Abstract Submitted
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Current Profile Modification By Lower Hybrid Waves in Alcator C-Mod[1] R.R. PARKER, P.T. BONOLI, A.E. HUBBARD, J. KO, M. PORKOLAB, A.E. SCHMIDT, D.E. TERRY, G.M. WALLACE, S.M. WOLFE, J.C. WRIGHT, MIT PSFC, S.D. SCOTT, J.R. WILSON, PPPL — Driving current off-axis is a prerequisite for realizing steady-state, high-performance Advanced Tokamak (AT) regimes. Lower Hybrid Current Drive (LHCD) is well suited for this purpose since the driven current is typically deposited beyond $r/a = 0.5$. An important step toward the goal of forming AT regimes with LHCD in Alcator C-Mod is validation of ray-tracing and full-wave codes regarding the location of the LH driven current. In LH experiments on C-Mod, bremsstrahlung produced by fast electrons carrying the RF-induced current indicates that the current is driven off-axis at a location determined by the parallel index of refraction. This is in qualitative agreement with expectation and is supported by indirect evidence such as decreased li, sawtooth stabilization, and changes in q(r) as inferred from MSE. The results will be compared with the predictions of ray-tracing (GENRAY) and full-wave codes (TORIC) coupled with Fokker-Planck codes that follow the self-consistent evolution of f(v).

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