

# Pressure-produced ionization of non-ideal degenerate plasmas and electrical conductivity

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New experimental facilities allow exploring plasmas at high densities and moderate temperatures where degeneracy effects become relevant [1]. Ionization degree and optical conductivity are interesting physical properties of the plasma in this warm dense matter regime. Quantum statistical calculations [2] and density-functional-theory–molecular-dynamics simulations [3] are used to describe these systems. The effect of degeneracy on ionization potential depression [4] and collision frequency [1, 2] is discussed. Problems in calculating the electrical conductivity are indicated. The authors acknowledge financial support by the Deutsche Forschungsgemeinschaft and the Russian Foundation for Basic Research (DFG–RFBR grant No. 19-52-12039) for the project “Warm dense matter explored with shock wave experiments”.

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