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PandaX-III neutrinoless double beta decay experiment SHAOBO WANG, Shanghai Jiao Tong University, PANDAX-III COLLABORATION — The PandaX-III experiment uses high pressure Time Projection Chambers (TPCs) to search for neutrinoless double-beta decay of Xe-136 with high energy resolution and sensitivity at the China Jin-Ping underground Laboratory II (CJPL-II). Fine-pitch Microbulk Micromegas will be used for charge amplification and readout in order to reconstruct both the energy and track of the neutrinoless double-beta decay event. In the first phase of the experiment, the detector, which contains 200 kg of 90% Xe-136 enriched gas operated at 10 bar, will be immersed in a large water tank to ensure 5 m of water shielding. For the second phase, a ton-scale experiment with multiple TPCs will be constructed to improve the detection probability and sensitivity. A 20-kg scale prototype TPC with 7 Micromegas modules has been built to optimize the design of Micromegas readout module, study the energy calibration of TPC and develop algorithm of 3D track reconstruction.

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