

Abstract Submitted  
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**Innovative Approach for Enhancing Shaped X-ray Production in Z-pinches\*** V.L. KANTSYREV, A.S. SAFRONOVA, A.A. ESAULOV, J.M. KINDEL, K.M. WILLIAMSON, I. SHRESTHA, G.C. OSBORNE, M.E. WELLER, N.D. OUART, V. SHLYAPTSEVA, University of Nevada, Reno, A.S. CHUVATIN, Ecole Polytechnique, L.I. RUDAKOV, Icarus Res. Inc., A.L. VELIKOVICH, Naval Research Laboratory — Among z-pinch loads tested at 1.7 MA Zebra generator, planar wire arrays (PWAs) were found to be the best x-ray radiators. PWAs were recently highlighted (PRL 104, 125001, 2010) as potential sources for a new ICF multisource compact hohlraum setup at multi-MA generators. Recent performance optimization of PWA, which exhibits a large resistive energy/power gain and a small, mm-scale size, is reviewed. The anisotropy of radiation yields from single- and double-PWAs that might be caused by opacity effects was observed: higher yield was orthogonally to an array plane or along wire rows in single- and double-PWA (DPWA), respectively. Skewed DPWA implosions, which produce an axial magnetic field to reduce instabilities, generate higher Te/Ne compared to a standard DPWA. Feasible x-ray pulse shaping was demonstrated with DPWA and triple-PWA by varying array composition and parameters. The studies were supported by non-LTE kinetic, WADM, and MHD simulations. \* This work was supported by NNSA under DOE Cooperative Agreements DE-FC52-06NA27586, DE-FC52-06NA27588, and in part by DE-FC52-06NA27616.

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