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Heliospheric effects on the anisotropy of TeV cosmic rays

The gyroradius of TeV cosmic rays is comparable to the size of the heliosphere. When cosmic rays go through the heliospheric magnetic field and electric field to reach the Earth, the trajectories are altered from their original paths in the local interstellar medium and the particle energy is shifted. Therefore, we expect to see distortions of anisotropy caused by the heliosphere. This talk presents an analysis how to derive the original cosmic ray anisotropy in the local interstellar medium. It turns out the large-scale anisotropy cosmic rays at a few TeV energy in the local interstellar medium is dominated by a dipole along the magnetic field. It is also found the heliosphere might affect the small-scale anisotropy in some regions of the sky.

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