

Abstract Submitted  
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**Experimental Studies of ICRF Mode Conversion with Phase Contrast Imaging and Comparison with Full-wave Simulations**<sup>1</sup> N. TSUJII, M. PORKOLAB, E.M. EDLUND, L. LIN, Y. LIN, S.J. WUKITCH, P.T. BONLI, J.C. WRIGHT, MIT Plasma Science and Fusion Center, E.F. JAEGER, Oak Ridge National Laboratory — Mode conversion of fast wave to ion Bernstein wave and ion cyclotron wave has been observed with the phase contrast imaging diagnostic (PCI) in D(-<sup>3</sup>He) plasmas in Alcator C-Mod [1, 2]. The wave electric fields are simulated for the experimentally measured equilibrium profiles using the full-wave codes TORIC [3] and AORSA [4]. Although the predictions of the two codes agree, the simulated PCI signals are larger than the measurements by at least a factor of 10. This could be partially explained by edge losses, which are not accounted for in the simulations, but is not fully understood. Predictions of direct rf flow drive for this scenario will also be presented.

[1] E. Nelson-Melby, et al., Phys. Rev. Lett. 90, 155004 (2003).

[2] Y. Lin, et al., Phys. Rev. Lett. 101, 235002 (2008).

[3] M. Brambilla, Plasma Phys. Control, Fusion 41, 1 (1999).

[4] E. F. Jaeger, et al., Phys. Plasmas 8, 1573 (2001).

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