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The NEXT experiment for neutrinoless double beta decay searches

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The Neutrino Experiment with a Xenon TPC (NEXT) searches for the neutrinoless double beta decay of ^{136}Xe using a high pressure xenon gas time projection chamber. This detector technology has several key advantages, including excellent energy resolution, powerful event classification based on track topology, and favorable mass scalability. It also offers the tantalising possibility of tagging the daughter ion produced in the decay. The current stage of the experiment, NEXT-White, has been taking data at the Laboratorio Subterráneo de Canfranc (LSC) in Spain since late 2016. In this talk, we will review recent results from NEXT-White after the first year of low-background operations with both ^{136}Xe -depleted and ^{136}Xe -enriched xenon. Results from dedicated calibration runs to study detector performance will also be shown. Finally, we will conclude by discussing the experiment's prospects, starting from the NEXT-100 detector to be commissioned in 2020.

Collaboration name

NEXT Collaboration

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