Effects of ICRH and LHCD on SOL Density Profiles *

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A swept-frequency X-mode reflectometer[1] has being installed on Alcator C-Mod to measure the SOL density profiles at three poloidal locations adjacent to the new Lower Hybrid Launcher. First results on density profile modifications at the LH grill due to ICRH and LHCD non-linear effects will be presented.

Experimental measurements indicate that the application of LH power creates a density depletion near the LH grill, which is consistent with the influence of a ponderomotive force[2]. In some discharges, the density depletion creates a millimetric slow wave evanescent layer. At high line averaged n_e, LH power increases the density in the far SOL and decreases the density in the near SOL, which may be correlated with increasing SOL absorption at high densities[3].

Application of ICRF power decreases the density in front of the LH grill, which may be consistent with ICRF sheath induced convective cells. Preliminary results, however, indicate that field line mapping and increasing ICRF power do not modify the density profile significantly.

[1] G. R. Hanson et al, Rev. Sci. Instrum. 79, 10F114 (2008).
[2] Meneghini et al., this conference
[3] Wallace et al,. Faust et al., this conference

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