

Abstract Submitted
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Braided Structure in an Experiment Simulating a Solar Corona Loop¹ YANG ZHANG, PAUL BELLAN, Caltech — Braiding of a multitude of solar corona loops, first proposed by Parker ^[1], may explain loop non-monolithic structure and eruption dynamics. Braiding of multiple loops has been observed by the High-Resolution Coronal Imager ^[2]. We now observe braiding of multiple loops in a new arrangement of the Caltech lab experiment replicating solar coronal loops. The multiple loops are achieved by having multiple gas injection nozzles on each of the two electrodes representing the solar surface. We further observe that a single strand of the multi-loop braided structure can undergo a magnetic Rayleigh Taylor Instability (RTI) driven by hoop force. We are exploring how parameters such as axial magnetic field and gas injection position affect the braided structures and their undergoing the RTI. We will also be investigating whether X-ray bursts develop as was observed in a previous configuration where there was only a single loop and so no braided structure of multiple loops. [1] E. N. Parker. *The Astrophysical Journal* 174 (1972): 499. [2] J. W. Cirtain, et al. *Nature* 493.7433 (2013): 501-503.

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