in a series of 3 oral papers: please arrange accordingly. And include in the special session for the other ARPA-E funded, Alpha Program papers.

Abstract Submitted
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Performance of a Liner-on-Target Injector for Staged Z-Pinch Experiments[1] F. CONTI, J. C. VALENZUELA, J. NARKIS, I. KRASHENINNIKOV, F. BEG, University of California, San Diego, F. J. WESSEL, E. RUSKOV, H. U. RAHMAN, Magneto-Inertial Fusion Technologies, Inc., E. MCGEE, University of Nevada, Reno, NTF — We present the design and characterization of a compact liner-on-target injector, used in the Staged Z-pinch experiments conducted on the UNR-NTF Zebra Facility. Previous experiments[2] and analysis[3] indicate that high-Z gas liners produce a uniform and efficient implosion on a low-Z target plasma. The liner gas shell is produced by an annular solenoid valve and a converging-diverging nozzle designed to achieve a collimated, supersonic, Mach-5 flow. The on-axis target is produced by a coaxial plasma gun, where a high voltage pulse is applied to ionize neutral gas and accelerate the plasma by the $\vec{J} \times \vec{B}$ force. Measurements of the liner and target dynamics, resolved by interferometry in space and time, fast imaging, and collection of the emitted light, are presented. The results are compared to the predictions from Computational Fluid Dynamics and MHD simulations that model the injector. Optimization of the design parameters, for upcoming Staged Z-pinch experiments, will be discussed.

[1]Advanced Research Projects Agency - Energy, DE-AR0000569
[2]F. J. Wessel, et. al. AIP Conf. Proc. 1721, 060002 (2016)
[3]P. Ney, et.al., Phys. Plasmas **8**, 616(2001)

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