

Abstract Submitted
for the DPP12 Meeting of
The American Physical Society

Hybrid X Pinches at 1.2 MA¹ TATIANA A. SHELKOVENKO, SERGEY A. PIKUZ, ADAM D. CAHILL, CAD L. HOYT, DAVID A. HAMMER, Cornell University, IVAN N. TILIKIN, SERGEY N. MISHIN, ALBERT R. MINGALEEV, P. N. Lebedev Physical Institute — A hybrid X-pinch (HXP) configuration consisting of solid conical electrodes connected by a wire as a central load has been tested on four different generators with currents varying from 200 kA to 1.2 MA and risetimes ranging from 50 ns to 170 ns. It was possible to optimize the wire material, length and diameter so that most of these HXPs generated an intense single burst of soft x-rays with energy yield comparable with that produced by standard X pinches. This configuration is useful primarily for pulsers with MA current level and was suggested to simplify standard wire X-pinch configurations with many wires. Wires as well as hollow and filled tubes made of Al, Ni and polyethylene were tested as a load on the COBRA pulser (1.2 MA, 100 ns rise time). The filled tubes expand the range of materials that can be studied under extreme conditions. Electron beams generation in HXPs has also been studied.

¹This work was partially supported by the SSAA program of the NNSA under DOE Cooperative Agreement No. DE-FC03-02NA00057, RFBR Project No. 11-02-01210-a.

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Date submitted: 11 Jul 2012

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