

Abstract Submitted
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HHFW Edge Heating Properties for H-mode Plasmas in NSTX¹

R.J. PERKINS, R.E. BELL, A. DIALLO, S. GERHARDT, J.C. HOSEA, M. JAWORSKI, B.P. LEBLANC, G.J. KRAMER, C.K. PHILLIPS, L. ROQUEMORE, G. TAYLOR, J.R. WILSON, S. ZWEBEN, PPPL, J.-W. AHN, T.K. GRAY, D.L. GREEN, A. MCLEAN, R. MAINGI, P.M. RYAN, J. WILGEN, ORNL, K. TRITZ, JHU, NSTX TEAM — RF wave interaction with edge plasma in toroidal confinement devices can reduce core heating, and a significant decrease in core heating along with increased edge heating can occur in the NB- and HHFW-driven ELMy H-mode regimes of NSTX [1]. This effect may be primarily due to the edge density exceeding the onset density for perpendicular wave propagation, leading to enhanced wave propagation in the SOL. To explore this, we present measurements of RF heating of and interactions with the divertor, including IR cameras, RF probes, and Langmuir probes. Direct observation of the divertor-edge RF-deposition zone with the fast IR camera is planned to quantify the effect of the ELMs there. Langmuir probe characteristics, sensitive to the location of the RF “hot” zone, will be related to the wave/particle properties of the launched waves in the SOL.

[1] J. Hosea et al., RF Conference (Newport, 2011).

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R.J. Perkins
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