

Abstract Submitted
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Experimental investigation of the inverse wire array current switch¹ ADAM HARVEY-THOMPSON, SERGEY LEBEDEV, SIMON BLAND, GUY BURDIAC, JEREMY CHITTENDEN, GARETH HALL, ESSA KHOORY, LOUISA PICKWORTH, FRANCISCO SUZUKI-VIDAL, GEORGE SWADLING, PHILIP DE GROUCHY, Imperial College, HIANG KWEK, University of Malaya — A current switch geometry in which an inverse wire array (where the wires hang down from a central current conductor, acting as a return current cage) switches current into a cylindrical wire array have been fielded on the MAGPIE generator (1.4MA, 240ns). The inverse wire array has been found to be very effective as a current switch switching the equivalent of up to 1.4MA in 95ns into the cylindrical array with little current beforehand. As well as rapidly switching current the setup drives a prepulse over 100ns before the current switch into the cylindrical array which delivers enough energy to begin boiling the wires. When current switches into the vapourised wires the whole wire mass is observed to ionise and participate in the implosion which accelerates towards the axis leaving no trailing mass and with ablation suppressed. This paper will focus on the effectiveness of the current switch.

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