

Abstract Submitted  
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**Spontaneous Intrinsic Rotation and Changes in Turbulence in Ohmic H-modes on NSTX** C.E. BUSH, ORNL, R.E. BELL, PPPL, S. KUBOTA, UCLA, J.-W. AHN, R.J. MAQUEDA, S.J. ZWEBEN, B.P. LEBLANC, PPPL, K.C. LEE, U.C.Davis, E. MAZZUCATO, PPPL, J.B. WILGEN, ORNL, E.D. FREDRICKSON, PPPL, R. RAMAN, U. of Wash., L. DELGADO-APARICIO, D. STUTMAN, K. TRITZ, JHU, S.M. KAYE, PPPL — Spontaneous spin-up in intrinsic toroidal and poloidal rotation of impurity ions (C and He) was observed at the edge of ohmic plasmas during L-H mode transitions in NSTX. The rotation was reduced again after the H-L back transition. The changes in rotation were accompanied by changes in plasma fluctuations and turbulence observed over the plasma minor radius from the far SOL to deep in the core using diagnostics such as fast reflectometry and Langmuir probes near the chamber walls, gas puff imaging (GPI), and microwave reflectometry and high-k scattering in the plasma core. Intrinsic rotation increases of 10s of km/s were observed using an edge rotation diagnostic and reflectometry showed the long wavelength correlation length in the plasma core to drop sharply at the L-H transition. GPI and a fast radial (midplane) scanning probe showed a strong decrease in plasma turbulence (blob activity and  $\tilde{n}/n$ ) at the plasma edge. The observed intrinsic velocity scalings are consistent with a variety of toroidal devices. Discussions of these results relative to H-mode physics will be presented.

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