

Abstract Submitted  
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**Recording of Phase Transition in Tin in Shock and Release Waves Using Laser Interferometer** STANISLAV FINYUSHIN, ALEXEY FEDOROV, ANATOLIY MIKHAILOV, DMITRIY NAZAROV, EVGENIY CHUDAKOV, DENIS KALASHNIKOV, IVAN TRUNIN, IRINA TERESHKINA, No Affiliation — In this paper the authors present results of experiments, concerning the recording of free surface velocity and particle velocity of tin/LiF window interface of tin sample at the dynamic pressure in the range 10 to 70 GPa, using laser interferometry methods Fabry-Perot and PDV. The features of recorded velocity histories interpreted the polymorphous transitions (the direct  $\beta - \gamma$  phase transition, the reverse  $\gamma - \beta$  phase transition) and some points on tin melting curve. The tin samples were loaded by impactor accelerated by explosion products of HE cartridge (the wave with the rectangular profile) or by direct detonation wave of HE layer (the wave with the decaying profile). With the help of PDV method, velocity of particles cloud was recorded with the free surface velocity at the moment when the shock wave front arrived to the tin free surface with the pressure amplitude of  $P \geq 19$  GPa. This could be corresponded to appearing of the liquid-solid phase at the release wave. The tin melting in the shock wave is recorded at the loading pressure of  $P \geq 51$  GPa. The pressure and temperature numerical simulations were performed for shock compression and the further releasing of tin.

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