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Use of synchrotron radiation for research of flow of a products of detonation LEV MERZHIEVSKY, E.R. PRUUEL, K.A. TEN, V.M. TITOV, L.A. LUK'YANCHIKOV, E.B. SMIRNOV, A.K. MUZIRYA, Lavrentyev Institute of Hydrodynamics SB RAS — Results of studying detonation processes in condensed high explosives, which are obtained by methods based on using synchrotron radiation, are given. Data on the density distribution in the detonation front and behind the front for several high explosives are presented. Spatial distribution of density of products of a detonation, and values of parameters in the Neumann spike and at the Jouguet point are determined. A method of reconstruction of the distributions of gasdynamic characteristics of the flow of products of a detonation (density fields, particle velocity vector, and pressure) in the space was proposed and tested. Results of using this method for studying detonation of a charge of TNT and plasticbonded TATB are presented. The obtained data are a basis for determination of parameters of the equations of state of products of a detonation.

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