

Abstract Submitted  
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**Laboratory Measurements of Guide Field Reconnection**<sup>1</sup> T.D. THARP, S. DORFMAN, J. JARA-ALMONTE, H. JI, E. LAWRENCE, C. MYERS, M. YAMADA, J. YOO, Princeton Plasma Physics Laboratory — The presence of a guide field can significantly alter the dynamics of magnetic reconnection in laboratory and astrophysical plasmas. Experiments which vary the guide field from zero to several times the reconnecting field have shown that increasing guide field tends to reduce the reconnection rate. Contrarily, during sawtooth activity in fusion plasmas, reconnection occurs in the presence of very strong guide fields on very fast time scales. Here, we investigate guide field reconnection in the Magnetic Reconnection Experiment (MRX) and compare to previous measurements of reconnection in the Madison Symmetric Torus (MST) reversed field pinch. In MRX, guide field dynamics can be studied either by varying control currents within the primary drive circuits, or by specifically applying a guide field using a set of dedicated steady state guide-field coils. In MST fusion plasmas, reconnection occurs spontaneously and nonlinear effects dominate the plasma dynamics.

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