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Studies of Cosmic-Ray Anisotropies with DAMPE

The Dark Matter Particle Explorer (DAMPE) has been operating smoothly in a sun-synchronous orbit with an altitude of 500 km and an inclination angle of 97.4 degree for more than 9 years. The observation scanning the entire sky for more than 18 times facilitate a continuous probing of the anisotropy in the arrival directions of the cosmic rays with increasing sensitivity. In this poster we show that the Earth magnetic field has non negligible effect to the arrive direction of the charged cosmic rays up to an energy of about 250 GeV, significantly higher than the energy cut adapted in some previous studies of the cosmic-ray anisotropy. We also show that the so called random shuffle method used in making the reference map could be totally invalid in the analysis of cosmic-ray anisotropy, and the so called event rate method based on the knowledge of the live time of the detector is recommended.

Collaboration(s)

DAMPE Collaboration

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