

Search for dark matter in effective field theory model and cosmic ray boosted model with full PandaX-II exposure data

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PandaX is a direct detection of DM experiment with a dual phase Xenon TPC. Constraint on the simplest EFT dark matter-nucleus spin-independent (SI) interaction with full exposure data had been delivered recently. There are other DM models like EFT magnetic or electric dipole moment interactions and boosted scenario which produce quite different signal spectra from the simplest EFT SI model. They can have significant contribution on the high energy nuclear recoils. In this work we extend the region of interest to 25 keVee to optimize the sensitivity to these new models. The detector response to both nuclear and electron recoil in this region are carefully studied with calibration data. All the background are re-evaluated in the extended signal region. No significant excess is found compared to background-only model in this new region, and we conclude stronger constraints on the EFT models. We also give constraints on cross section of the cosmic ray boosted DM.

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