

Abstract Submitted
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I-mode access and transitions in an expanded operating space on Alcator C-Mod¹ A.E. HUBBARD, S.-G. BAEK, R.M. CHURCHILL, T. GOLFINOPOULOS, J.W. HUGHES, Y. LIN, E.S. MARMAR, J.L. TERRY, C. THEILER, J.R. WALK, A.E. WHITE, D.G. WHYTE, S.M. WOLFE, S.J. WUK-ITCH, MIT Plasma Science and Fusion Center, I. CZIEGLER, U.C. San Diego, E. EDLUND, PPPL — New experiments in the I-mode regime on Alcator C-Mod have further expanded the wide range of conditions over which it has been studied. I-mode is attractive in that it combines the high energy confinement of H-mode, up to $H_{98} = 1.2$, with the low particle/impurity confinement of L-Mode. Accessing and maintaining the regime, without transitions to L-mode or H-mode, is key to its extrapolation. The most robust conditions on C-Mod have been in lower null plasmas with unfavorable drift and B_T of 5-6 T, spanning the ITER value. In 2014, experiments at 2.8 T showed that the power range between L-I and I-H transitions was significantly lower, consistent with results on DIII-D and AUG. I-mode was also accessed in near double null. Fueling into I-modes can raise the density, up to $2 \times 10^{20} \text{ m}^{-3}$. The upper n_e increases with input power. Local pedestal parameters and evolution of turbulence at transitions are being assessed with the aim of understanding the physical mechanisms and for extrapolation.

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Amanda Hubbard
MIT Plasma Science and Fusion Center

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