

Abstract Submitted
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LH-induced SOL density profile asymmetries on Alcator C-Mod¹

CORNWALL LAU, MIT Plasma Science and Fusion Center, G.R. HANSON, Oak Ridge National Laboratory, BRIAN LABOMBARD, YIJUN LIN, ROMAN OCHOUKOV, RON PARKER, SYUN'ICHI SHIRAIWA, JIM TERRY, GREG WALLACE, MIT Plasma Science and Fusion Center, JOHN WILGEN, Oak Ridge National Laboratory, STEVE WUKITCH, MIT Plasma Science and Fusion Center — On Alcator C-Mod, the LHCD has a density limit where the current drive efficiency drops abruptly significantly below the classical density limit. One possible explanation is LH wave absorption in SOL. A suite of SOL diagnostics have been used to diagnose the LH-SOL interaction: a X-mode reflectometer installed at three poloidal locations adjacent to the LH launcher is used to measure the density profile, a visible video camera that images the LH launcher measures the emissivity, and gas puff imaging diagnostic magnetically connected to the LH launcher measures the poloidal velocity. These measurements have confirmed that the LH absorption in SOL drives ExB drifts that are consistent with a density vortex. The poloidal density profile asymmetries scale with LH power, launched spectrum and are correlated with the video camera emissivity measurements. Using a diffusive-convective transport model, these density profiles modifications are shown to be consistent with the measured plasma flows. The impact of these poloidal density profile asymmetries on LH coupling and SOL absorption models will be discussed.

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