

Abstract Submitted
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Study of 3-D Asymmetries in the Magnetic Reconnection Experiment (MRX) JONATHAN JARA-ALMONTE, PPPL, NUF, UW Madison, HANTAO JI, SETH DORFMAN, ERIC LAWRENCE, CLAYTON MYERS, TIM THARP, MASA AKI YAMADA, JONGSOO YOO — In MRX, two flux cores drive reconnection, forming a layer with the current in the toroidal direction. It is believed that toroidal asymmetry is important in understanding the reconnection process in MRX, due to discrepancies between 2-D simulations and experiments.¹ Toroidal asymmetry has also been shown to be important in the onset of reconnection with a strong guide field on VTF² In this work, a study of asymmetries in the reconnecting magnetic field and the out-of-plane electric field is presented for the case of no guide field on MRX. Using an array of 8 radial probes, toroidal mode structures have been identified in the current layer; the relevance of these modes to reconnection will be discussed. Additionally, previous calculations of the out-of-plane electric field have assumed symmetry, and here this assumption is tested.

¹S. Dorfman, et al., PoP. **15**, 102107 (2008).

²N. Katz, et al., Phys. Rev. Lett. **104**, 255004 (2010).

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