

Abstract Submitted
for the DPP09 Meeting of
The American Physical Society

Measurements of electric field induced fluctuations in the Compact Toroidal Hybrid stellarator¹ M. CIANCIOSA, E. THOMAS, B.A. STEVENSON, G. HARTWELL, S. KNOWLTON, Physics Department, Auburn University — Sheared flows arising from spatially inhomogeneous, transverse electric fields are of interest in space, laboratory and fusion plasmas. In fusion plasmas strongly sheared flows at the plasma edge can lead to a reduction of core fluctuations and enhanced core plasma parameters. The effects of sheared flows on plasmas in the Compact Toroidal Hybrid (CTH) stellarator ($R_0 = 0.75$ m, $a \sim 0.2$ m, $B_0 \leq 0.7$ T, $\bar{n}_e = 0.2 - 1.5 \times 10^{19}$ m⁻³), are studied using a biased electrode inserted into the edge plasma to alter the radial profile of the electric potential. The enhancement or suppression of fluctuations associated with the application of different applied potentials and electric fields is measured with a triple probe. Results will be presented for different biased limiters – one with a single-tip and another with two axially-separated, individually biased electrodes.

¹Supported by US DOE Grant DE-FG02-00ER54476.

Mark Cianciosa
Auburn University

Date submitted: 18 Jul 2009

Electronic form version 1.4