

Abstract Submitted
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Implosion dynamics and radiation features of planar, compact cylindrical, and nested wire arrays on 1 MA, 100 ns z-pinch generators V.L. KANTSYREV, A.S. SAFRONOVA, A.A. ESAULOV, K. WILLIAMSON, I. SHRESTHA, G. OSBORNE, N.D. OUART, M.F. YILMAZ, V. SHLYAPTSEVA, University of Nevada, Reno, J.B. GREENLY, J.D. DOUGLASS, R.D. MCBRIDE, D.A. CHALENSKI, D.A. HAMMER, B.R. KUSSE, Cornell University, L.I. RUDAKOV, Icarus Res. Inc., A.S. CHUVATIN, Ecole Polytechnique — Plasma formation and implosion features of planar wire arrays (PWA), compact cylindrical wire arrays (CWA), and low-wire number nested wire arrays (NWA) of the small size (6-15 mm) were studied on the 1 MA, 100 ns UNR Zebra and Cornell COBRA generators. The powers and yields were maximum for Mo double PWA, followed by W compact CWA and PWA, Mo single PWA and compact CWA, stainless steel (SS304) and Al compact CWAs, and Al/SS304 and SS304/SS304 NWAs. Despite different implosion dynamics of PWAs and compact CWAs they formed plasma that radiated similar yields and powers. The possibility of radiation pulse shaping by varying geometry and materials of PWAs and NWAs will be discussed. Simulations with Wire Dynamics Model and 2D MHD model with enhanced resistivity will be presented. Work was supported by DOE/NNSA under Coop. Agr. DE-FC52-06NA27586, DE-FC52-06NA27588, DE-F03-02NA00057, and in part by DE-FC52 06NA27616.

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