

Abstract Submitted
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X-ray radiation from puff-on-wire implosion on the COBRA generator¹ N. OUART, Naval Research Lab, J. ENGELBRECHT, P. DE GROUCHY, N. QI, T. SHELKOVENKO, S. PIKUZ, B. KUSSE, D. HAMMER, Cornell University, J. GIULIANI, A. DASGUPTA, A. VELIKOVICH, Naval Research Lab, J. APRUZESE, Engility Corp., R. CLARK, Berkeley Research Associates — Substantial progress has been made in developing plasma radiation sources from Z-pinch implosions. University pulsed power machines provide a cost effective platform to study alternative mechanisms of producing x-rays that may provide guidance in search of further improvements on the larger machines. Radiation from puff-on-wire implosions were previously studied [1,2]. We report recent observations and modeling of puff-on-wire implosions using the 1 MA COBRA generator in the long pulse mode. The gas puff used Ne, Ar, or Kr and the wire material was either Cu or manganin 290 (84% Cu, 12% Mn, 4% Ni). The diagnostics include time-integrated pinhole cameras and an axially resolved spectrometer, multiple filtered PCDs and Si-diodes, and time-gated XUV cameras. X-ray radiation from the gas puff and the K-alpha line from wire material was detected. A 1-D multi-zone non-LTE kinetics code with radiation transport will be used to model the radiation to infer the plasma conditions. [1] A. Chuvatin, P. Choi, and B. Ethlicher, Phys. Rev. Lett. **76**, 2282 (1996) [2] F.J. Wessel, P.L. Coleman, N. Loter, *et al.*, J. Appl. Phys. **81**, 3410 (1997)

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Nicholas Ouart
Naval Research Lab

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