

Abstract Submitted  
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**ELM Size &  $\nu_{\perp e} \approx 0$  Location During RMP H-mode Plasmas in DIII-D**<sup>1</sup> M.E. FENSTERMACHER, LLNL, R.A. MOYER, UCSD, T.H. OSBORNE, GA — Previous studies [1,2] examined the correlation between vacuum island overlap region width and edge localized mode (ELM) size during  $n = 3$  resonant magnetic perturbations (RMPs) in DIII-D. For rotating H-mode plasmas it was proposed [3,4] that the resonant perturbation components would be screened by plasma response except at locations with the sum of the electron diamagnetic and  $E \times B$  velocities,  $\nu_{\perp e} = 0$ . One hypothesis for the mechanism of RMP ELM suppression is that the pedestal width is prevented from expanding to the peeling-ballooning instability boundary by plasma modes at a location where vacuum RMP fields penetrate. This would suggest that the  $\nu_{\perp e} = 0$  location would be closer to the plasma edge during ELM suppression than during ELM mitigation. This paper will examine the degree of correlation between  $\nu_{\perp e} = 0$  location and ELM size during RMP H-mode plasmas including those from the previous studies.

[1] M.E. Fenstermacher et al., Phys. Plasmas **15** (2008) 056122.

[2] M.E. Fenstermacher et al., J. Nucl. Mater. **390** (2009) 793.

[3] M. Heyn, et al., Nucl. Fusion **48** (2008) 024005.

[4] E. Nardon, et al., Nucl. Fusion **50** (2010) 034002.

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