

Abstract Submitted
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Recent results from lower hybrid current drive experiments on Alcator C-Mod¹ R.R. PARKER, S.-G. BAEK, O. MENEGHINI, C. LAU, Y. PODPALY, M. PORKOLAB, J.E. RICE, A.E. SCHMIDT, S. SHIRAIWA, G.M. WALLACE, S.J. WUKITCH, MIT PSFC, J.R. WILSON, PPPL — A novel coupler designed to optimize LHRF power delivered to Alcator C-Mod plasmas is now in operation. New diagnostics have also been added to better understand the conversion of waveguide modes in the grill antenna to slow LH waves, and the penetration and damping of the waves as they pass beyond the separatrix. These include a set of 32 RF probes located near the plasma-grill interface, an X-mode reflectometer for measuring the density profile near the grill, and a two-frequency O-mode reflectometer for detecting LH waves beyond the separatrix via Bragg scattering. The latter, supplemented by X-ray and cyclotron emission profiles, is expected to be helpful in understanding the disparity in measured current drive efficiency at high density relative to predictions from ray-tracing and full-wave simulations. This paper surveys the results obtained with the new coupler, including coupling and current drive efficiency, plasma rotation and comparison with results of simulations.

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Ron Parker
MIT PSFC

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