

Implications of turbulence dependent diffusion on cosmic ray spectra

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The propagation of cosmic rays can be described as a diffusive motion in most galactic environments. The Milky Way and its cosmic-ray distribution have been studied in detail by the measurement of high-energy gamma-rays with Fermi. A gradient in the cosmic-ray density and spectral energy behavior has been measured indirectly this way and is in need of explanation.

In this talk we use recent analysis of the diffusion tensor, which shows that the energy scaling of the diffusion tensor $\kappa \propto E^{\gamma_i}$ is a function of the turbulence level b/B , to explain this behavior. Therefore, we probe different types of diffusion tensors and compare the results to the measurements.

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Cosmic rays

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