Abstract Submitted
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Characterization and Mitigation of ICRF Antenna Plasma Edge Interaction[1] RONGJIE HONG, GEORGE TYNAN, UCSD, STEVE WUKITCH, YIJUN LIN, JIM TERRY, M. CHILENSKI, T. GOLFINOPOULOS, A. HUBBARD, R.T. MUMGAARD, MIT PSFC, R. PERKINS, PPPL, M.L. REINKE, ORNL, ALCATOR C-MOD TEAM — Recent experiments reveal that RF-induced potentials (V_{RF}) in the SOL and impurity source at the antenna can be reduced to background levels via optimizing the power ratio between the inner and outer current straps, P_{cent}/P_{out}. Experiments indicate the antenna impurity source reduction for the field aligned antenna is due to geometrical alignment rather than electrical symmetry. Additional experiments performed without an optimized P_{cent}/P_{out} showed that V_{RF} and the associated convection cells do not influence the impurity penetration or core impurity confinement. These results suggest the core impurity contamination associated with ICRF heating is dominated by an increased impurity source rather than a change in impurity transport. Further, the convective cell strength was expected to scale inversely with B-field. The observed poloidal velocity (measure of convective cell strength), however, decreased less than expected. In addition, the measured maximum V_{RF} increased and penetrated farther into the SOL at higher B-field and plasma current. Results also suggest V_{RF} is strongly influenced by the SOL plasma parameters rather than by RF parameters.

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