

Abstract Submitted
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Interaction of energetic ions with the background microturbulence in a tokamak JUGAL CHOWDHURY, Institute For Plasma Research, WEIXING WANG, STEPHANE ETHIER, JANARDHAN MANICKAM, Princeton Plasma Physics Laboratory, RAJARAMAN GANESH, Institute For Plasma Research — Interaction of energetic ions with the background microturbulence induced by pressure gradient driven modes such as ion temperature gradient (ITG) driven mode and trapped electron mode (TEM) is investigated using the global Gyrokinetic Tokamak Simulation (GTS) code [1]. The energetic ions are treated as test-particles, which respond to the perturbed fields, but do not contribute to them. The radial transport of energetic particles is estimated with respect to its characteristic dependence on the ratio of $e\phi/T_E$ in different turbulence regimes. The phase space evolution of the energetic particles is analyzed and its effect on energetic-particle-driven-modes will be discussed. Interactions of these energetic ions with particular (n,m) mode, where n and m being the toroidal and poloidal mode numbers, are studied with focus on the identification of resonant and non-resonant contributions to the energetic particle transport in both ITG and TEM regimes.

[1] W. X. Wang et al., Phys. Plasmas 13, 092505 (2006).

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