Quantum-statistical calculations of the thermodynamic properties of Ti at high energy concentrations

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We carried out theoretical investigation of the thermodynamic properties of titanium in the wide range of temperatures ($T = 1$–10^4 eV) and densities ($\rho = 0.1$–100 g/cm^3). Calculations of electron structure and electron contribution to equation of state were performed by the Hartree–Fock–Slate model with taking into account the band structure. The contribution to thermal motion of ions and ion–ion interaction was taken into account in the framework of the Boltzmann ideal gas and the charged-hard-sphere models. Results of calculations were compared with available experimental data on shock compression.