

Abstract Submitted
for the DPP05 Meeting of
The American Physical Society

Interaction of Edge-Localized Modes and Resistive Wall Modes in DIII-D¹ E.J. STRAIT, M.S. CHU, G.L. JACKSON, R.J. LA HAYE, J.T. SCOVILLE, P.B. SNYDER, General Atomics, A.M. GAROFALO, H. REIMERDES, Columbia University, Y. IN, FarTECH, Inc., M. OKABAYASHI, Princeton Plasma Physics Laboratory — Edge-Localized Modes (ELMs) in the DIII-D H-mode edge pedestal include a magnetic perturbation with a broad spectrum of toroidal mode numbers, which is observed to couple to the Resistive Wall Mode (RWM) branch of the $n=1$ ideal kink mode at high beta. The damping rate of the driven RWM provides a passive probe of the RWM's stability, decreasing as beta increases. In some cases the ELM appears to trigger the growth of an unstable RWM, perhaps by altering the plasma rotation when conditions are near the instability threshold. The amplitude of the ELM-excited RWMs may thus be a factor in determining the minimum current requirements for RWM feedback stabilization. Experimental results will be presented.

¹Work supported by U.S. DOE under DE-FC02-04ER54698, DE-FG02-89ER53297, DE-FG03-99ER82791, and DE-AC02-76CH03073.

E.J. Strait

Date submitted: 26 Aug 2005

Electronic form version 1.4