

Paper Title: Numerical Modeling the Dynamics of Flow at Explosion above a Surface

Paper Type: I prefer poster presentation

Keywords: Detonations and Shock Waves: Initiation, propagation, failure

#### Abstract

The hydrodynamics of the processes occurring at explosion of condensed high explosives (HE) in air is considered. Are discussed physical model and technique of calculation for modeling two-dimensional hydrodynamic flow arising at explosion of spherical and cylindrical charges at some height above a surface of a ground. The Jones-Wilkins-Lee equation of state is used for closing the gas dynamic equations. The results of calculations give a detailed spatially - temporary picture of arising flow and allow to study creation, propagation and subsequent attenuation of shock waves. The cylindrical charges of identical weight (5 kgs) with the various relation of diameter  $D$  and length  $L$  (cylinder  $D = L$ , rod  $D = L/5$  and disk  $D = 20 L$ ) are considered. It is shown, that the initial form of a charge essentially influences on dynamics of flow and parameters of blast waves.