

Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Effect of Flow Shear on Simple Interchange Turbulence KENNETH GENTLE, WILLIAM ROWAN, CHAD WILLIAMS, University of Texas at Austin, MARK KOEPKE, SAM NOGAMI, West Virginia University — The Helimak is an approximation to the infinite cylindrical slab with a size large compared with turbulence transverse scale lengths, but with open field lines of finite length. Interchange modes are the dominant instability. Flow profiles and shear can be greatly modified by the application of radial electric fields through external biasing of flux surfaces – cylindrical shells. Measurements of the ion flow velocity profile are made by Doppler spectroscopy. The range of earlier measurements in argon has been expanded and new results for helium added. Local relations between flow shear and the level of non-linearly saturated density fluctuations are obtained. To extend the characterization of the turbulence, novel probes are being developed to measure the level of true plasma potential fluctuations. Work supported by the Department of Energy OFES DE-FG02-04ER54766.

Kenneth Gentle
University of Texas at Austin

Date submitted: 24 Jul 2015

Electronic form version 1.4