

Abstract Submitted
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Experimental Study of Solar Flares in MRX¹ NATE WILLIAMS, Saint Louis University, NUF, PPPL, ERDEM OZ, MASA AKI YAMADA, HANTAO JI, SETH DORFMAN, BRENDAN MCGEEHAN, PPPL, JAMES SCHROEDER, Wheaton College, NUF, PPPL — Solar flares and coronal mass ejections (CMEs) have a great effect on Earth, causing geomagnetic storms that can damage satellite communication or the orbiting structures themselves. Being unable to take direct measurements, understanding of these phenomena in many ways is limited to calculations and models. This experiment modifies the Magnetic Reconnection Experiment (MRX)[1] to study solar flares in a laboratory setting. Two electrodes placed in separate toroidal positions create a plasma for studying a twisted flux rope model. Magnetic probes map out the magnetic structure, and electrostatic probes measure plasma temperature and density. The arc is monitored by a high speed camera. The equilibrium magnetic field, which maintains the arc shape, and the safety factor can be calculated. Results to be shown can be applied to increase understanding of the mechanism of CME initiation[2]. [1] Yamada et al., 1997. [2] M. Yamada, H. Ji, S. Gerhardt, S. Antiochos, M. Linton, MRX Solar Flare Experiment Proposal, 2007.

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