

Abstract Submitted  
for the DPP07 Meeting of  
The American Physical Society

**The Implosion of Radial Wire Array Z-Pinches** S.N. BLAND, S.V. LEBEDEV, F. SUZUKI-VIDAL, J.P. CHITTENDEN, G.N. HALL, A. HARVEY-THOMPSON, J.B.A. PALMER, Imperial College London, D.J. AMPLEFORD, Sandia National Laboratories, K. CHANDLER-MITCHELL, M. MITCHELL, Idaho State University — Radial wires array z-pinches - where the wires stretch radially outwards from a central cathode - offer a number of advantages over cylindrical arrays. Imploding in a similar fashion to a dense plasma focus, plasma from a radial array is projected above the electrodes, allowing experimental access over an entire hemisphere. The implosion is also compact and so is suitable for coupling to small scale hohlraums. Additionally radial arrays can be matched to low impedance generators and may enable the use of long pulsed drive currents. Here we present measurements of the dynamics of radial wire array z-pinches, examining wire ablation, implosion and the dynamics of the stagnating column. The scaling of power and yield of soft and hard X-rays with array configuration is explored. The effect of placing the radial wire array within a hohlraum is examined, as are nesting techniques both for increasing wire number and symmetry and for Xray pulse shaping. This research was supported by the NNSA under DOE Cooperative Agreement DEFC03 - 02NA00057

Simon Bland  
Imperial College London

Date submitted: 25 Jul 2007

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