

**DRIFT FLUTE TURBULENCE IN HIGH BETA
PLASMAS IN THE PRESENCE OF SHEAR FLOWS***

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Propagation of a plasma plume across a magnetic field was investigated in laboratory experiments performed at the Nevada Terawatt Facility. The results obtained showed 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, and the effect of finite beta. 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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