

Abstract Submitted  
for the DPP07 Meeting of  
The American Physical Society

**NSTX H-mode measurement in conjunction with gyrocenter shift via FIRETIP system**<sup>1</sup> M. JOHNSON, C.W. DOMIER, K.C. LEE, N.C. LUHMANN, JR., University of California Davis, P.W. ROSS, R. BELL, H. PARK, Princeton Plasma Physics Laboratory — The Far Infrared Tangential Interferometer/Polarimeter (FIRETIP) which spans the entire plasma is used to measure electron density fluctuations during the low confinement mode (L-mode) to high confinement mode (H-mode) transition on the National Spherical Tokamak Experiment (NSTX). The measured neutral density distribution and the radial electric field evolution are compared to the calculations based on the gyrocenter shift [K. C. Lee, *Phys. Plasmas* **13**, 062505 (2006)]. The statistical analysis of electron density fluctuations measured by the FIRETIP system including data from a newly installed additional channel will be reported. Also, the role of the neutral density gradient on the L to H transition associated with the radial electric field formation and turbulence suppression will be discussed.

<sup>1</sup>This work is supported by U.S. Department of Energy Grants DE-FG03-99ER54518 and DE-AC02-76CH03073.

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Date submitted: 06 Sep 2007

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