

Abstract Submitted
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Isentropic compression of liquid metals near the melt line.

CHRISTOPHER SEAGLE, ANDREW PORWITZKY, Sandia Natl Labs — A series of experiments designed to study the liquid metal response to isentropic compression have been conducted at Sandia's Z Pulsed Power Facility. Cerium and Tin have been shock melted by driving a quasi-ballistic flyer into the samples followed by a ramp compression wave generated by an increased driving magnetic field. The sound speed of the liquid metals has been investigated with the purpose of exploring possible solidification on ramp compression. Additional surface sensitive diagnostics have been employed to search for signatures of solidification at the window interface. Results of these experiments will be discussed in relation to the existing equation of state models and phase diagrams for these materials as well as future plans for exploring the response of liquid metals near the melt line. Sandia National Laboratories is a multi-mission 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.

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