

Abstract Submitted  
for the DPP05 Meeting of  
The American Physical Society

**Drift-Alfven wave transport studies in the Large Plasma Device**

STEPHEN VINCENA, WALTER GEKELMAN, UCLA — The Large Plasma Device (LAPD) at UCLA is a unique testbed for performing controlled and detailed transport experiments. Tailored density gradients have been created within an effectively infinite (perpendicular to  $B_0$ ) plasma using biased electrodes. Spontaneous density and potential fluctuations (drift waves) are observed in the steepest density region. These waves are correlated with cross-field particle flux and lead to a relaxation of the density gradient. The process of growth and disruption repeats in a semi-periodic fashion. Since the plasma beta is typically near the electron-to-ion mass ratio, the waves are of the drift-Alfven type and have both density and magnetic fluctuations. The background plasma is pulsed once per second for months at a time which allows for high spatial and temporal resolution measurements of the entire process, and for different background magnetic fields strengths, ion species, gradient scale lengths, and electron temperatures.

Stephen Vincena  
UCLA

Date submitted: 02 Aug 2005

Electronic form version 1.4