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Ablation of wires in an inverse wire array z-pinch[1] SERGEY LEBEDEV, G.N. HALL, S.N. BLAND, F.A. SUZUKI-VIDAL, J.P. CHITTENDEN, Imperial College London, C. JENNINGS, SNL, A. HARVEY-THOMPSON, CHENG NING, Imperial College London, J.B.A. PALMER, AWE Aldermaston — We describe experiments on the MAGPIE facility (1MA, 250ns) with inverse wire array z-pinches, in which the wires act as a return current cage placed around a central current conductor. In this configuration the plasma ablated from the wires is pushed by the JxB force in the radially outward direction and expands into the region free of the magnetic field. This allows quantitative characterisation of the plasma ablated from an individual wire using laser interferometry, X-ray radiography and XUV imaging. The inverse z-pinch configuration also allows to measure separately the contribution to the inductance coming from the "private" magnetic flux of the wires and thus to evaluate the size of the current-carrying region around the wire cores. Quantitative information obtained in these experiments will be compared with results of 3-D MHD computer simulations.

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