

Abstract Submitted
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Extension of Pedestal Scaling Studies on the Alcator C-Mod Tokamak¹ T.M. BIEWER, J.W. HUGHES, A.E. HUBBARD, MIT PSFC, C.S. CHANG, S.H. KU, CIMS NYU, D.A. MOSSESIAN, JWMP — During the operation of the Alcator C-Mod tokamak three common classifications of H-mode are observed: 1) ELM-free H-mode, 2) ELMy H-mode, and 3) so-called “enhanced D alpha” (EDA) H-mode accompanied by a quasi-coherent mode (QCM) edge relaxation mechanism. In all cases, the transition to H-mode occurs concurrently with the formation of edge temperature and density pedestals. Pedestal characteristics are dependent on operational machine parameters, and vary with the type of H-mode regime that is achieved. Recent experiments, with a particular plasma shape, are being extended over the full range of C-Mod operational parameter space in an effort to classify the range over which each type of H-mode occurs, and to examine the behavior of plasma performance with achieved pedestal parameters. In particular, the experiments reported here emphasize access to ELM-free H-modes in C-Mod. Pedestal scalings in this regime are particularly useful for cross-machine comparisons, since other machines like DIII-D and JT60-U have generated substantial database scalings in the ELM-free regime. Moreover, calculated neoclassical transport predictions of pedestal width scaling can be tested.

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Theodore Biewer
Massachusetts Institute of Technology

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