Abstract Submitted
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Investigation of drift flute turbulence in high beta plasmas in the presence of shear flows[1] I. PARASCHIV, V.I. SOTNIKOV, University of Nevada, Reno, Reno, NV 89557, J.N. LEBOEUF, JNL Scientific, Casa Grande, AZ 85294, O.G. ONISHCHENKO, E. YASIN, R. PRESURA, J. KINDEL, University of Nevada, Reno, Reno, NV 89557 — Laboratory experiments performed at the Nevada Terawatt Facility have studied the propagation of a plasma plume across a magnetic field. These experiments have shown that there are instabilities growing at the plasma-field interface, which could be explained by the excitation of flute drift modes. Experimental results also suggest that transverse ExB flows may have an important effect on these instabilities. Using the two-fluid equations in the low-frequency approximation, a nonlinear set of equations for the electrostatic potential, magnetic field and density perturbations was derived, taking into account finite ion Larmor radius effects. The resulting nonlinear equations describe the evolution of small-scale flute turbulence, and the generation of large scale zonal structures in the presence of shear flows.

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