ELM Size & $\nu_{\perp e} \approx 0$ Location During RMP H-mode Plasmas in DIII-D\textsuperscript{1} 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.


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