

## **RADIOGRAPHING THE EVOLUTION OF TWO-WIRE Z-PINCHES WITH X-PINCH X-RAY SOURCE\***

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The evolution of two-wire z-pinches was investigated with x-ray radiography on pulsed power generator PPG-I, which can deliver a peak current of about 400kA to the load. A Mo wire x-pinch used as x-ray source was installed at the position of one of the current-return rods in the load section, and the object z-pinch made of two parallel Mo wires with 10-50 $\mu$ m in diameter was installed between the output electrodes. In order to calibrate the real mass density distribution of object z-pinch after wire expansion, A Mo step wedge with thickness from 0.05-1.2 $\mu$ m was designed and fabricated. The step wedge and the two-wire z-pinch were radiographed to different areas of the recording film in one shot. By varying the number (2-4) or diameter of current return rods as well as the wire diameter of the source X-pinch, the sequence of imaging moments can be obtained. With backlighting experiments, high spatial-resolved images of plasma formation, inter-wire plasma merging, and plasma instabilities together with the quantitative data of mass ablation rate, the plasma density distribution, the axial mass perturbations in wire cores are all obtained.

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