

Abstract Submitted  
for the DPP07 Meeting of  
The American Physical Society

**Millimeter-wave measurements of edge electron density profile and fluctuations during NSTX H-mode discharges**<sup>1</sup> S. KUBOTA, W.A. PEEBLES, N.A. CROCKER, X.V. NGUYEN, R.J. MAQUEDA, Nova Photonics, R. MAINGI, C.E. BUSH, ORNL, G.J. KRAMER, PPPL, THE NSTX TEAM — The fast evolution of the density profile and the associated changes in turbulence are measured near the plasma edge in NSTX H-mode discharges using millimeter-wave reflectometry. FMCW reflectometry (13-50 GHz) provides fast profile measurements with 20 us resolution, while multiplexed fixed-frequency systems (30, 35, 42, 44.5, 50, 65 GHz) monitor fluctuations at various cutoff densities. A new correlation reflectometer (29-40 GHz) is used to measure the poloidal propagation of turbulence. The bulk poloidal velocity can be inferred from these measurements while the propagation of individual turbulence structures is also visible. In addition to the L-H transition, profile and turbulence characteristics are monitored for the various ELM types (Type I, Type III and Type V) present in NSTX.

<sup>1</sup>Supported by U.S. DoE Grant DE-FG03-99-ER54527.

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Date submitted: 21 Jul 2007

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