Abstract Submitted
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Numerical Modeling of HHFW Heating on NSTX[1] C.K. PHILLIPS, R.E. BELL, J.C. HOSEA, B.P. LEBLANC, G. TAYLOR, E.J. VALEO, J.R. WILSON, PPPL, L.A. BERRY, E.F. JAEGER, P.M. RYAN, ORNL, P.T. BONOLI, J.C. WRIGHT, PSFC-MIT, R.W. HARVEY, CompX, T. BRECHT, UMN, AND THE NSTX TEAM — Recent HHFW heating experiments on NSTX indicate that the core heating efficiency depends strongly on the antenna phasing and plasma conditions, and that it improves when the onset for wave propagation is moved away from the immediate vicinity of the launcher. Since the waves are nearly totally damped in a single transit through the plasma core, this degradation is likely due to power losses from collisions, rf sheaths, and sputtering associated with initial interactions of the waves with the antenna and vessel structures. Full wave and ray tracing codes have been used to study the wave propagation and damping characteristics in L-mode and H-mode discharges, and in lower density start-up plasmas. The extent to which significant wave propagation in the edge regions is correlated with the measured core heating efficiency will be presented for a range of discharge conditions.

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