

Abstract Submitted  
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**Overview of Alcator C-Mod Research<sup>1</sup>** EARL MARMAR, Massachusetts Institute of Technology, AND ALCATOR C-MOD GROUP TEAM — Recent C-Mod investigations include: toroidal and poloidal mode-conversion ICRF flow drive; LHCD experiments at ITER relevant magnetic field and density demonstrating off-axis current drive, H-mode pedestal regulation, and counter-current flow drive; increased density peaking at low collisionality; stiffness of the H-mode density pedestal, suggesting an edge critical gradient; poloidal propagation of edge turbulence structures, and changes in character close to the x-point; deuterium retention in metal (Mo) PFCs showing higher than expected retention; ICRF-sheath mechanisms for impurity generation; enhanced energy confinement with edge Te pedestal L-mode particle confinement and no ELMs; current ramping experiments to help understand expected control requirements in ITER; runaway electron dynamics during disruptions. Improved measurements across all plasma regimes are enabled by new/upgraded diagnostics, including: active CXRS for Ti, flows and electric fields; MSE for  $j(r)$ ; ultra-high speed CCD cameras; advanced high-field side scanning Langmuir and mach probes; scanning surface science station.

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