

Abstract Submitted
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Overview and Current Status of the Pulsed High Density Experiment¹ SAMUEL ANDREASON, JOHN SLOUGH, University of Washington - Plasma Dynamics Laboratory — The goal of the Pulsed High Density (PHD) experiment is to produce a large Field Reversed Configuration (FRC) of approximately 10 mWb flux that can be accelerated and compressed to reach breakeven conditions. The formation section is 0.4 m in radius with a length of 2.5 m. The primary challenge in the formation section is achieving an FRC with sufficient flux while remaining kinetically stable for the necessary lifetime. Earlier efforts were focused on using one on-axis MPD plasma source for initial ionization. Current work is being done with an MPD array inserted near the wall, past the bias field cusp region. There has been some success with this approach for 'dynamic' formation shots. "In situ" shots have proven more problematic. Less than half the intended complement of MPD guns has been manufactured and installed. We are not certain whether current difficulties result from this fact or individual variation in the MPD characteristics. Ionization by rotating magnetic field (RMF) and ringing theta pinch will be attempted as alternatives and supplements to the MPD sources.

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