

Abstract Submitted
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Ablation Flow Interactions in Wire Array Z-Pinches on the MAGPIE generator GEORGE SWADLING, SERGEY LEBEDEV, GARETH HALL, FRANCISCO SUZUKI-VIDAL, GUY BURDIAC, NICOLAS NIASSE, LOUISA PICKWORTH, JONATHON SKIDMORE, PHILIP DE GROUCHY, ESSA KOORY, LEE SUTTLE, MATTHEW BENNETT, Imperial College London, JIANQIANG YUAN, Institute of Fluid Physics, China Academy of Engineering Physics, ADAM HARVEY-THOMSON, Sandia National Laboratories, IMPERIAL COLLEGE TEAM, SANDIA NATIONAL LABORATORIES COLLABORATION — We present the results of experiments investigating the interactions of ablation streams in aluminium and tungsten wire array z-pinches. These experiments were carried out on the 1.4MA, 240ns MAGPIE generator at Imperial College London. The primary diagnostics used for these studies were an optical Thomson scattering diagnostic and an end-on aligned, two colour, Mach-Zehnder imaging interferometer. In aluminum arrays, the interactions of the ablation flows produces a dense network of oblique shocks. Measurements of the geometry of these shocks allows us to place limits on the plasma parameters of the flows. In tungsten arrays the data shows a prolonged period of collisionless flow. No shock structures were observed, the flow densities varied smoothly between the ablation streams and the inter-wire regions. The region about the axis appears azimuthally isotropic, and Thomson scattering measurements indicate significant interpenetration of the flows in this region.

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