

Abstract Submitted
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Pulsed High Density Experiment in Double Ended Merging and Compression SAMUEL ANDREASON, JOHN SLOUGH, CHRIS PIHL, University of Washington — The results from the initial FRC dynamic formation and translation experiments on PHD attained target parameters with equilibrium temperatures of 300 eV or 15 mWb of flux. A long FRC equilibrium phase was observed after reflection from a downstream mirror. The next phase requires rapid formation of a stationary FRC at higher flux. Based on the success of the dynamic formation and merging of two FRCs [1], the PHD experiment has been modified to a double ended merging and compression system. The previous PHD source section has been split to create two 1.25 m long, 0.8 m diameter, source sections. The FRCs will be injected into a compression section that is 2.8 m long with a 0.4 m diameter for merging and compression experiments. A 0.4 MJ bank is used initially for flux compression. This same bank was designed to be used for future metal and plasma liner experiments as well. Operating at full power the flux compression of the FRC is expected to produce a range of plasma parameters with $T \sim 0.5\text{-}2$ keV, and $2\text{-}8 \times 10^{21} \text{m}^{-3}$.

[1] G. Votroubek, J. Slough, S. Andreason, C. Pihl, J. of Fus. Energy, Vol. 27, No. 1-2, pg. 123 (2007).

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