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Recent results from the NEXT-DEMO prototype

NEXT is a high-pressure gas xenon TPC which has been designed to measure the ββ0ν mode of Xe-136. The detector will use the electroluminescence of the gas to amplify the signal from deposited charge using a region of increased electric field in the last 0.5 cm before the anode. The light produced will be detected in a fine grained tracking plane made up of silicon photomultipliers and positioned 2 mm behind the anode as well as in PMTs at the opposite end of the light tube. The stability and performance of the detector design have been tested using NEXT-DEMO, a 30 cm drift TPC of the same design with a fiducial volume containing 1.5 kg of natural xenon.
This poster will present the most recent results from NEXT-DEMO, detailing the reconstruction algorithms used to identify signal and equalise the detector's energetic response. The measured energy resolution for the reconstruction of the traces left by the interaction of gammas from various radioactive sources will be presented along with the predicted resolution at the Qββ of Xe-136.

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