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**Convective Generation of Lorentzian Pulses in Cross-Field Pressure Gradients** MEIXUAN SHI, DAVID PACE, JAMES MAGGS, GEORGE MORALES, TROY CARTER, UCLA — This numerical study explores the effects of large amplitude ExB plasma flows on cross-field pressure gradients in a magnetized plasma. The model considers two radially-localized potential eigenmodes with different azimuthal mode numbers and radial profiles that undergo sinusoidal oscillation at the same frequency. The convective ExB flow is incorporated into the 2- D, cross-field energy and particle transport equations. In both cases studied, an electron temperature filament, and a density filament, fine-scale spatial structure develops for sufficiently large field amplitude. The required amplitude is consistent with the observation of the onset of broadband turbulence in temperature filaments studied in the LAPD-U. The temporal behavior of the density or temperature, observed at a fixed spatial position, contains non-sinusoidal pulses. In addition, different types of pulses are found in different regions of the system; negative in the inner and positive in the outer. The temporal pulses may be fit with a Lorentzian shape. These results are consistent with the observation of an exponential frequency spectrum in the broadband turbulence found in the temperature filament and limiter-edge experiments performed in the LAPD-U.

Meixuan Shi

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