

The search for $0\nu\beta\beta$ with the NEXT time projection chamber

Friday, 5 August 2022 12:15 (20 minutes)

The Neutrino Experiment with a Xenon TPC (NEXT) is an international collaboration searching for the ultra-rare neutrinoless double beta decay process with the xenon-136 isotope. The experimental programme in NEXT consists of a series of high-pressure gaseous xenon time projection chambers with the most recent experiment (NEXT-White) running from 2016 - 2021 consisting of 5 kg of xenon and subsequently, NEXT-100, under commissioning in 2022 and scaling up to 100 kg of xenon. Crucial to the success of the NEXT programme is achieving excellent energy resolution FWHM and reducing backgrounds to negligible levels at the decay energy. This talk will cover the key aspects of the NEXT detectors which enable such goals, the status of the NEXT-100 project, and the extensive R&D efforts being carried out to tag the daughter barium ions from the decay to enable a near background-free neutrinoless double beta decay search.

Attendance type

In-person presentation

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