

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Transverse imaging of high velocity plasma flow in the target chamber of CTIX STEPHEN HOWARD, DAVID HWANG, ROBERT HORTON, RUSSELL EVANS, SAMUEL BROCKINGTON, UC Davis — The Compact Toroid Injection eXperiment injects high velocity (200 km/s) magnetized plasma into a target chamber with large windows (0.5 m by 0.2 m) that allow transverse imaging of a large volume of plasma with fast digital cameras at sub-microsecond exposures. Neutral gas puffing in the target region greatly enhances plasma brightness, and spatial variation of image brightness can be used to infer the spatial fluctuations of the plasma electron flux density. These fluctuations have been observed with fast intensified and non-intensified cameras, with and without the use of narrow bandpass optical filters. Some coherent density waves have been measured, and we are working to resolve the structure of shocks and turbulence that are expected to occur in the interaction region. By varying the CT injection velocity, the magnetic Reynolds number of the plasma flow can be controlled, and a large dynamical operating space can be explored. This work is supported by DOE grant # DEFG0203ER54732.

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Date submitted: 26 Jul 2005

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