

THE INVESTIGATION OF OPTICS OF STRONGLY CORRELATED PLASMA

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Understanding the physics of strongly correlated plasmas requires a quantum statistical theory that adequately describes the behavior of strongly interacting charged particles, since it plays a crucial role in such environments. At the same time, the correct interpretation of processes in such systems is possible only on the basis of sufficient information about the optical and transport properties of the medium. Therefore, the study of the properties of an electronic subsystem in an environment with strong interparticle interactions remains an urgent problem of high-energy density physics. The analysis of a response of dense plasma to electromagnetic waves of moderate intensity can be used as a tool to study the reliability of physical models describing the behavior of matter under extreme conditions, at high temperatures and pressures.

The results of new experiments on the reflectivity of polarized light from non-ideal plasma are presented. The plasma was investigated by the method of oblique probing at a wide range of angles. The composition and thermodynamic parameters of the plasma were determined using the modified Saha IV code [1]. The spatial parameters of the plasma transition layer are determined based on the numerical solution of the field equations.

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1. Gryaznov V. K., Iosilevskiy I. L. and Fortov V. E. // AIP Conf. Proc. 2012. V. 917 P. 1426.