Abstract Submitted
for the SHOCK15 Meeting of
The American Physical Society

Introduction to the Phase Transition Kinetics Program at LLNL[1] JONATHAN BELOF, LORIN BENEDICT, ALEXANDER CHERNOV, JONATHAN DUBOIS, BURL HALL, SEBASTIEN HAMEL, TOMORR HAXHIMALI, GEORGE LEVESQUE, ROGER MINICH, BRITTON OLSON, TOMAS OPPELSTRUP, BABAK SADIGH, CHRISTIAN SCULLARD, LUIS ZEPEDA-RUIZ, Lawrence Livermore National Laboratory — At Lawrence Livermore National Laboratory (LLNL) a new theoretical program has been launched with the objective of developing predictive theories and simulation codes for the description of non-equilibrium phase transitions that occur under shock and/or ramp compresion. The approach taken by our program is to formulate the precise nature of the problem at the atomistic, meso and continuum scales and to pursue a number of lines of inquiry that enable us to overcome several key theoretical barriers – this has taken the form of five cross-cutting research strands. In this talk, we will provide an overview of our program, present recent advances that our program has made on several fronts, and highlight the series of talks that members of the kinetics team will present at this conference. We will then focus on our hydrodynamically coupled multi-phase field and inline equation of state methodology that is embodied in the new LLNL code "Samsa." Lawrence Livermore National Laboratory is operated by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy, National Nuclear Security Administration under Contract DE-AC52-07NA2

[1]Phase Transition Kinetics Program

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Date submitted: 30 Jan 2015 Electronic form version 1.4