

Abstract Submitted  
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**Overview of Recent Research on the Alcator C-Mod Tokamak**

AMANDA HUBBARD, MIT Plasma Science and Fusion Center, AND THE AL-CATOR C-MOD TEAM<sup>1</sup> — Recent experiments on Alcator C-Mod exploit high power density RF heating and current drive and metal walls, focusing on key issues for ITER. These include hydrogenic retention in metal walls, and impurity generation by RF sheaths. New edge diagnostics and coated tiles have been added to study sheath effects, as well as divertor and SOL heat flux widths. SOL turbulence has been compared to gyrofluid simulations. Improved lower hybrid and ion cyclotron models, both ray tracing and full wave, are benchmarked against experiments. Assessment of LHCD at high densities, and rotation generated by both mode converted ICRF and LHCD, are of particular interest. Transport studies include assessment of rotation in internal transport barriers, particle transport and peaking in low collisionality discharges, and comparison of core turbulence with GYRO. The “improved L-Mode” regime, featuring a  $T_e$  pedestal without a particle barrier, has been extended to longer durations and reached  $H_{ITER-98-Y2} \sim 1.0$ . Disruption and gas jet mitigation experiments show runaways, seeded by LHCD, are suppressed by stochastic transport.

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