POLARIMETRIC PARAMETERS OF SCATTERED ELECTROMAGNETIC WAVES IN THE CONDUCTIVE MAGNETIZED PLASMA

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Abstract. Depolarization of electromagnetic waves propagation in homogeneous and turbulent magnetized conductive plasma is considered account being taken longitudinal, Pedersen and Hall's conductivities. The second-order statistical moments of scattered radiation in the conductive inhomogeneous magnetized plasma slab with electron density fluctuations are investigated on the bases of the set of stochastic differential equation. Refractive index and polarization coefficients of both the ordinary and extraordinary waves are calculated for the polar terrestrial ionosphere. Experimentally observing Stokes parameters describing the depolarization effects are calculated using new spectral method and the boundary conditions. Coherent matrix of non-plane waves generalizing the Stokes parameters is presented. The obtained results are valid for an arbitrary correlation function of electron density fluctuations, the frequency of an incident wave and all altitudes of the terrestrial atmosphere.