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Type: **Invited Speaker / Conférencier(ère) invité(e)**

(I) nEXO: Searching for Lepton Number Violation and Majorana Neutrinos

Tuesday 20 June 2023 13:45 (30 minutes)

The nEXO experiment is a proposed next-generation liquid xenon detector to search for neutrino-less double beta decay ($0\nu\beta\beta$) of ^{136}Xe . The experiment will use a 5-tonne liquid xenon monolithic single-phase time projection chamber enriched to 90% ^{136}Xe . Ionization electrons and scintillation photons from energy deposits in the Xe will be recorded by a segmented anode plane and a large SiPM array. This talk will present recent progress in the detector design, an improved modelling of signal readout and the development of a deep neural network based data analysis architecture to improve signal/background separation. These developments result in a 90% CL $0\nu\beta\beta$ half-life sensitivity of 1.35×10^{28} yrs in 10 years of data taking.

Keyword-1

Neutrinoless Double Beta Decay

Keyword-2

Xenon

Keyword-3

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