

Status of the NEXT experiment.

Wednesday 26 May 2021 06:24 (18 minutes)

NEXT is an experimental program aiming at the detection of $0\nu\beta\beta$ decay in ^{136}Xe using a high-pressure gaseous xenon electroluminescent TPC. The technique allows for superb energy resolution, 1% FWHM at $Q\beta\beta$, and topological discrimination based on the unique signature that a double electron produces in a gaseous medium.

With ~ 0.5 m in each dimension, NEXT-White (NEW) is operating underground under low-background conditions at the Laboratorio Subterráneo de Canfranc, using xenon enriched to 90% ^{136}Xe . Its purpose is to validate all aspects of the technology on a large scale and demonstrate its performance on $2\nu\beta\beta$ decay events. NEXT-100 will replace NEW and start operating during 2021. It will deploy 97 kg of enriched xenon and demonstrate sensitivity to $0\nu\beta\beta$ decay half-lives on the scale of 10^{26} yr.

An overview of the experiment will be presented in this talk with 2 main focus: 1) latest results of the NEW detector, 2) current status of the NEXT-100 detector.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

Funding information

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Session Classification: Experiments: Neutrino

Track Classification: Experiments: Experiments: Neutrino