

Abstract Submitted
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Numerical Modeling of High Harmonic Fast Wave Heating on NSTX¹ C.K. PHILLIPS, J.C. HOSEA, R.E. BELL, B.P. LEBLANC, J.B. PARKER², E.J. VALEO, J.R. WILSON, NSTX Team, PPPL, P.M. RYAN, E.F. JAEGER, J.B. WILGEN, ORNL, S.A. SABBAGH, Columbia University, P.T. BONOLI, J.C. WRIGHT, PSFC-MIT, R.W. HARVEY, CompX, R.J. DUMONT, CEA-Cadarache — High harmonic fast wave (HHFW) heating and current drive processes, at frequencies up to 15 times the fundamental deuterium cyclotron frequency, are being studied on NSTX. Recent experiments indicate that the core heating efficiency depends strongly on the antenna phasing and plasma conditions [1]. The wave propagation and absorption characteristics for select NSTX discharges will be analyzed using a variety of rf modeling codes, including both ray tracing and full wave models. Both core power deposition profiles and rf power flow in the edge regions will be considered. The possibility of off-axis mode conversion of the HHFW to shorter wavelength modes and the subsequent impact on power deposition will be explored.

[1] See invited talk by J. C. Hosea this meeting for details

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