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Veto Development for the PandaX Experiment

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PandaX-4T is an experiment located at China Jinping Underground Laboratory searching for dark matter particles and studying the fundamental properties of neutrinos. It employs 0.9 kton water surrounding the liquid xenon TPC to shield against radioactivities from the environment. In this talk, an ongoing effort to upgrade the water shielding into an active veto will be presented. With 270 8-inch PMTs that have been installed in the water, neutrons and gammas emitted from the materials that make up the liquid xenon detector can be detected and subsequently vetoed. Additionally, it can detect high energy particles such as cosmic rays and atmospheric neutrinos. A future improvement using water-based liquid scintillator is envisioned in order to further increase the veto efficiency. For the next-generation multi-ten-ton liquid xenon TPC, the potential of using cold liquid scintillator for the veto detector is being explored.

Collaboration (if any)

PandaX

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