

Abstract Submitted
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Edge Gradients as Components of the H-mode Trigger¹

R.J. GROEBNER, D.M. THOMAS, General Atomics, R.D. DERANIAN, University of Wales — Although the formation of the H-mode transport barrier can be understood in the context of ExB shear suppression, the physics which provides the trigger for the L–H transition is still not understood. Edge profiles of electron temperature, density and pressure, obtained from the DIII–D tokamak, are being examined for evidence of an H-mode trigger. Studies of these parameters with an inductive classification algorithm have shown that knowledge of the values of edge pressure and temperature gradients can be reliably used to determine if the plasma is in the L–mode or H–mode states, at least for discharges with a fixed magnetic equilibrium.² This information is insufficient to prove that there is a causal link between these gradients and the transition. However, studies of the time histories of these parameters show a consistent pattern of the edge electron pressure gradient gradually increasing during the L–mode phase prior to the L–H transition. These results suggest that the edge pressure gradient may be a component of the trigger for the L–H transition.

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²R.D. Deranian *et al.*, “Inductive Classification of L-mode and H-mode Edge Parameters,” submitted to Phys. Plasmas.

Prefer Oral Session
 Prefer Poster Session

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Special instructions: DIII-D Poster Session 1, immediately following EK Synakowski

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