Abstract Submitted
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The effect of energetic particle induced geodesic acoustic modes on microturbulence[1] MIRJAM SCHNELLER, GUOYONG FU, WEIXING WANG, Princeton Plasma Physics Laboratory, ILIJA CHAVDAROVSKI, PHILIPP LAUBER, Max Planck Institute for Plasma Physics — The control of turbulent transport reveals essential to achieve a successful fusion reactor. Together with turbulence, energetic particles are ubiquitous in present and future tokamaks due to heating systems and fusion reactions. Anisotropy in the distribution function of the energetic particle population is able to excite oscillations from the continuous spectrum of geodesic acoustic modes, which cannot be driven by plasma pressure gradients due to their toroidally and nearly poloidally symmetric structures. These oscillations are known as energetic particle-induced geodesic acoustic modes (EGAMs) [G.Y.Fu'08] and have been observed in recent experiments [R.Nazikian'08]. EGAMs are particularly attractive in the framework of turbulence regulation, since they lead to an oscillatory radial electric shear which can potentially saturate the turbulence. In recent years, numerical simulations have shown however, that turbulent transport could also be enhanced in the presence of EGAMs [D.Zarzoso'13]. For the presented work, the nonlinear gyrokinetic, electrostatic, particle-in-cell code GTS [W.X.Wang'06] has been extended to include an energetic particle population. With this new tool, the interaction of EGAMs with microturbulence is investigated in more detail.

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