

Abstract Submitted
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Full Wave Modeling of Wave – Plasma Interactions in NSTX.¹

C.K. PHILLIPS, S. BERNABELI, E. FREDRICKSON, N. GORELENKOV, J.C. HOSEA, B. LEBLANC, E.J. VALEO, J.R. WILSON, Princeton Plasma Physics Laboratory, P.T. BONOLI, J.C. WRIGHT, PSFC - MIT, P.M. RYAN, J.B. WILGEN, ORNL — Wave plasma interactions play an important role in the dynamics of NSTX plasmas in a wide range of frequencies. High harmonic fast waves (HHFW), with frequencies significantly above the fundamental ion cyclotron frequency, are used to heat and drive noninductive currents in NSTX plasmas. Fast ions from neutral beam injection can excite compressional and / or global Alfvén eigenmodes (CAE/GAE) with frequencies near the fundamental ion cyclotron frequency. Simulations of power deposition profiles obtained with the full wave code, TORIC, will be compared to the observations from recent HHFW experiments that show that the wave propagation and absorption depend strongly on the antenna phasing and plasma conditions [i]. The issue of mode conversion of the HHFWs to shorter wavelength modes will be revisited. Initial simulations of driven eigenmodes in the CAE / GAE frequency range will also be discussed. [i] See contributed Oral Talk by J. C. Hosea et al this conference

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