

Influence of the galactic magnetic field on the trajectory of ultra-high energy cosmic rays

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The trajectory of ultra-high-energy cosmic rays (UHECRs) is affected by the galactic magnetic field (GMF). The GMF has been extensively studied, but the GMF toward the high galactic latitude is yet uncertain. Assuming the deflection of UHECR trajectory by the GMF is mainly dependent on the galactic latitude, b , we analyze the correlation between the arrival direction distribution of UHECRs and the large-scale structure of the universe in regions of sky divided by the galactic latitude to explore the influences of the GMF. Through the Bayesian parameter inference of the deflection angle in the Monte-Carlo simulation, we estimate the strength of GMF in regions. We discuss the implications of our results.

Presentation type

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