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Compressional Heating of Dynamically Formed and Merged FRCs in the IPA-C Experiment GEORGE VOTROUBEK, JOHN SLOUGH, CHRIS PIHL, MSNW, LLC — Pulsed, linear, fusion reactors have been investigated due to their appealing geometry, low cost and fairly straight-forward engineering and technical challenges. The FRC's inherent high beta, translatability and simple linear geometry make it an ideal source plasma for such a reactor. The goal of the Inductive Plasma Acceleration and Compression (IPA-C) experiment is to develop the FRC plasma source required. In the IPA-C, a stable, hot, and dense plasmoid is formed through collisional merging and compression of two FRCs dynamically formed ∼1.5 m from their final location. This method of remote formation and translation of FRCs into a central section has many advantages when scaled up for fusion burn: large stand-off distances can be maintained between the plasma source and the fusion burn region, the simply connected geometry is ideal for blankets and shielding, and the rapid, repetitive cycling of the fusion burn becomes viable. Recent upgrades of the IPA-C include: increase in formation energy and coil radius for a higher flux FRC; addition of an acceleration section; and doubling of the maximum compression field. Recent results will be discussed.

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