

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Progress and Prospects of Advanced Integrated Scenarios on Alcator C-Mod¹ A.E. HUBBARD, P.T. BONOLI, C. FIORE, B. LABOMBARD, B. LIPSCHULTZ, Y. LIN, E. MARMAR, R. PARKER, M. PORKOLAB, A.E. SCHMIDT, G. WALLACE, S.M. WOLFE, S. WUKITCH, MIT Plasma Science and Fusion Center, C. KESSEL, J.R. WILSON, ALCATOR C-MOD TEAM — “Advanced” scenarios, with a high non-inductive current and greater degree of control over current and pressure profiles, offer significant potential advantages over conventional tokamak operation. Key issues for application to burning plasmas such as ITER, and for DEMO, include obtaining improved confinement with low external torque and particle sources, and with coupled electrons and ions. External current drive in high confinement plasmas with an edge transport barrier, and compatibility with high divertor heat fluxes, are also important. The Alcator C- Mod integrated scenarios program focuses on addressing these challenges. Key new tools include a lower hybrid current drive system for current profile control and a cryopump for density control. Promising results from recent experiments using both of these will be reported. Modeling shows that scenarios with high non-inductive current fraction are achievable, with increased LHCD power.

¹Supported by USDoE awards DE-FC02-99ER54512 and DE-AC02-76CH03073

Amanda Hubbard
MIT Plasma Science and Fusion Center

Date submitted: 28 Aug 2007

Electronic form version 1.4