

**DYNAMICS OF PLASMA-LIKE MEDIA (METALS) AT HIGH ENERGY DENSITY
PRODUCED BY PULSE ACTION OF THE INTENSIVE CHARGED PARTICLE BEAMS
OR LASER RADIATION¹**

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The purpose of the offered message is the information of scientific community on theoretical investigations of dynamics of plasma-like media (metals) and their boundaries at pulse action of intensive streams of the energy spent in the Institute of Electrophysics of the UB RAS. An action of high-intensity streams of energy on metals (plasma-like media) is widely used now, both in scientific, and the technological purposes. Last achievements in creation of electronic accelerators with pico- and sub- picosecond duration of a beam, and also - in obtaining power laser radiation with femto- and sub-picosecond duration have allowed to find out the new physical phenomena, in particular, generation of fast particles and soft x-ray radiation. Generally interaction of intensive streams of energy with the condensed substance essentially nonlinear also depends on duration of action.

For describing of the physical processes in metal at high energy density at times of action, big to time of an establishment of a local thermodynamic equilibrium in each of subsystems the one and two-temperature models of the plasma-like media are offered including thermodynamic functions and transport coefficients being correct both in the field of the condensed state, and in the field of the ideal plasma. For describing of the physical processes in the metal targets irradiated with intensive electronic beams with subnano- and picosecond of duration, and also with subpico- and femtosecond laser radiation, the mesoscopic models are offered according to which slow perturbations of a medium are considered in hydrodynamic, and fast perturbations (one-particle collective excitations) are considered in a kinetic approximation.

Within the framework of the offered models a computer simulation of the dynamics of irradiated metal targets and their boundaries is carried out depending on duration of an exposure, and also comparison with experiment is spent.

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