

R&D of High pressure gaseous TPC for double beta decay

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The PandaX-III experiment (particle and astrophysical xenon experiment III) aims to search for neutrinoless double beta decay ($0\nu\beta\beta$) of ^{136}Xe using a high pressure gaseous time projection chamber (TPC). The TPCs use Micro-pattern gas detectors (Micromegas) as the charge readout, registering both the energy and the track information of an event. A prototype detector with thermal-bonding Micromegas has been successfully built and commissioned. Detector performance at different pressure up to 10 bar was studied with several gamma calibration sources. We report the operating conditions and detector performance such as gain, gain stability, and energy resolutions in this presentation.

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