

Abstract Submitted
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Full-wave simulations of HHFW heating in NSTX with non-Maxwellian distributions¹ N. BERTELLI, J.C. HOSEA, B.P. LEBLANC, R.J. PERKINS, C.K. PHILLIPS, G. TAYLOR, E.J. VALEO, J.R. WILSON, PPPL, P.T. BONOLI, J.C. WRIGHT, PSFC-MIT, R.W. HARVEY, YU. PETROV, CompX, E.F. JAEGER, XCEL Engineering, L.A. BERRY, D.L. GREEN, P.M. RYAN, ORNL — In order to improve the analysis and simulation of combined high harmonic fast wave (HHFW) and neutral beam injection (NBI) heated discharges in NSTX, a generalization of the HHFW version of TORIC to include non-Maxwellian ions has been implemented to include species with arbitrary velocity distribution functions. This generalization is important to investigate finite ion orbit width (FOW) effects in conjunction with the FOW version of CQL3D that is under development. It is also needed in the TRANSP code for time-dependent simulations of these combined heating experiments. Test cases in which the modified code reproduces previous simulations with thermal ions are presented along with some calculations of the power deposition profile in a plasma with a given non-Maxwellian ions. In addition, the simulations are compared with results from the AORSA code, which has already been extended to include non-Maxwellian ions.

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