

Abstract Submitted
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The Affects of Ablation, Two-Dimensional Instability, and Current Losses on K-Shell Emission in Wire Array Z-Pinch Implosions.¹ J.W. THORNHILL, J.L. GIULIANI, J.P. APRUZESE, Y.K. CHONG, J. DAVIS, A. DASGUPTA, Plasma Physics Division, Naval Research Laboratory, R.W. CLARK, K.G. WHITNEY, Berkeley Scholars, Inc., B. JONES, C.A. COVERDALE, D.J. AMPLEFORD, C.A. JENNINGS, M.E. CUNEO, Sandia National Laboratories — We present the results of a 2D radiation MHD based theoretical investigation that examines how wire ablation, the level of two-dimensional instability, and current losses in the load region of the pinch affect K-shell radiation for copper and stainless steel wire array implosions on the refurbished Z machine. We find that the broad mass distribution produced by including ablation physics largely overcome the diminishing effects on K-shell yield of two-dimensional instability growth. On the other hand, results of calculations that model suspected current losses near the load region² show substantial reductions in K-shell yield.

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²C. A. Jennings, Invited talk ICOPS (2009).

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