

Abstract Submitted
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Lower Hybrid Wave Neutral Excitation, Ionization and SOL Power Loss of the Alcator C-Mod Tokamak¹ I. FAUST, J.L. TERRY, M.L. REINKE, O. MENEGINI, R.R. PARKER, S. SHIRAIWA, G.M. WALLACE, MIT PSFC, J.R. WILSON, PPPL, ALCATOR C-MOD TEAM — High density ($n_e > 10^{20} \text{ m}^{-3}$), moderate T_e , diverted Lower Hybrid Current Drive (LHCD) discharges on Alcator C-Mod exhibit little or no current drive, as indicated by low levels of hard X-ray emission. High temperature ($T_e=4 \text{ keV}$), high- field ($B_t=8 \text{ T}$) helium plasmas have shown decreased SOL modification and increased X-ray emission from the core plasma. Previous work has shown LH induced changes to the scrape-off-layer (SOL), suggesting SOL-localized LH power deposition occurs, possibly through collisional absorption. However, electron-ion collisional absorption was found to be weak in full-wave simulations. In order to characterize collisional absorption as a loss mechanism, initial experiments were conducted to measure emission from neutrals in LHCD discharges. Results are presented on the modification of the SOL as measured using radially-resolved VUV and visible emission from regions in which field lines are connected or unconnected to the LH launching structure. Implications of the presented data will be discussed with respect to the LHCD density limit.

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