



LNGS SEMINARS

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Neutrinoless Double Beta Decay with nEXO: Experiment Concept, R&D and Sensitivity

Abstract

The next-generation Enriched Xenon Observatory (nEXO) is a proposed experiment to search for neutrinoless double beta ($0\nu\beta\beta$) decay whose observation would imply lepton number violation and confirm the existence of elementary Majorana fermions. nEXO searches for $0\nu\beta\beta$ in ^{136}Xe with a target half-life sensitivity of approximately 10^{28} years using 5×10^3 kg of isotopically enriched liquid-xenon in a time projection chamber. This improvement of two orders of magnitude in sensitivity over current limits is obtained by a significant increase of the ^{136}Xe mass, the monolithic and homogeneous configuration of the active medium, and the multi-parameter measurements of the interactions enabled by the time projection chamber.

This seminar will introduce nEXO's detector concept, present the R&D activities, and discuss the anticipated performance based upon demonstrated realizable background rates.

**November 8, 2017 - 11:30 am
LNGS - "B. Pontecorvo" room**