

Abstract Submitted  
for the SHOCK15 Meeting of  
The American Physical Society

**Investigating Velocity Spectra at the Hugoniot State of Shock Loaded Heterogeneous Materials**<sup>1</sup> JEFF LAJEUNESSE, Marquette Univ, JOHN BORG, Marquette University, SARAH STEWART, U. California, Davis, NARESH THADHANI, Georgia Institute of Technology — Hugoniot states achieved in heterogeneous materials have shown oscillations in particle velocity about an averaged state for both experimental and simulated data. These oscillations arise from the scattering of the transmitted shock wave due to the presence of internal interfaces within heterogeneous materials. The goal of this work is to determine if the spectra of oscillatory behavior can be associated to characteristic length scales of the corresponding un-shocked heterogeneous material. Similarities between different types of shock-loaded materials are compared such as sand, concrete, aluminum foam, and layered composites.

<sup>1</sup>I would like to acknowledge the AFOSR under grant: FA9550-12-1-0128, “Dynamic High-Pressure Behavior of Hierarchical Heterogenous Geological Granular Materials” and the D.o.D. Supercomputing Resource Center.

Jeff LaJeunesse  
Marquette University

Date submitted: 30 Jan 2015

Electronic form version 1.4