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An Estimate for the Deviation from the Mirros Image Due to Solid Liquid Phase Transition of Metals at Shock Unloading. SHLOMI PISTINNER, Prop. Div. Soreq NRC Yavne Israel, SHARON PEKER, Electroptics Div. Soreq NRC Yavne Israel, MEIR WERDIGER, SHALOM ELIEZER, Prop. Div. Soreq NRC Yavne Israel — We extend the underlying physical reasoning of Walsh and Christian (1955) in a manner which allows a reasonable estimation for the excepted deviation from the mirror image approximation due to solid liquid phase transition. This estimated is limited to a phase transition that occurs at the unloading phase in metals such as Tin and Lead. The idea underlying this estimate is the accumulation of various contributions to the entropy and an estimation of the expected expansion at atmospheric pressure. These estimates combined with the Lindmann melting law and the Clausius Clyperon equation are used to estimate the expansion at the phase transition and the resulting change in free surface velocity.

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