

Abstract Submitted
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Diagnostic Suite for the PLX- α Project¹ KEVIN YATES, MARK GILMORE, University of New Mexico, SAMUEL LANGENDORF, JOHN DUNN, JACQUELYNNE VAUGHAN, RICARDO MARTINEZ, SCOTT HSU, Los Alamos National Laboratory — The Plasma Liner Experiment–ALPHA (PLX- α) at Los Alamos National Laboratory is demonstrating the viability and scalability of spherically imploding plasma liners as a compression driver for plasma-jet-driven magneto-inertial fusion (PJMIF) [Hsu et al., IEEE Trans. Plasma Sci. 40, 1287 (2012)]. On PLX- α , plasma liners will be formed by merging up to 60 supersonic plasma jets. We are currently conducting conical-liner experiments ($\sim \pi/2$ solid angle with 6 and 7 plasma guns) to diagnose the jet-merging process and determine the values of post-merge Mach-number-degradation and liner uniformity. The diagnostic suite includes 12-chord interferometry, visible-light survey spectroscopy, high-resolution visible spectroscopy, single- and multi-frame intensified visible imaging, and schlieren imaging. The diagnostics suite and a comparison to synthetic data from 3D simulations on the 6- and 7-jet configurations will be presented.

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