

Abstract Submitted
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Fluid Simulation of plasma interchange turbulence in a Dipole Configuration OU WEIKE, Peking Univ — The plasma interchange turbulence and convective transport in the dipole and Z-pinch systems are explored with two-fluid global simulations. The nonlinear evolution of interchange modes produces global convective cells, which leads to the marginally stable pressure profiles. The effects of magnetic field line curvature are particularly strong in a magnetic dipole field and the short curvature radius leads to a steep pressure gradient for the marginal stability. As a result, the plasma pressure profiles in a nonlinear saturated state are strongly peaked in a dipole compared to those in a Z-pinch. Preliminary results with gyro-fluid model, which includes both interchange and entropy modes, will also be discussed.

Ou Weike
Peking Univ

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