

Abstract Submitted  
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**HHFW power absorption in NBI target plasmas** B.P. LEBLANC, R.E. BELL, J.C. HOSEA, C.K. PHILLIPS, M. PODESTA, A.L. ROQUEMORE, G. TAYLOR, E.J. VALEO, J.R. WILSON, PPPL, L. BERK, Yale U., P.T. BONOLI, PSFC-MIT, R.W. HARVEY, CompX, P.M. RYAN, ORNL — Experimental and analytic work is ongoing to ascertain the efficiency of using high-harmonic fast waves (HHFW) to inject auxiliary power into NBI heated NSTX plasmas. As a result of progress in understanding edge effects relevant for wave coupling, HHFW power is routinely deposited within the last closed flux surface. Increases of the plasma stored energy, the electron temperature and the neutron production rate are observed when HHFW power is applied. Two mechanisms compete for the absorption of the HHFW reaching the main plasma: (1) electron heating via Landau damping and transit-time magnetic pumping; (2) rf acceleration of NBI generated fast ions. The power absorption will be investigated by comparing the experimental data with analyses and predictions from the TRANSP/TORIC, GENRAY and CQL3D codes. This work is supported by DOE contract DE-AC02-09CH11466.

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