

Abstract Submitted  
for the DPP99 Meeting of  
The American Physical Society

Sorting Category: 5.1.1.2 (Experimental)

**ELM Energy Scaling in DIII-D H-mode Plasmas<sup>1</sup>** A.W. LEONARD, M.A. MAHDAVI, T.H. OSBORNE, T.W. PETRIE, General Atomics, M.E. FENSTERMACHER, C.L. LASNIER, Lawrence Livermore National Laboratory, J.G. WATKINS, Sandia National Laboratories — The ELM (Edge-Localized-Mode) instability during H-mode triggers a rapid loss of edge pressure which can propagate inward and destroy central confinement. The lost ELM energy is transported outward into the SOL, flowing into the divertor where it also has the potential to damage plasma facing components. We correlate the rapid loss of plasma stored energy during an ELM with changes to the edge pedestal density and temperature profile changes as measured by Thomson scattering, ECE radiometry, and microwave reflectometry. At low or moderate density the ELM energy loss scales proportionally with the edge pedestal pressure. However at higher density the ELM perturbations to the temperature profile become very small resulting in a much smaller ELM energy loss. Correlations of the ELM energy loss to local and global parameters is explored. The inward propagation of the edge temperature perturbation is also investigated.

<sup>1</sup>Supported by U.S. DOE Contracts DE-AC03-99ER54463, W-7405-ENG-48, and DE-AC04-94AL85000.

Prefer Oral Session  
 Prefer Poster Session

A.W. Leonard  
Leonard@gav.gat.com  
General Atomics

Special instructions: DIII-D Poster Session 2, immediately following MA Mahdavi

Date printed: July 16, 1999

Electronic form version 1.4