

Abstract Submitted
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Wave Coupling for HHFW in NSTX¹ S. BERNABEI, R.E. BELL, J.C. HOSEA, B. LEBLANC, C.K. PHILLIPS, J.R. WILSON, PPPL, P.M. RYAN, D.W. SWAIN, ORNL, S.A. SABBAGH, Columbia U. — It has been established in previous experiments that effective coupling of the waves to the plasma can vary widely HHFW (High Harmonic Fast Waves) in heating and driving current in NSTX as plasma conditions and antenna phasing are varied. Experiments in 2004 established a strong dependence of power absorption on antenna phasing (toroidal wavelength of the excited fast wave). Experiments during the 2005 experimental campaign continue to explore this dependence as well as the role played by discharge conditions. By analyzing the data base of HHFW shots several parameters have been identified that have an effect, such as antenna-plasma distance, plasma shape and magnetic field lines. Results from these experiments will be presented. In addition, the effect of direction of the magnetic with respect to the antenna on coupling and damping has not been explored: An experimental proposal to change the direction of the plasma current and/or the toroidal field is scheduled. Results from these experiments, which can clarify possible geometric effects will also be presented.

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