

Abstract Submitted
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Locked-mode avoidance and recovery without external momentum input L. DELGADO-APARICIO, D.A. GATES, PPPL, S. WOLFE, J.E. RICE, C. GAO, S. WUKITCH, M. GREENWALD, J. HUGHES, E. MARMAR, MIT-PSFC, S. SCOTT, PPPL — Error-field-induced locked-modes (LMs) have been studied in C-Mod at ITER toroidal fields without NBI fueling and momentum input. The use of ICRH heating in synch with the error-field ramp-up resulted in a successful delay of the mode-onset when $P_{ICRH} > 1$ MW and a transition into H-mode when $P_{ICRH} > 2$ MW. The recovery experiments consisted in applying ICRH power during the LM non-rotating phase successfully unlocking the core plasma. The “induced” toroidal rotation was in the counter-current direction, restoring the direction and magnitude of the toroidal flow before the LM formation, but contrary to the expected Rice-scaling in the co-current direction. However, the LM occurs near the LOC/SOC transition where rotation reversals are commonly observed. Once P_{ICRH} is turned off, the core plasma “locks” at later times depending on the evolution of n_e and V_t . This work was performed under US DoE contracts including DE-FC02-99ER54512 and others at MIT and DE-AC02-09CH11466 at PPPL.

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