

Abstract Submitted
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Precursor focusing by conical electrodes inside wire array Z-pinches¹ J.B. GREENLY, D.A. CHALENSKI, P.F. KNAPP, T.A. SHELKOVENKO, S.A. PIKUZ, Cornell University — The addition of conical extensions of the anode and cathode electrodes into the interior of wire array Z-pinches is being studied. So far, 30 and 45 degree simple solid cones have been added to both electrodes, for instance, 16 mm base diameter, 8 mm tall cones, centered on axis, projecting from both electrodes into a 20 mm diameter (16 x 12 micron dia. Aluminum) wire array (thus leaving a 4 mm gap between the points of the cones on axis). The inward flow of ablation streams from the wires is strongly modified by the cones, especially on the anode side: the effects are not symmetrical at anode and cathode. At the anode, the streams are redirected to form a well-defined layer of flow along the cone and come to a focus ~ 1.5 mm off the tip of the cone, forming a hot, high-density spot ~ 1.5 mm diameter which persists in a nearly steady state for 10's of ns during the ablation phase. Images and x-ray spectra will be presented to quantify the characteristics of this focal spot and other phenomena of the ablation flows with cones.

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J.B. Greenly
Cornell University

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