

Electrical conductivity of the dense nonideal plasma on the basis of the effective potential

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During the last few years many papers about the transport properties of dense plasmas have been published. The electrical conductivity in fully and partially ionized hydrogen plasma is well investigated [1-3]. Various experiments have been performed in order to measure the electrical conductivity of helium [4], neon [5], argon [4–5], krypton [6], and xenon [4-5]. In this work we consider the electrical conductivity of partially ionized plasmas, which is determined by the scattering of free electrons on electrons, ions and atoms. Therefore, we have to take into account formation, decay and excitation of bound states in two particle collisions. The conductivity have been investigated on the basis of the effective potential approach [7]. The quantum mechanical method of phase functions in connection with the Born approximation has been used for our calculations. The results are compared with data of other theoretical and experimental works.

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