

Abstract Submitted
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Study of Ablation and Implosion Stages of 1-MA Wire Array Z-Pinch using X-ray Laser-Based Backlighting¹ AUSTIN ANDERSON, VLADIMIR IVANOV, DANIEL PAPP, BJORN TALBOT, ALEXEY ASTANOVITSKIY, University of Nevada, Reno — The ablation and implosion stages of wire array z-pinches were studied using laser-based x-ray imaging at the 1-MA Zebra pulse power generator at the University of Nevada, Reno. X-ray backlighting at the wavelength of 6.65 Å was provided by hitting a Si target with the 50 TW Leopard laser. Laser-based radiography allows flexibility in both the timing and the position of the x-ray source. The issue of the method is the small energy of the laser pulse compared to radiation of the Z pinch. A spherically bent quartz crystal can give spatial resolution < 10 microns and spectral linewidth of the x-ray on the order of 10⁻⁴. X-ray imaging allows viewing of the dense core of plasma column during the ablation stage. Wires with diameters 7.6-15 were resolved in test shots. Images of the wire-array at the ablation stage are discussed.

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