment in a search for neutrinoless double beta decay

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LEGEND (Large Enriched Germanium Experiment for Neutrinoless Double Beta Decay) is an experimental program with a goal to search for the hypothesised neutrinoless double beta decay of Ge-76. If discovered, neutrinoless double-beta decay would be an evidence of lepton number violation, Majorana nature of neutrinos and will open a window for the broad study of neutrinos and symmetries of our universe. LEGEND combines knowledge and experimental techniques developed by MAJORANA and GERDA experiments in one multinational collaboration. The LEGEND-200 detector is currently being commissioned in the LNGS underground laboratory in Italy. Following the original plan, it will house up to 200 kg of germanium detectors and will take data for about five years.
The LEGEND-1000 experiment is designed to use 1 ton of enriched, large-mass, high-purity germanium crystals. Sensitivity of such an experiment strongly depends on the background reduction techniques like implemented liquid argon detector surrounding germanium crystals array. Because of the quasi-background free design of LEGEND-1000 (i.e. less than one background count expected in a 4σ Region of Interest with 10 t y exposure) and deep underground location, the potential of this experiment reaches beyond the $0\nu\beta\beta$ searches. In this talk we will present the LEGEND experimental physics program and briefly describe the current detector design focusing on solutions implemented for the background suppression.

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