

Abstract Submitted
for the SHOCK15 Meeting of
The American Physical Society

Determining the phase diagram of lithium via ab initio calculation and ramp compression¹ LUKE SHULENBURGER, CHRIS SEAGLE, THOMAS HAILL, ERIC HARDING, Sandia Natl Labs — Diamond anvil cell experiments have shown elemental lithium to have an extraordinarily complex phase diagram under pressure exhibiting numerous solid phases at pressures below 1 Mbar, as well as a complicated melting behavior. We explore this phase diagram utilizing a combination of quantum mechanical calculations and ramp compression experiments performed on Sandia National Laboratories' Z-machine. We aim to extend our knowledge of the high pressure behavior to moderate temperatures at pressures above 50 GPa with a specific focus on the melt line above 70 GPa.

¹Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Company, for the US Dept of Energy's Natl. Nuclear Security Administration under contract DE-AC04-94AL85000

Luke Shulenburg
Sandia Natl Labs

Date submitted: 30 Jan 2015

Electronic form version 1.4