Abstract Submitted
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Comparison of ICRF Full-wave Simulation with Phase Contrast Imaging in Alcator C-Mod[1] N. TSUJII, M. PORKOLAB, P.T. BONOLI, Y. LIN, J.C. WRIGHT, S.J. WUKITCH, MIT PSFC, E.F. JAEGER, ORNL, R.W. HARVEY, CompX — Waves in the ion cyclotron range of frequencies (ICRF) are used for heating plasmas and current and flow drive. Full-wave simulations are essential to describe the wave propagation and absorption processes accurately in a tokamak geometry and validation of these codes is required. Phase Contrast Imaging (PCI) has been used in Alcator C-Mod to directly measure the mode converted waves [1]. PCI measures line-integrated electron density fluctuations, including those due to RF waves. The measurements were compared to full-wave simulations TORIC and AORSA/CQL3D through synthetic diagnostic [2]. While in the strong single pass absorption regime the agreement between measurements and code predictions is reasonably good, in the weak single pass absorption regime the measured amplitudes are significantly smaller than code predictions.

[1] E. Nelson-Melby, et al, Phys. Rev. Lett. 90, 155004 (2003).
[2] N. Tsujii, et al, 19th Topical Conf. on RF Power in Plasmas, Newport, RI, 2011.

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