

Abstract Submitted
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Characterization of Ne gas puff Z-pinch on Linear Transformer Driver using spectroscopy¹ MAYLIS DOZIERES, NICHOLAS AYBAR, GILBERT COLLINS, FABIO CONTI, University of California, San Diego, DAVID REISMAN, None, FARHAT BEG, University of California, San Diego — Characterizing gas puff Z-pinch is of significant importance for the alternate fusion schemes and intense X-ray sources. We propose for the first time to study gas puff on a Linear Transformer Driver (LTD). Such data would help to understand in more detail the plasma behavior and validate numerical results. We performed an experiment on an LTD with ~ 200 kA peak and 150 ns rise time at UC San Diego. We used fairly high-resolution spectroscopy and 2-D interferometry to characterize the plasma at stagnation at various plenum pressures. An imaging spectrometer equipped with an ICCD allowed detection of Ne spectra from 320 nm to 460 nm, time-integrated over 50 ns. In addition, the measurements were spatially resolved along the z-axis. The experimental data are compared to hydrodynamic simulations and are part of a larger campaign dedicated to collect reliable data on the current distribution in gas puff Z-pinch plasmas.

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