

Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Detonator Performance Characterization using Multi-Frame Laser Schlieren Imaging STEVEN CLARKE, Los Alamos National Lab, COLIN LANDON, Massachusetts Institute of Technology, MICHAEL MURPHY, Arizona State University, MICHAEL MARTINEZ, THOMAS MASON, KEITH THOMAS, Los Alamos National Lab — Multi-frame Laser Schlieren Imaging of shock waves produced by detonators in transparent witness materials can be used to evaluate detonator performance. We use inverse calculations of the 2D propagation of shock waves in the EPIC finite element model computer code to calculate a temporal-spatial-pressure profile on the surface of the detonator that is consistent with the experimental shock waves from the schlieren imaging. Examples of calculated 2D temporal-spatial-pressure profiles from a range of detonator types (EFI –exploding foil initiators, DOI – direct optical initiation, EBW – exploding bridge wire, hotwire), detonator HE materials (PETN, HMX, etc), and HE densities. Also pressure interaction profiles from the interaction of multiple shock waves will be shown. LA-UR-09-00909.

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Date submitted: 13 Feb 2009

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