

Abstract Submitted
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Study of magnetic field evolution in planar wire Z-pinch experiments MARIA PIA VALDIVIA, JOOHWAN KIM, DEREK MARISCAL, GILBERT COLLINS IV, FARHAT BEG, University of California San Diego, UNIVERSITY OF CALIFORNIA SAN DIEGO TEAM — We report on experiments with two planar arrays consisting of four nickel wires in each array to study advection of current to the precursor plasma. The linear transformer driver GenASIS was used to deliver a peak current of 200 kA with 150 ns rise-time. Laser probing along and across the wire arrays provided time evolution information of the variation of density, individual wire expansion, and precursor plasma formation on-axis. It is found that plasma dynamics differ significantly from aluminum arrays as the plasma precursor formation occurs earlier and is $m=1$ unstable, indicating a fraction of current flows through the precursor column. Results will be discussed in the context of current flow and general wire array plasma dynamics.

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