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**Massive parallel simulation of phenomena in condensed matter at high energy density** VLADIMIR FORTOV, IPChPh RAS, IGOR LOMONOSOV, VADIM KIM — This talk deals with computational hydrodynamics, advanced material properties and phenomena at high energy density. New results of massive parallel 3D simulation done with method of individual particles in cells have been obtained. The gas dynamic code includes advanced physical models of matter such as multi-phase equations of state, elastic-plastic, spallation, optic properties and ion-beams stopping. Investigated are the influence on hypervelocity impact processes effects of equation of state, elastic-plastic and spallation. We also report results of numerical modeling of the action of intense heavy ion beams on metallic targets in comparison with new experimental data.

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