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Category Number and Subject:

[ ] Theory   [x] Experiment

Dependence of Electron Cyclotron Current Drive Efficiency on Magnetic Well Depth, Geometry, and Parallel Index of Refraction,[*] R. Prater, J.S. deGrassie, L.L. Lao, T.C. Luce, C.C. Petty, *General Atomics,* R.W. Harvey, *CompX* — The dimensionless efficiency of electron cyclotron current drive is known to depend on the magnetic well depth and local $n_{\parallel}$ as well as the conventional variables density and temperature. In recent experiments on DIII–D the magnetic well depth was varied systematically by controlling the minor radius and the location on a flux surface of the interaction between the waves and the electrons. The $n_{\parallel}$ was held constant or also systematically varied as an orthogonal variable. Comparison of the experimental efficiency with the theoretical efficiency then provides a quantitative test of the physics. The TORAY-GA code using a current drive model[1] and the CQL3D Fokker-Planck code[2] provide an interpretive structure in which to place the experimental results.

[1]R.H. Cohen, Phys. Fluids **30**, 2442 (1987).
[2]R.W. Harvey, M.C. McCoy, in Proc. IAEA TCM, Montreal, 1992 (IAEA, Vienna, 1993), 498.

[x]   Prefer Poster Session
[ ]   Prefer Oral Session

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