

Abstract Submitted
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Laboratory generated magnetized plasma bubbles as a means to understanding coronal mass ejections A.G. LYNN, C. WATTS, University of New Mexico, W. MANCHESTER, University of Michigan — The goal of this research is to substantiate, through a series of basic plasma experiments and corroborative numerical modeling, the fundamental physics of coronal mass ejection (CME) interaction with the solar wind flow in the Sun's outer corona. We have begun a series of laboratory experiments using the combined Helicon-Cathode (HelCat) and Plasma Bubble Experiment (PBEX) instruments, which can generate CME like structures injected into a background plasma medium. Results of these experiments are compared with the University of Michigan state-of-the-art 3D BATS-R-US MHD numerical code, which has been used to perform simulations of the propagation of CMEs into a background solar wind. The results will be compared in a systematic way to validate the numerical model, and to further our understanding of CME propagation through the solar wind. The objective is to validate the numerical code under controlled laboratory settings, allowing it to be applied with greater confidence to a more realistic but less well-understood solar setting.

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