

Abstract Submitted
for the DPP07 Meeting of
The American Physical Society

Time-Gated X Pinch Backlighting of Imploding Wire Array Z Pinches Using MCP¹ ISAAC BLESENER, KATE BELL, DAVE CHALENSKI, JON DOUGLASS, PAT KNAPP, RYAN MCBRIDE, SERGEI PIKUZ, TANIA SHELKOVENKO, BRUCE KUSSE, Cornell University, SIMON BOTT, DAVID HAAS, UTAKO UEDA, UCSD — X-ray backlighting of imploding Z pinches is difficult because the Z pinch generally produces much more radiation than the backlighting source, thus saturating the film. Monochromatic x-ray backlighting is currently the only way to image the axis of an imploding Z pinch. Other techniques exist, but require modifying the Z pinch in a way that prevents it from radiating strongly. One promising technique is to use a microchannel plate (MCP) detector to gate the exposure. This way, the Z pinch can be allowed to form and radiate without modification. A 12.5 micron Ti filter allows energies in the range of 3-5 keV to reach the MCP which acts as a shutter to stop exposure of the film before the Z pinch radiates in that range. Presented here are the results of sensitivity measurements of the MCP as well as preliminary experiments imaging imploding Al and W arrays on the COBRA pulser.

¹Research supported by DOE grant DE-FG03-98ER54496, by Sandia National Laboratories contract AO258, and by the NNSA Stockpile Stewardship Academic Alliances program under DOE Cooperative Agreement DE-FC03-02NA00057

Isaac Blesener
Cornell University

Date submitted: 20 Jul 2007

Electronic form version 1.4