

Abstract Submitted
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H-mode pedestal studies on Alcator C-Mod¹ J.W. HUGHES, D. MOSSESIAN, B. LABOMBARD, M. GREENWALD, PSFC, MIT — Edge transport barriers in tokamaks characterize the high confinement mode, or H-mode, of plasma operation that in general leads to higher edge temperatures and pressures and an increase in energy confinement time. The elevated electron temperature (T_e) and density (n_e) found just inside the plasma last closed flux surface (LCFS) are termed pedestals, and the region over which T_e , n_e rise from their LCFS values to their pedestal values is indicative of transport barrier extent, or pedestal width. The physics determining pedestal height and width is of great interest for extrapolation of energy confinement to reactor regimes. On Alcator C-Mod the pedestal and neighboring regions are diagnosed experimentally with an assortment of edge diagnostics, allowing both empirical derivation of pedestal scalings and modeling of plasma transport through the edge barrier. Activities include the examination of pedestal scalings with respect to changes to magnetic equilibrium shaping, taking advantage of a recent C-Mod divertor modification that gives more freedom to increase plasma triangularity. Also pedestal response to changes in the source of edge neutral fuelling is examined. The study of neutral transport in the pedestal combines both experimental data and simple modeling in order to address the effect of neutral penetration and interaction on the pedestal width and height.

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- Prefer Oral Session
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Jerry Hughes
jwhughes@psfc.mit.edu
PSFC, MIT

Special instructions: Alcator C-Mod Session #

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