Abstract Submitted for the DPP13 Meeting of The American Physical Society

Astrophysical Jet Formation in a Laboratory Environment¹ AARON STEMO, MATTHEW BROOKHART, MIKE CLARK, JOHN WALLACE, CARY FOREST, University of Wisconsin - Madison — Astrophysical jets are commonly associated with accreting bodies such as active galactic nuclei (AGN), binary systems, and protostars. These plasma jets are formed due to interactions between the magnetic field of the accreting body and the conducting accretion material. Observational limitations prevent a detailed understanding of the mechanism which launches the jets. Utilizing existing equipment associated with the Line-Tied Reconnection Experiment (LTRX) we have created a new experiment to simulate astrophysical jet formation in a laboratory environment. In contrast to similar experiments, our jets are long-lived, encompass a large volume, and undergo quasiequilibrium evolution. We have obtained initial results from a high-speed camera showing the evolution of plasma jets in our experiment under varying current levels and field strengths. Future work will include utilization of scanning probes to measure plasma characteristics such as temperature, density, and magnetic field.

¹Supported by DOE.

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Date submitted: 12 Jul 2013 Electronic form version 1.4