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Simulation of a Nonlinear Model for Strong Electrostatic Plasma Turbulence DANIEL CREWS, University of Washington — This work simulates a nonlinear model for the dissipation of strong turbulence in unmagnetized plasma, a process arising from the separated-scale interaction of large acoustic fluctuations and small Langmuir waves. The model consists of two fluid equations coupled, through ponderomotive pressure, to a kinetic equation for the plasma wave spectral energy density. The fluid equations are representative of macroscopic motions and are thought of as moments taken from a time-and-space averaged microscopically turbulent distribution. The plasma wave kinetic equation represents the spectrum of microscopic fluctuation energy with sources from solution of a dielectric function and sinks from Landau damping. The small-scale waves are taken to be non-self-interacting. The simulations presented focus on one-dimensional current driven turbulence.

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