

THE STUDY OF DENSE PLASMA OF LEAD

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Measurements of thermodynamic functions (caloric equation of state) and electrical resistivity of dense plasma of lead have been carried out in the exploding foils experiments. We study the plasma whose temperature is in the range 10 – 40 kK, density takes the values 8 – 20 times lower than the normal solid density of lead, and the ionization degree is 0.5 – 2. The goal of this work is to identify the nonideality effects in the thermodynamic functions and the resistivity behavior. One of the effects revealed in this work is that the Grüneisen coefficient of the plasma remains practically constant over the whole investigated region of states taking values in the range 0.23 – 0.37. The experimental data are compared with results obtained by a chemical model of the plasma. Based on the comparison, an interpretation of this effect is given.