

## Status of the NEXT experiment.

*Wednesday, May 26, 2021 6:24 AM (18 minutes)*

NEXT is an experimental program aiming at the detection of  $0\nu\beta\beta$  decay in  $^{136}\text{Xe}$  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  $\sim 0.5$  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%  $^{136}\text{Xe}$ . 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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