Abstract Submitted
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**HHFW Heating Efficiency and Spatial Deposition Profiles on NSTX**[1] L. BERK, B. LEBLANC, J. HOSEA, C.K. PHILLIPS, G. TAYLOR, E.J. VALEO, J.R. WILSON, PPPL, P.M. RYAN, ORNL, P.T. BONOLI, PSFC-MIT — High Harmonic Fast Waves (HHFW) are used to heat plasmas in NSTX (National Spherical Torus Experiment). Thomson scattering measurements and EFIT equilibrium reconstructions are used to obtain the change in electron and total plasma stored energy, respectively. Previous research has shown that the HHFW heating efficiency decreases as the launched wavelength increases [1]. This trend has been confirmed for a larger set of discharges, and sensitivity to experimental uncertainties has been explored using several methods for fitting the data in order to extract the stored energies and energy confinement times. Rolling volume integrals of the electron stored energy over EFIT surfaces have been used to infer, for the first time from the data, a spatial profile of HHFW power absorbed by electrons. These inferred local power deposition profiles can be used to validate the accuracy of existing full wave models of RF heating that are used for scenario planning in future devices such as ITER.

[1] J. Hosea et al, Phys. Plasmas 15, 056104 (2008)

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Lauren Berk
PPPL / SULI

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