

Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Light Initiated High Explosives (LIHE) Test Technique and Capabilities¹ TIMOTHY COVERT, Sandia National Laboratories — The Light Initiated High Explosives (LIHE) test facility has been re-established and chartered to impart impulsive loads to a variety of targets. This loading is achieved through the detonation of a primary explosive applied directly to the target surface using a robotic spraying system. Using light as the initiating mechanism ensures virtually simultaneous loading. Uniform, discontinuous, or graded explosive loading conditions are achievable over complex shapes with the LIHE process. This direct detonation technique is a demonstrated capability at the LIHE facility. Test results will be presented. In addition to the direct detonation technique, the LIHE facility is developing the capability to explosively accelerate a thin flyer plate to impact various test targets. This explosively accelerated flyer plate (X-Flyer) will enable pressure control during impulsive loading. By controlling flyer density (material), thickness, velocity, and acceleration gap, the impact pressure amplitude and pulse duration can be controlled. Similar to the direct detonation technique, a primary explosive is robotically sprayed onto the flyer plate and subsequently detonated using an intense flash of light. Through the control of the explosive deposition and flyer gap, virtually simultaneous impact is achievable for either uniform or graded loading conditions. X-Flyer test results will be presented.

¹Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy under contract DE-AC04_94AL85000.

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Date submitted: 17 Feb 2009

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