

Abstract Submitted
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Particle in cell simulations of wave turbulence in solar wind in ion cyclotron frequency range VLADIMIR SVIDZINSKI, HUI LI, HARVEY ROSE, BRIAN ALBRIGHT, LANL, KEVIN BOWERS, D. E. Shaw Research — Fully electromagnetic particle in cell simulations of nonlinear waves propagation and interaction is performed in two-dimensional plane geometry in magnetized plasma in ion cyclotron frequency range. A spectrum of fast wave modes with different total energies with wave numbers parallel and perpendicular to uniform equilibrium magnetic field is launched into plasma and the nonlinear dynamics of these waves is analyzed. Results show that the wave magnetic energy spectrum cascades to smaller scales exhibiting strong anisotropy, it is wider in direction perpendicular to the equilibrium magnetic field. The shape of the cascade is established after a few ion cyclotron periods and most of the energy in the cascade stays in the fast wave oscillations. Collisionless damping on electrons is the main dissipation channel in these results.

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