SIMULATIONS OF IMPACT USING COMBINATION OF SPH AND PLASTICITY MODEL WITH VARIABLE RELAXATION TIME

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ABSTRACT

In this work the results of numerical modeling of impactor interaction with a target using the method of combining SPH and the model of metals plasticity were presented. Cylinder impact (Taylor's test) was simulated for different metals. SPH algorithms are widely used to describe high-speed and low-speed impacts [1, 2]. Also, models that take into account plastic properties of deformable material give a good description of experiments. The Maxwell model with variable relaxation time was used to calculate plastic deformations [3]. This model is taken into account the variable relaxation time influence on the change rate of stress deviator that is beyond yield point and predicts an elastic precursor on the shock wave front.

The work is supported by the Ministry of Science and Higher Education of the Russian Federation, state task 3.2510.2017/4.6.

REFERENCES