

Abstract Submitted for the 56th Annual Meeting
Division of Plasma Physics
October 27–31, 2014
New Orleans, Louisiana

Category Number and Subject:

[] Theory [X] Experiment

ELM Suppression in DIII-D ITER-like Plasmas Using n=2 Magnetic Perturbations,* R. Nazikian, B.A. Grierson, M. Okabayashi, B.J. Tobias, *PPPL*; D. Eldon, T.E. Evans, N.M. Ferraro, R.J. Groebner, C. Paz-Soldan, E.J. Strait, *GA*; S.R. Haskey, *ANU*; J.D. King, *ORISE*; G.R. McKee, *U Wisc.*; R.A. Moyer, D.M. Orlov, *UCSD*; M.W. Shafer, *ORNL* – A robust window of edge localized mode (ELM) suppression was observed at elevated magnetic safety factor ($q_{95} \approx 4.1$) in ITER-like plasmas with even parity n=2 resonant magnetic perturbation (RMP) using the internal I-coils. Variation of the upper and lower I-coil phasing was used to explore the importance of pitch alignment vs kink alignment for ELM suppression. Both the pedestal density and ELM suppression were strongly dependent on I-coil phasing and a large variation in the plasma response amplitude was measured on multiple diagnostics. Surprisingly, toroidal rotation of the even parity n=2 RMP led to the loss of ELM suppression, indicating that components of the residual error field orthogonal to the kink mode may be important near the threshold for ELM suppression.

*Work supported by the US Department of Energy under DE-AC02-09CH11466, DE-FC02-04ER54698, DE-AC05-06OR23100, DE-FG02-89ER53296, DE-FG02-08ER54999, DE-FG02-07ER54917, and DE-AC05-00OR22725.