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On the Anisotropy of the Arrival Directions of Galactic Cosmic Rays

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The arrival directions of multi-TeV cosmic rays show significant anisotropies at large and small angular scales. I will argue that these features can be understood from standard cosmic ray diffusion. It is well-known that a large-scale dipole anisotropy is expected from a cosmic ray density gradient following the distribution of Galactic sources. However, the observed anisotropy depends on cosmic ray propagation in our local magnetic environment. The observed dipole amplitude and phase are a result of anisotropic diffusion along the local ordered magnetic field. The small-scale structures, on the other hand, are expected to arise from cosmic ray scattering in local magnetic turbulence.

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