

Abstract Submitted
for the SHOCK19 Meeting of
The American Physical Society

Connecting ordered meso-structures with the system's dynamic response under complex dynamic loading¹ JOHN BORG, ALEX DAWSON, DINC ERDENIZ, JOHN MOORE, SOMESH ROY, SIMCHA SINGER, RON COUTU, Marquette University — The aim of this work is to better understand the dynamic behavior of polyester resin and crystalline sucrose systems. Ordered systems were constructed and interrogated in order to characterize the system's meso-structure. These structures were investigated using microscopy and SEM; the resulting images were digitized in order to import them as initial conditions for hydrocode simulations. These same systems were experimentally interrogated under complex dynamic pressure-shear loading. Photon doppler velocimetry (PDV) probes were located at interesting features of the meso—structure, such as interfaces and voids. The resulting experimental and simulated response is presented and compared.

¹This work made possible with support from AFOSR FA9550-18-1-0435 under the direction of Martin Schmidt

John Borg
Marquette University

Date submitted: 28 Feb 2019

Electronic form version 1.4