

Abstract Submitted  
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**Study of effects of external drive on MRX reconnection** J. SCHROEDER, S. DORFMAN, M. YAMADA, H. JI, B. MCGEEHAN, E. OZ, N. WILLIAMS, PPPL, CMSO, W. DAUGHTON, V. ROYTERSHTEYN, LANL — The Magnetic Reconnection Experiment (MRX) studies driven reconnection utilizing two toroidal flux cores [1]. One active topic of research is the relationship between global plasma parameters and local reconnection physics. External drive is determined by the rate at which poloidal magnetic field is pulled back into the flux cores. Findings from the TS-3 experiment [2] and recent 2-D simulations [3] have shown a linear scaling between driving parameters and reconnection rate. This study investigates the relationship of external drive to the out-of-plane electric field and the MHD inflow velocity in MRX. Initial results show a linear scaling between external drive and out-of-plane electric field at low fill pressure and reduced dependence at higher fill pressure. Further analysis of the effect of external drive on other relevant plasma parameters and comparisons to 2-D kinetic simulations will be reported. [1] M. Yamada, et al., *Phys. Plasmas* 4(5),1936 (1997). [2] M. Yamada, et al., *Physical Review Letters* 65(6),721 (1990). [3] S. Dorfman, et al., Submitted to *Phys. Plasmas*. This work was supported by DOE, NASA, and NSF.

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