

# Understanding the anisotropy of cosmic rays at TeV and PeV energies

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The anisotropy in cosmic-ray arrival directions in the TeV-PeV energy range shows both large and small-scale structures. While the large-scale anisotropy may arise from diffusive propagation of cosmic rays, the origin of the small-scale structures remains unclear. We perform three-dimensional Monte-Carlo test-particle simulations, in which the particles propagate in both magnetostatic and electromagnetic turbulence derived from a three-dimensional isotropic power spectrum. However, in contrast to earlier studies, we do not use a backtracking method for the computation of the particle trajectories, and hence anisotropy must build up from a large-scale isotropic (or dipole) boundary condition. It has been recently argued that the turbulent magnetic field itself generates the small-scale structures of the anisotropy if a global cosmic-ray dipole moment is present. Our code is well suited to test that hypothesis.

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