Abstract Submitted
for the SHOCK17 Meeting of
The American Physical Society

Initiation of Insensitive High Explosives Using Multiple Wave Interactions ELIZABETH FRANCOIS, ROSMARY BURRITT, MATT BISS, PATRICK BOWDEN, Los Alamos National Laboratory — Insensitive High Explosives (IHEs) increase safety in many types of weapons. However, the safety comes at the cost of performance. Initiation of IHE requires large boosters and powerful detonators as well. Multipoint initiation is being utilized to exploit explosive wave interactions to create overdriven states, greatly facilitating the initiation of IHEs. This presentation will build from recent explosive experiments where the minimum spot size for single-point initiation in PBX 9502 was determined. Below this threshold, PBX 9502 could not be initiated. This was then expanded to three initiation points, which were smaller this threshold. Measurements of the velocity and pressure of the wave interactions were measured using Photon Doppler Velocimetry (PDV). Initiation was observed, and the resulting pressures at the double and triple points were found to be above the CJ state for PBX 9502. Based on these results, further tests were conducted to isolate and measure the longevity and pressure of this phenomenon using cut-back tests. All results will be presented and discussed.

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Date submitted: 13 Feb 2017 Electronic form version 1.4