Category Number and Subject: 5.6.2. DIII-D Tokamak

[ ] Theory   [x] Experiment

Divertor Impurity Sources and Core Content During ELM Controlled Regimes in DIII-D,* M.E. Fenstermacher, M. Groth, C.J. Lasnier, *LLNL*, T.E. Evans, T.H. Osborne, A.W. Leonard *GA*, R.A. Moyer, *UCSD* – In low collisionality ($\nu*$) plasmas, ELM suppression by n=3 edge resonant magnetic perturbations (RMPs) in DIII-D can produce substantial changes to the divertor plasma that can lead to increases in impurity sources and core impurity content. For some conditions the divertor appears to lose the high recycling regime and become sheath limited. These changes are a consequence of the extremely low density used to achieve ITER level of pedestal $\nu*$ in some of these RMP experiments. In other cases, at slightly higher $\nu*$ or when a small level of edge MHD is present, the increase in core impurity content is not seen during RMP ELM suppression. The increase is also not seen during ELM-free QH-mode at comparable densities. In this case the Edge Harmonic Oscillation (EHO) may play a role in keeping impurities out of the core. Analysis of impurity sources and core content from low $\nu*$ ELM controlled regimes (RMP and QH-mode) for low triangularity (δ) LSN and higher δ more ITER-like shaped plasmas will be presented.