

Status of the nEXO Experiment

Thursday, 31 May 2018 14:00 (20 minutes)

The planned next generation Enriched Xenon Observatory (nEXO) experiment is aiming to search for the neutrino-less double beta ($0\nu\beta\beta$) decay from ^{136}Xe . nEXO has a sensitivity in the order of 10^{28} years on the half-life ($T_{1/2}$) of $0\nu\beta\beta$ decay from ^{136}Xe after 10 years' running, entirely covering the inverted mass hierarchy region. The nEXO detector is a time projection chamber (TPC). It has a cylindrical shape with a diameter of ~ 1.3 m and a drift length of ~ 1.2 m containing 5 tonnes of liquid xenon enriched to 90% (^{136}Xe). nEXO will use modular metal pads deposited on a quartz substrate to readout the ionisation signal and provide the spatial information of the event. nEXO will be implemented with ~ 4 m² silicon photomultiplier (SiPM) to collect the scintillation light in addition to the charge signal. Combining both charge and light signals, nEXO aims to have an energy resolution of 1% at the Q-value of the double beta decay from ^{136}Xe . In this talk, both the physics potential of nEXO and various R&D outcomes will be presented.

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Collaboration name

nEXO

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