-----Abstract for APS 2005 Poster Session

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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 [1]. By calculating turbulence generated shear and zonal flows in terms of mode-coupling through three-wave interactions, these flows can be experimentally estimated by measuring the bicoherence in the turbulent field [2]. This poster will present bispectral analysis of the L-H mode transition in NSTX using the data obtained by the GPI diagnostic, with the goal of searching for shear and/or zonal flows generated by turbulence. A radial and poloidal array of 13 detectors measures the HeI or D-alpha 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 1-D time series data will be compared to the 2-D images of the turbulence obtained from a high-speed camera.

[1] R.A. Moyer et al. Phys. Rev. Lett., 87, 135001 (2001)
[2] G.R. Tynan et al. Phys. Plasmas 8, 2691 (2001)