Abstract Submitted
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Effect of Current Loop Perturbations on Fast Reconnection in MRX K.R. LABE, Swarthmore College, SULI, PPPL, S. DORFMAN, M. YAMADA, H. JI, E. OZ, J. YOO, J. XIE, CMSO, PPPL — The Magnetic Reconnection Experiment (MRX) investigates the mechanism responsible for fast reconnection. Two toroidal flux cores produce the plasma and drive the reconnection; the current flows toroidally [1]. A 20 cm diameter circular current loop was installed at one toroidal position at the center of the current sheet; it could be oriented to produce magnetic field either out-of-plane or along the reconnecting field. A voltage of up to 10 kV was applied to the loop for 100 us; the effect of its large-scale perturbations on the reconnection process was measured at several toroidal locations. Preliminary results show that the reconnection rate, as manifested by the flux evolution, is resilient to current loop perturbations. By contrast, detailed characteristics of the reconnection process (e.g. electromagnetic fluctuations, magnetic field profile) are globally affected by even small current loop perturbations. Effects of varying the plasma density as well as the loop voltage and timing will be reported. [1] M. Yamada, et al., Phys. Plasmas **4**(5), 1936 (1997).

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