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**An Experiment to Investigate the Role of Neutrals in Magnetic Reconnection** ERIC LAWRENCE, JONGSOO YOO, MASA AKI YAMADA, HANTAO JI, SETH DORFMAN, TIM THARP, CLAYTON MYERS, Princeton Plasma Physics Laboratory — Magnetic reconnection in the solar chromosphere has become a topic of recent interest as it may be a source of energy transfer into the corona [1], and observations show evidence of fast reconnection [2]. Unlike the corona, the plasma in the chromosphere is relatively cool ( $T \sim 10^4$  K) and is weakly to partially ionized ( $n_n/n \sim 10^0 - 10^4$ ). Furthermore, simulations have shown that the reconnection rate can depend on the ionization fraction and neutral collisionality [3]. Damping due to ion-neutral viscosity may also play a role. In the Magnetic Reconnection Experiment (MRX), we plan to study the effects of neutrals on reconnection in a controlled laboratory setting. A optical probe diagnostic is used to measure neutral density, and we plan to develop a UV diagnostic to facilitate comparisons with solar observations. Initial pressure scans have shown that we can access a parameter space relevant to the chromosphere.

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- [2] J. Chae, et al., J. Korean Astron. Soc., **36**, 13 (2003).
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