

Abstract Submitted
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Characterization of the Pedestal in I-Mode Plasmas on Alcator C-Mod¹ J.R. WALK, J.W. HUGHES, J.L. TERRY, A.E. HUBBARD, D.G. WHYTE, A.E. WHITE, E.S. MARMAR, J.E. RICE, R.M. CHURCHILL, C. THEILER, B. LABOMBARD, D. BRUNNER, M.L. REINKE, A. DOMINGUEZ, C. SUNG, MIT PSFC — I-mode is an improved energy confinement regime on C-Mod, notably featuring an edge temperature pedestal without the accompanying density pedestal found in H-mode operation. I-mode has been shown to be capable of stationary operation, with the mode sustained for ~ 10 energy confinement times, and to have a pedestal naturally lacking large ELMs. Combined with comparable performance to H-mode operation and weaker degradation with input power, this makes I-modes potentially favorable as a reactor regime. A full characterization using the suite of high-resolution edge diagnostics on C-Mod of the pedestal in reversed-field, lower-single-null I-modes (therefore with the ion ∇B drift away from the x-point) is presented here. The presented discharges primarily feature detailed scans of plasma current and ICRF heating power at several density values. The pedestal structure found in these I-modes is also contrasted with previous studies of the pedestal in EDA and ELMy H-modes, particularly potential scalings with $\beta_{p,ped}$ consistent with the KBM-limited pedestals found in these H-modes.

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