

Abstract Submitted
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Locked-mode avoidance and recovery without momentum input L. DELGADO-APARICIO, PPPL, J.E. RICE, S. WOLFE, MIT-PSFC, I. CZIEGLER, UCSD, C. GAO, R. GRANETZ, S. WUKITCH, J. TERRY, M. GREENWALD, MIT-PSFC, L. SUGIYAMA, MIT-LNS, A. HUBBARD, J. HUGGES, E. MARMAR, MIT-PSFC, P. PHILLIPS, W. ROWAN, University of Texas, Austin — Error-field-induced locked-modes (LMs) have been studied in Alcator C-Mod at ITER- B_ϕ , without NBI fueling and momentum input. Delay of the mode-onset and locked-mode recovery has been successfully obtained without external momentum input using Ion Cyclotron Resonance Heating (ICRH). The use of external heating in-sync with the error-field ramp-up resulted in a successful delay of the mode-onset when $P_{ICRH} > 1$ MW, which demonstrates the existence of a power threshold to “unlock” the mode; in the presence of an error field the L-mode discharge can transition into H-mode only when $P_{ICRH} > 2$ MW and at high densities, avoiding also the density pump-out. The effects of ion heating observed on unlocking the core plasma may be due to ICRH induced flows in the plasma boundary, or modifications of plasma profiles that changed the underlying turbulence. This work was performed under US DoE contracts including DE-FC02-99ER54512 and others at MIT, DE-FG03-96ER-54373 at University of Texas at Austin, and DE-AC02-09CH11466 at PPPL.

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