Abstract Submitted
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Dynamics and scaling of z-pinch K-shell x-ray sources[1] B. JONES, D.J. AMPLEFORD, M.E. CUNEO, S.C. JONES, C.A. COVERDALE, C. DEENEY, E.M. WAISMAN, J.E. BAILEY, G.A. ROCHAU, C.A. JENNINGS, Sandia National Laboratories, J.W. THORNHILL, J.P. APRUZESE, R.W. CLARK, K.G. WHITNEY, J. DAVIS, J.L. GIULIANI, Naval Research Laboratory, Y. MARON, V. FISHER, V. BERNSHTAM, A. STAROBINETS, Weizmann Institute, J.P. CHITTENDEN, Imperial College — Fast z-pinch implosions provide high fluence 1-10 keV photon energy radiation environments. We discuss recent work with ∼6.7 keV stainless steel and 8.4 keV Cu wire array sources on Sandia's Z machine pulsed power driver. Implosion dynamics are investigated along with scaling of K-shell yield with atomic number and coupled energy. L-shell radiative cooling can remove energy from the plasma and limit K-shell yield scaling at high mass, high generator current, and moderate atomic number. These K-shell line sources also provide an opportunity for spectroscopic diagnosis of high energy density plasma conditions.

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