Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Self-consistent full wave analysis of lower hybrid current drive in weak and strong absorption regimes on Alcator C-Mod[1] JOHN WRIGHT, JUNGPYO LEE, PAUL BONOLI, ANDREA SCHMIDT, PSFC-MIT, ROBERT HARVEY, CompX, ERNEST VALEO, PPPL, RF-SCIDAC TEAM — We have developed [1] a coupled solver for the lower hybrid problem that solves for the full wave fields with a self-consistent electron distribution function. We will discuss the results of simulations of experiments on Alcator C-Mod in the weak and strong absorption regimes through comparisons between a synthetic hard X-ray (HXR) diagnostic and the experimentally measured HXR. Ray tracing simulations will be used to quantify the importance of full wave effects in the two scenarios. Additionally, we will describe recent improvements in the solver efficiency and the development of a python driver for automating the iteration between the Fokker-Planck and full wave code and ensuring input consistency.

[1] J. C. Wright et al, Phys. Plasmas 16, 072502 (2009).

[1]Support from the U.S. Department of Energy SciDAC program, under Contract No. DE-FC02-01ER54648.

John Wright
PSFC-MIT

Date submitted: 15 Jul 2010 Electronic form version 1.4