

Abstract Submitted
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Nonlinear dynamics of flute mode structures in a plasma with inhomogeneous magnetic field¹ V.I. SOTNIKOV, O.G. ONISHCHENKO, V.V. IVANOV, R. PRESURA, J. KINDEL, University of Nevada at Reno, NV 89557, J.N. LEBOEUF, JNL Scientific, Casa Grande, AZ 85222 USA, B.V. OLIVER, T.A. MEHLHORN, Sandia National Laboratories, NM 87123 USA, C. DEENEY, Department of Energy, Washington, DC 20585 USA — In the past decade the problem of formation of large scale coherent structures from random perturbations as well as coexistence of these structures with short scale turbulent spectra has attracted considerable attention. We have developed an understanding of the nonlinear dynamics of compressible flute mode turbulence in a high beta plasma in the presence of a non-uniform magnetic field. Flute modes can be responsible for the intermittent convective-like transport across the magnetic field and enhanced viscous heating associated with appearance of short scales. This is important for numerous applications, including Z-pinches and laboratory astrophysics.

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