

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Bispectral analysis of the L-H transition as seen in the NSTX GPI data¹ A.E. WHITE, UCLA, Los Angeles, CA, USA, M.J. BURIN, Department of Astrophysical Sciences, Princeton University, Princeton, NJ, USA, T.A. CARTER, UCLA, Los Angeles, CA, USA, T.S. HAHM, J.A. KROMMES, R.J. MAQUEDA, S.J. ZWEBEN, Princeton Plasma Physics Laboratory, Princeton, NJ, USA — It was recently reported that the bicoherence of turbulent potential and density fields measured with Langmuir probes increases just prior to and during the L-H mode transition in DIII-D. By calculating the evolving 3 wave-coupling properties between turbulent and large scales with bispectral statistics, we can attempt to identify the formation of possible shear and/or zonal flows at the L- H transition. This poster will present bispectral analysis of the L-H mode transition in NSTX using the data obtained by the Gas Puff Imaging (GPI) diagnostic, with the goal of searching for coupling between modes which may lead to shear and/or zonal flows generated by turbulence. A radial and poloidal array of 13 detectors measures the HeI or D α light emitted from the plasma and this array can be used to measure profiles of the bicoherence before, during, and after an L-H transition. The bicoherence measured using this collection of 1-D time series data will be compared to the 2-D images of the turbulence obtained from a high-speed camera.

¹A.E. White acknowledges support from the FES Fellowship Program administered by ORISE under a contract between the U.S. DOE and ORAU

Anne White
UCLA, Los Angeles, CA

Date submitted: 22 Jul 2005

Electronic form version 1.4