Abstract Submitted
for the SHOCK17 Meeting of
The American Physical Society

Leveraging Cababilities of the National Laboratories and Academia to Understand the Properties of Warm Dense MgSiO3 THOMAS R. MATTSSON, JOSHUA P. TOWNSEND, LUKE SHULENBURGER, CHRISTOPHER T. SEAGLE, MICHAEL D. FURNISH, Sandia National Laboratories, YINGWEI FEI, Carnegie Institution of Washington — For the past seven years, the Z Fundamental Science program has fostered collaboration between scientists at the national laboratories and academic research groups to utilize the Z-machine to explore properties of matter in extreme conditions. A recent example of this involves a collaboration between the Carnegie institution of Washington and Sandia to determine the properties of warm dense MgSiO3 by performing shock experiments using the Z-machine. To reach the higher densities desired, bridgmanite samples are being fabricated at Carnegie using multi-anvil presses. We will describe the preparations under way for these experiments, including pre-shot ab-initio calculations of the Hugoniot and the deployment of dual-layer flyer plates that allow for the measurement of sound velocities along the Hugoniot. Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

Thomas R. Mattsson
Sandia National Laboratories

Date submitted: 24 Feb 2017 Electronic form version 1.4