

Status and prospects of the NEXT-100 experiment

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The Neutrino Experiment with a Xe TPC (NEXT) is searching for neutrinoless double beta decays (0 $\nu\beta\beta$) of Xe-136 using high pressure xenon gas time projection chambers (HPXeTPC). The power of electroluminescent HPXeTPCs for 0 $\nu\beta\beta$ derives from their excellent energy resolution (FWHM <1%), and their topological classification of signal events. The NEXT-100 detector was successfully constructed and assembled in 2023. Commissioning of the detector is underway and data taking will start in summer of 2024. Holding ~80kg of Xenon at about 15bar, this detector has a projected sensitivity of 6e25yr after 3 effective years of data taking. In this talk, we will review the advantages about this type of HPXeTPC, describe the NEXT-100 detector in detail and the scientific aims of it. We will also discuss the current status of the experiment, including commissioning results.

Alternate track

I read the instructions above

Yes

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