

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

ELM Suppression in DIII-D ITER-like Plasmas Using n=2 Magnetic Perturbations¹ 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.

¹Work 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.

R. Nazikian
PPPL

Date submitted: 11 Jul 2014

Electronic form version 1.4