

Abstract Submitted  
for the DPP09 Meeting of  
The American Physical Society

**Modifying implosion dynamics of a wire array by using an inverse wire array z-pinch as a current switch**<sup>1</sup> SERGEY LEBEDEV, A. HARVEY-THOMSON, G.N. HALL, S.N. BLAND, G. BURDIAC, F.A. SUZUKI-VIDAL, G. SWADLING, E. KHOORY, J.P. CHITTENDEN, L. PICKWORTH, Imperial College — We will describe experiments on the MAGPIE facility (1.5MA, 250ns) in which an inverse wire array (with the wires acting as a return current cage placed around a central current conductor) operated as a fast current switch. This allowed to significantly reduce the rise-time of the current pulse (<100ns) delivered to a separate, standard imploding wire array z-pinch load. It was found that this arrangement generates a short current pre-pulse ( $\sim 5$ kA, <15ns) through the imploding array, followed by a  $\sim 140$ ns interval with zero current, before the main fast rising current pulse is switched into the array. This led to a significant change in the implosion dynamics, suppressing the ablation phase, introducing a 0-D-like implosion and reducing the level of trailing mass.

<sup>1</sup>This research was sponsored by the NNSA under DOE Cooperative Agreement DE-FC03-02NA00057.

Sergey Lebedev  
Imperial College

Date submitted: 16 Jul 2009

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