

Acceleration of cosmic ray by reconnection in realistically turbulent environments

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Magnetic reconnection in realistically turbulent astrophysical environments does not depend on electric conductivity of plasma, but instead is controlled by the degree of turbulent stochasticity of magnetic field lines. Such a reconnection can induce the first order Fermi acceleration of energetic particles. I will show that this acceleration is different in 2D and 3D reconnection with 3D reconnection being more efficient in the particle acceleration. I shall discuss the importance of plasma effect both for magnetic reconnection and for particle acceleration.

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Session Classification: Models and implications of CR anisotropy