

**Abstract Submitted for the 52nd Annual Meeting
Division of Plasma Physics
November 8–12, 2010, Chicago, Illinois**

Category Number and Subject:

Theory Experiment

ELM Pacing Using Modulated Magnetic Field Perturbations,* W.M. Solomon, *PPPL*; K.H. Burrell, J.S. deGrassie, T.E. Evans, A.M. Garofalo, G.L. Jackson, T.H. Osborne, *GA*; H. Reimerdes, *U. Columbia*; C.J. Lasnier, M.A. Makowski, *LLNL*; E.J. Doyle, *UCLA* — Experiments have been conducted on DIII-D to investigate the viability of using modulated magnetic field perturbations as a tool for pacing ELMs. It is found that the ELMs are entrained with twice the modulation frequency. When applied to plasmas operating near the L-H power threshold with naturally low ELM frequency, the modulated fields result in a clear redistribution of the divertor heat flux loads, with large infrequent ELMs replaced with more rapid, smaller sized ELMs. However, more detailed analysis has revealed that this change in ELM character appears to be a direct result of the density reduction (so-called “density pumpout”) associated with the fields. More specifically, the reduced density tends to reduce the L-H power threshold, so at fixed input power, we move further away from the power threshold, which is known to reduce ELM size.

*Supported by the US DOE under DE-AC02-09CH11466, DE-FC02-04ER54698, DE-FG02-04ER54761, DE-AC52-07NA27344, DE-FG03-08ER54984.