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Radiance Measurement on Ramp Loaded Tin JEFFREY NGUYEN, MINTA AKIN, Lawrence Livermore National Laboratory, PAUL ASIMOW, California Institute of Technology, NEIL HOLMES, Lawrence Livermore National Laboratory — An accurate shock temperature is not only an essential component of an equation of state, but also a good measure of a phase transition, its kinetics, and associated thermal transport properties. We present here our recent results on shock-and-ramp-loaded tin samples. Using a graded density impactor, we drive the tin sample through melting with the initial shock and then further ramp-compress it back into the solid phase. We measure particle velocity and thermal emission at the interface between the Sn and a LiF window. The measured particle velocity shows a traditional signature for phase transition, while thermal radiance exhibits a change consistent with the heat of solidification. We will discuss here the mechanical and thermal aspects of this phase transition, its kinetics, and thermal transport issues in this experiment. This work was performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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