

Abstract Submitted
for the SHOCK15 Meeting of
The American Physical Society

Forward modeling of shock-ramped tantalum JUSTIN BROWN, JOHN CARPENTER, CHRIS SEAGLE, Sandia National Laboratories — Dynamic materials experiments on Sandia's Z-machine are beginning to reach a regime where traditional analysis techniques break down. Time dependent phenomena such as strength and phase transition kinetics often make the data obtained in these experiments difficult to interpret. We present an inverse analysis methodology to infer the equation of state (EOS) from velocimetry data in these types of experiments, building on recent advances in the propagation of uncertain EOS information through a hydrocode simulation. An example is given for a recent tantalum experiment which was shock compressed to 40 GPa followed by a ramp to 80 GPa. *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.

Justin Brown
Sandia National Laboratories

Date submitted: 22 Jan 2015

Electronic form version 1.4