

ON THE QUESTION OF NUMERICAL SIMULATION OF THE EXPERIMENT ON COMPRESSION AND HEATING OF A TARGET IN A MAGNETIC FIELD

The paper discusses issues related to the study of the conditions for the generation of powerful particle fluxes and high-energy radiation in a nonequilibrium plasma with a strong magnetic field, so called magneto-inertial fusion (MIF) [1-7]. Authors have developed mathematical models and computer codes for laser driven – LD MIF and plasma jet driven – PJD MIF target implosion in an externally applied magnetic field [8-14]. Developed numerical method allows one to perform computer simulation for calculation of the magnetized target parameters.

Modeling of physical processes that occur during the interaction of powerful energy flows (density $q \sim 10^{12}$ - 10^{15} W/cm²) with the plasma target involves solving the system of equations of magnetic hydrodynamics, the radiation transfer equation, supplemented by the equations of state of substances. Applications such MIF devices for materials technologies, neutron and radiation sources, propulsion systems and others are considered and discussed.

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The speaker is a student or young scientist

No

Section

1. Applications of nuclear methods in science and technology

Primary authors: Prof. KUZENOV, Victor (Dukhov VNIAA); RYZHKOV, Sergei V. (Bauman Moscow State Technical University)

Presenter: RYZHKOV, Sergei V. (Bauman Moscow State Technical University)

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