Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Beam Modulation Effects on NSTX Ion Power Balance[1] P.W. ROSS, D.A. GATES, S. MEDLEY, S.M. KAYE, R.E. BELL, B.P. LEBLANC, D.S. DARROW, R. WHITE, G. ZIMMER, Princeton Plasma Physics Lab, W.W. HEIDBRINK, M. PODESTA, D. LIU, U.C. Irvine, H. YUH, F.M. LEVINTON, Nova Photonics, NSTX TEAM — The coupling between the beam particles and the thermal ions is poorly understood. To examine the coupling, the beam power was modulated. The fast particles were then measured using a variety of diagnostics. The neutron rate from beam-target interactions shows the expected behavior, with the signal decreasing to a new steady state value in <10 ms. The Neutral Particle Analyzer (NPA) shows a presence of fast ions at various pitch angles, but not at others. The NPA measurement is compared to other fast ion diagnostics including the Fast Ion D Alpha (FIDA) diagnostic, the Solid State Neutral Particle Analyzer (SSNPA) and the Scintillator Fast Loss Ion Probe (SFLIP) diagnostic. Comparison is also made between measured NPA signals and TRANSP calculations. The ion and electron temperature were also measured and compared before and after the start of the modulation, and conclusions are drawn about the coupling between the beam and the plasma.

[1]This work supported by U.S. DOE Contract # DE-AC02-76CH03073.

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Date submitted: 23 Jul 2007 Electronic form version 1.4