

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

Category Number and Subject:

Theory Experiment

**Compatibility of RMP ELM Suppression with Radiating
Divertor in DIII-D,***

T.W. Petrie, N.H. Brooks, T.E. Evans, J.R. Ferron, T.C. Luce, P.A. Politzer, M.J. Schaffer, P.B. Snyder, *GA*; M.E. Fenstermacher, C.J. Lasnier, M.E. Rensink, *LLNL*; B. Hudson, *ORISE*; J.G. Watkins, *SNL*; S. Mordijck, *UCSD* — The integration of edge localized mode (ELM) *suppression* using resonant magnetic perturbations (RMPs) with radiating divertor operation is explored. Moreover, during ELM *mitigation* experiments, we find that radiating divertors with the RMP coils activated produce both higher levels of radiated power from the divertor and SOL/edge plasma regions (~30% higher) and significant reductions in peak heat flux from ELMs at the divertor targets (~30-40% lower) than comparable non-RMP H-mode discharges at the same density. These results build on the theoretical and experimental progress made previously in identifying the underlying physics involved in two distinct areas, i.e., puff-and-pump radiating divertor [1] and ELM suppression using RMPs [2].

[1] T.W. Petrie, *et al.*, Nucl. Fusion **49** (2009) 065013.

[2] T.E. Evans, *et al.*, Nucl. Fusion **48** (2008) 024002.

*Supported by the US DOE under DE-FC02-04ER54698, DE-AC52-07NA27344, DE-AC05-06OR23100, DE-AC04-94AL85000, DE-FG02-05ER54809 and DE-FG02-07ER54917.