

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Progress Using LHCD and ICRF on Advanced Tokamak Discharges in Alcator C-Mod¹ C.E. KESSEL, PPPL, A.E. HUBBARD, P.T. BONOLI, R. PARKER, Y. LIN, A.E. SCHMIDT, MIT PSFC, S. SCOTT, PPPL, S. SHIRAIWA, MIT PSFC, A.C.C. SIPS, Max Planck IPP, G. WALLACE, MIT PSFC, R. WILSON, PPPL, S. WOLFE, S. WUKITCH, MIT PSFC, THE C-MOD TEAM² — Advanced tokamak discharges on Alcator C-Mod are targeting high non-inductive current fraction with bootstrap and lower hybrid (LH) current drive, and high confinement from ICRF heated H-modes. Plasma currents in the range of 450-600 kA are coupled with up to 3.5 MW of ICRF and 0.6-0.9 MW of LH. Longer plasma current rampup times are used to allow the ICRF and LH to modify the current profile. Delay of the sawtooth onset is significant using the LH by itself and in combination with the ICRF. ICRF H-modes in the rampup show they are not as effective at delaying the sawtooth as LH. Time dependent simulations of the discharges with the TSC and LSC code (ray-tracing with 1D FP) have helped to determine the magnitude of the LHCD and the resulting effects on the safety factor profile. Analysis with GENRAY-CQL3D (ray-tracing with 2D FP) will be given.

¹Supported by USDoE DE-AC02-76CH03073, DE-FC02-99ER54512.

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Date submitted: 19 Jul 2008

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