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Status of R&D toward the nEXO detector

Authorship annotation

for the nEXO collaboration

Session and Location

Monday Session, Poster Wall #98 (Auditorium Gallery Left)

Abstract content

The nEXO experiment will search for neutrinoless double beta decay of ^{136}Xe using 5 tonnes of enriched liquid xenon in a low-background single-phase time projection chamber. nEXO is expected to reach a 10 year sensitivity of $\sim 10^{28}$ years. To this end, the nEXO collaboration is engaged in an R&D program to improve detector performance. We present the status of a selection of R&D topics, including high voltage, xenon fluid mechanics, xenon purity measurement, and new calibration sources. High voltage testing is in process of scaling up to the ∼100kg scale. Dissolved calibration sources are in development to characterize detector response, complemented by liquid xenon fluid simulations. And a compact liquid xenon purity monitor is currently under construction to probe electron lifetimes over 10ms, which will aid in materials selection for nEXO construction.

Poster included in proceedings:

yes

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