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**An examination of Reconnection Suppression in Asymmetric Guide Field Reconnection on MRX** AARON GOODMAN, JONGSOO YOO, JONATHAN JARA-ALMONTE, SAYAK BOSE, HANTAO JI, Princeton Plasma Physics Laboratory — Data is presented from reconnection experiments on MRX with large density asymmetry across the current sheet in the presence of a large guide field ( $\frac{B_g}{B_{rec}} > 2$ ). Swisdak (2003) and Liu (2016) have both reported simulation results showing that reconnection with strong density asymmetry can be suppressed in the presence of a guide field due to Alfvénic motion of the X-line. Phan has reported observations of reconnection suppression due to the diamagnetic electron current in space (2013). In MRX it is seen that fast reconnection may proceed even when beta varies significantly across the current sheet, in violation of the suppression condition reported for THEMIS data. A 2D pressure profile has been reconstructed and it is found that the diamagnetic drift speed in MRX is much smaller than the Alfvén velocity due to small pressure gradients around the X-line. The discrepancy between MRX and space observations is most likely caused by the different boundary conditions in the two cases or finite collisionality contributing to small pressure gradients near the X-line. Further research is required to resolve this point. Finally, a limited energy budget and energy analysis is presented for this reconnection regime.

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