

Abstract Submitted  
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**Formation of Supersonic Spherically Imploding Plasma Liners on PLX**<sup>1</sup> SAMUEL LANGENDORF, TOM BYVANK, JOHN DUNN, Los Alamos National Laboratory, FRANKLIN WITHERSPOON, ANDREW CASE, EDWARD CRUZ, HyperJet Fusion Corporation, MARK GILMORE, University of New Mexico — The Plasma Liner Experiment (PLX) at Los Alamos National Laboratory is a mid-size experimental facility that has been built to explore the idea of using a spherically imploding plasma liner, formed via the merging of discrete plasma jets, as a transformative driver for magneto-inertial fusion. [1] We present first results from PLX with fully spherical plasma liner implosions, at the culmination of an upgrade process to equip the facility with a spherical array of 36 plasma guns. Prior investigations on PLX have studied the merging of smaller numbers of plasma jets, and indicated the possible important role of inter-jet streaming and interpenetration between merging jets, and the possible impact that these physics may have in decreasing detrimental density perturbations due to shock waves. We will present diagnostic results to determine if this smoothing of the liner density profile has indeed been achieved in the fully spherical case. [1] Hsu, Scott C., et al. "Spherically imploding plasma liners as a standoff driver for magnetoinertial fusion." IEEE Transactions on Plasma Science 40.5 (2012): 1287-1298. We acknowledge the critical contributions of the many scientists and personnel in the broader team and plasma physics community who have contributed to the PLX-ALPHA program.

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