

To the transversal dielectric permittivity of the gaseous plasmas in τ - approximation

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An analytical expression is proposed for the transversal dielectric permittivity of a nonrelativistic gaseous plasma in the τ -approximation, which consequently takes into account quantum effects in the presence of an intrinsic magnetic moment of plasma particles. The frequency and spatial dispersion of the dielectric permittivity under various thermodynamic parameters are taken into account. The obtained dielectric permittivity is compared with the recently obtained (see [1] and references therein) theoretical results for collisionless gaseous plasma in the classical limit. Possible applications to the spectral energy density of equilibrium radiation in a non-ideal plasma medium are discussed. The work was supported by the Russian Science Foundation grant No. 22-29-00348

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