Abstract Submitted
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**High Speed Argon Plasma Jet Merging Studies In Support of PLX**[1] ANDREW CASE, SARAH MESSER, SAMUEL BROCKINGTON, LIN CHUN WU, HyperV Technologies Corporation, RAY ELTON, University of Maryland, DOUGLAS WITHERSPOON, HyperV Technologies Corporation — Formation of an imploding plasma liner for the Plasma Liner Experiment (PLX) requires individual plasma jets to merge into a uniform shell of plasma converging on the target region. Understanding dynamics of the merging process requires knowledge of the plasma phenomena involved. We present here results from the study of the merging of two and three plasma jets in two dimensional (coplanar) and three dimensional geometry. The experiments were performed using HyperV Technologies Corp. one centimeter MiniRailguns using a preionized Argon plasma armature on a vacuum chamber designed to partially reproduce the port geometry of the PLX vacuum chamber. Diagnostics include fast imaging, spectroscopy, interferometry, deflectometry, fast pressure probes, B-dot probes, and high speed spatially resolved photodiodes, permitting measurements of plasma density, temperature, velocity, stagnation pressure, magnetic field, and density gradients. These experimental results are compared with simulation results from the LSP 3D hybrid PIC code.

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