

The study of diffusive shock acceleration mechanism with test particle simulation

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Most of high-energy Solar Energetic Particles(SEPs), potentially threatening astronauts and instruments on space missions, are considered to be accelerated by shocks in space. However, the mechanism of shock acceleration remains unsettled despite large amount of researches done for years. In this work, we will numerically calculate test particles' exact trajectories in different models of shock and magnetic turbulence. From the simulation results, we can investigate the energetic particles' diffusive acceleration mechanism in detail.