

Abstract Submitted  
for the DPP05 Meeting of  
The American Physical Society

**Study of L-H transitions and transport barrier propagation for a model of coupled heat and particle fluxes with random forcing**<sup>1</sup> MIKHAIL MALKOV, PATRICK DIAMOND, University of California, San Diego — Accurate transition criteria for the edge and internal transport barriers in Tokamaks are critical problems in magnetic confinement research. A popular model suggested earlier by Hinton and Staebler (Hinton and Staebler, 1993, Ph. Fl. 5, 1281) includes coupling between the nonlinear fluxes of particles and heat in a form of two diffusion equations. Because of the mathematical degeneracy of these equations there is ambiguity in the stationary transition criteria. Both superdiffusive regularization scheme and variational formulation point at the equal area Maxwell rule as a primary transition criterion. However, inclusion of pressure curvature and time dependence alter these results. We study the effect of random particle deposition and heat source to resolve this ambiguity.

<sup>1</sup>supported by US DOE FG03-88ER53275 grant

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Date submitted: 22 Jul 2005

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