

Abstract Submitted
for the SHOCK19 Meeting of
The American Physical Society

Studying the dynamic phase transitions in tin with impact experiments on pre-heated samples ELI GUDINETSKY, Department of Physics, Ben-Gurion University of the Negev, EUGENE ZARETSKY, Department of Mechanical Engineering, Ben-Gurion University of the Negev — The dynamic β - γ transition in high-purity tin (Sn) has been studied in a series of VISAR-instrumented plate impact experiments in which pre-heated β -Sn samples of different, 0.5 to 5 mm, thickness were shock-transformed into γ -phase. The initial sample temperature was varied from room temperature up to 505 K (melting point). The experiments allowed pressure-temperature mapping of the upper boundary of the existence of tin β -phase, while varying the sample thickness gave access to information about the transformation kinetics. The resulting β - γ boundary is compared with that obtained in static and dynamic experiments. Comparisons between experimental results and hydrodynamic calculations are made.

Eli Gudinetzky
Ben-Gurion University of the Negev

Date submitted: 28 Feb 2019

Electronic form version 1.4