

Abstract Submitted
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Preliminary Results on a Low-Energy RMF-FRC Experiment with Water NOLAN UCHIZONO, CARRIE HILL, ERC, Incorporated, MICHAEL HOLMES, Air Force Rsch Lab-Edwards — The U.S. Air Force Research Laboratory-Edwards has developed a new Field-Reversed Configuration (FRC) test cell for researching low-energy ($<15\text{J}$) FRC formation physics. This test cell is currently outfitted with a cylindrical Rotating Magnetic Field (RMF) FRC plasma source. FRC's are compatible with a variety of propellants – including complex propellants, like water and CO_2 . Water was the propellant of choice for this experiment. The input conditions of the test cell were varied to study their effects on FRC formation and plasma content. FRC formation was studied using a suite of diagnostics, including voltage and current probes, and excluded-flux measurements. Plasma species composition was studied using a residual gas analyzer, and optical emission spectroscopy. The propellant decomposition and ionization stage used in this experiment is presented in companion work at this conference.

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