

Abstract Submitted
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Electrostatic gyrokinetic turbulence GABRIEL PLUNK, UCLA —

A kinetic description of turbulence becomes necessary in cases where particle collisions are not strong enough to maintain a local Maxwellian velocity distribution over relevant dynamical timescales. This is often the case with plasmas. This type of turbulence can exhibit structure formation in phase space having, in general, double the dimensionality. We study a simple limit of the gyrokinetic equation where there are two spatial dimensions and one velocity dimension. Symmetries are exploited to find scaling laws using standard arguments from neutral fluid turbulence. A discussion of closure is presented with an emphasis on the relationship to Navier-Stokes turbulence and the kinetic extension of the Navier-Stokes equation, the Boltzmann equation.

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