

Synchronous diagnostics for the processes of twofold shock compression

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Unique features of synchronous radiation open wide possibilities of its application for visualization high-speed processes. High periodicity of synchronous radiation, low duration of pulse and low angle divergence of probing radiation permit to conduct precise noninvasive diagnostics of shock-wave phenomena, including the processes of multiple interactions of shock waves and rarefaction waves.

The work presents the set-ups and the results of experiments, which realized the regimes of shock waves reflection from a barrier and collision of oncoming shock waves. Registration of the processes of incident shock waves motion, collision and formation of reflected shock waves was performed using synchronous radiation. Experiments were conducted on acceleration complex VEPP-3 at the Budker Institute of Nuclear Physics SB RAS.