

Abstract Submitted  
for the DPP08 Meeting of  
The American Physical Society

**Overview of ICRF Experiments in Alcator C-Mod**<sup>1</sup> S.J. WUKITCH, Y. LIN, P.T. BONOLI, A. HUBBARD, B. LABOMBARD, B. LIPSCHULTZ, M. PORKOLAB, J.E. RICE, D. WHYTE, MIT PSFC, AND THE ALCATOR C-MOD TEAM — We seek to develop ICRF as a reliable actuator to optimize overall plasma performance with minimum negative impact on the plasma. In addition to heating and current drive, an RF flow drive actuator has been long sought because it potentially offers an external tool for manipulating transport via flow shear and stabilizing macro- and micro-instabilities. Here we report the first demonstration of efficient RF toroidal flow drive by mode converted waves. We also emphasize validating the full-wave physics models through comparison with experiments including direct fast wave absorption regimes. For the first time in C-Mod, we have observed evidence of direct fast wave electron heating despite low single pass absorption. An additional challenge for ICRF utilization is mitigation and control of impurities associated with ICRF operation attributed to RF sheaths. We have measured the sheath potential in the presence of ICRF and identified their dependence on linkage to antenna, confinement mode, boronization, and insulating limiters. Experimental results from a number of experiments will be presented.

<sup>1</sup>Work supported by USDoE award DE-FC02-99ER54512.

Stephen Wukitch  
MIT PSFC

Date submitted: 22 Jul 2008

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