

Abstract Submitted
for the DPP10 Meeting of
The American Physical Society

Numerical Analysis of Resonant Magnetic Perturbations ELM Control in ITER¹ D.M. ORLOV, R.A. MOYER, UCSD, T.E. EVANS, M.J. SCHAFFER, General Atomics, O. SCHMITZ, FZJ-Juelich — We analyze the effect of the RMP coils on the magnetic topology in ITER since this is known to affect the stability of Type-I ELMs. Studies are done for different ITER scenarios (H-mode, steady-state and other) with various coil current amplitudes and phasing. We examine the effect of various RMP configurations on the magnetic topology in ITER using vacuum field modeling. This is done by calculating field line characteristics such as the Chirikov magnetic island overlap parameter and the magnetic field line loss. Results show that we can achieve a level of stochastization equivalent to that in DIII-D RMP ELM suppressed discharges using the nominal ELM control coil currents planned in ITER. We have also included the effect of the ITER Error Field Correction coils in this analysis. The results indicate the robustness of the ITER RMP coils. Our analysis of coil failure shows that the RMP coils will perform well even if current is lost in 10% of the coils.

¹This work supported in part by the US DOE under DE-FG02-05ER54809 and DE-FC02-04ER54698.

D.M. Orlov
UCSD

Date submitted: 21 Jul 2010

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