

Abstract Submitted  
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**Detonation wave structure studies in high explosives by means of proton radiography** SERGEI KOLESNIKOV, SERGEI DUDIN, VICTOR MINTSEV, ALEXANDER UTKIN, Institute of Problems of Chemical Physics RAS, VICTOR DEMIDOV, ALEXANDER FERTMAN, ALEXANDER GOLUBEV, MARK KATZ, NIKOLAI MARKOV, BORIS SHARKOV, GENNADY SMIRNOV, VLADIMIR TURTIKOV, Institute for Theoretical and Experimental Physics — Proton radiography is the unique experimental technique for obtaining direct information about important material characteristics of real solid objects under dynamic conditions. The aim of the present work is the application of this method to the investigation of evolution of density in shock and detonation waves in high explosives (HE). Obtained information will be very useful for the improvement of existing detonation models and equations of state of HE. For this purpose a proton radiography facility for dynamic experiments on the basis of TWAC-ITEP accelerator is being constructed. A special containment chamber for explosive experiments was built. Static experiments with imitators of detonating HE charges were performed; as a result the proton radiographic images of imitators with time resolution of up to 10 ns were obtained. Dynamic experiments on the registration of detonation wave structure in pressed TNT are underway.

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