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Compression of Dynamically Formed and Merged FRCs¹ GEORGE VOTROUBEK, JOHN SLOUGH, ARTHUR BLAIR, CHRIS PIHL, MSNW, LLC, SAMUEL ANDREASON, RICHARD MILROY, THOMAS WEBER, University of Washington — In order to explore the high energy density approach to fusion, experimental studies of field reversed configuration (FRC) plasma dynamic formation/ acceleration, collisional merging, and compression to high density have been performed in the Inductive Plasma Acceleratior (IPA) experiment at MSNW in Redmond, WA. Two identical IPA sources eject FRCs at ~ 250 km/s into a central chamber where they collide, merge, and decay with flux lifetimes of $\sim 40~\mu s$. The merged FRC is then magnetically compressed via a 125 kJ bank up to a field of ~ 1.5 T resulting in a high density plasma. The experimental device now in operation will be discussed. Results from the merging experiments will be presented, as well as results from compression studies. These results will be compared to 2D MHD numerical calculations.

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