

Abstract Submitted  
for the DPP05 Meeting of  
The American Physical Society

**Investigation of ELMs on Alcator C-Mod**<sup>1</sup> J.L. TERRY, A. HUBBARD, J.A. SNIPES, J.W. HUGHES, S. WUKITCH, Y. LIN, PSFC-MIT — C-Mod typically operates in regimes without large ELMs. Recently, discrete ELMs have been routinely produced by making plasmas with large lower triangularity (i.e.  $>0.75$ ), compared to the more typical C-Mod values  $<0.6$ . The ELM character was substantially modified as the triangularity was reduced, changing from discrete ELMs of  $\sim 60 \mu\text{sec}$  duration, to H-to-L mode back transitions, lasting  $\sim 4\text{msec}$ . The discrete ELMs are most apparent when the density is just above the low-density H-mode threshold,  $n_e \sim 8 \times 10^{19} \text{m}^{-3}$ . Pedestal  $T_e$  up to 1 keV was measured early in the H-mode phase. The spatial structure and propagation of the discrete ELMs are studied using fast-framing ( $\sim 250 \text{kHz}$ ) cameras and other high resolution optical diagnostics. The magnetics and the optical diagnostics show a rapidly-growing precursor oscillation (100-200 kHz just prior to the ELM crash) that is localized radially to around the top of the pedestal. Outside the LCFS the enhanced emission from the ELM propagates radially outward with a complicated spatial structure, similar in many respects to ‘blobs.’

<sup>1</sup>Work supported by DoE.

J.L. Terry  
PSFC-MIT

Date submitted: 26 Aug 2005

Electronic form version 1.4