

into account in the framework of the effective dipole approximation for each of the statistical cells of the quasi-neutrality of the HP, averaged over the ensemble of system realizations. In a stationary plasma, in the presence of an external electric field, the influence of the polarization of the structural elements – ions and particulates of the condensed dispersed phase (CDPh) on the parameters of the amplitude-frequency function (AFF) of the braking electromagnetic radiation generated in a self-consistent electrostatic field by the free charges of the plasma system. The level of the electrochemical potential of the electron component of the HP in the electroneutrality cells of the HP is found from the solution of the joint system of conservation equations and kinetics for the electron-ion and "partial" subsystems of the HP interacting with the stationary field of external sources. The level of the electrochemical potential of the electron component in the electroneutrality cells of the heterogeneous plasma was found from the solution of the joint system of conservation equations and kinetics for the electron – ion and "partial" subsystems of the HP interacting with the stationary electrostatic field of external sources E_0 . The spectral components of the plasma bremsstrahlung AFF were found in the wave zone. The issues of functional relationships of the determining parameters of heterogeneous plasma (temperature, countable concentration of gas electrons and ions, characteristics of the ensemble of the CDPh – particle subsystem) and relative powers of the spectral components of plasma bremsstrahlung in the radio frequency range are discussed. Model computer calculations for the plasma of combustion products of solid metallized synthetic rocket fuels were carried out.

An analysis of the field experiment to measure the intensity of radio emission from the combustion products of a suspension of micron-sized aluminum particles suspended in atmospheric air is presented. The good agreement between the theory and experiment data was noted. The applicability of the proposed approach to solving the problems of telediagnosics of the combustion products of rocket engines in a rarefied atmosphere of the Earth and near space is discussed.

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2. Marenkov V., Mokhov S. Radiofrequency Bremsstrahlung of Electrons and Nanoparticles of Heterogeneous Plasma with a Condensed Dispersed Phase.-APS March Meeting 2019, March 4–8, 2019; Boston, Massachusetts. R18.00008,P.2304.

THE INFLUENCE OF POLARIZATION ON THE AMPLITUDE-FREQUENCY FUNCTION OF THE BREMSSTRAHLUNG OF HETEROGENEOUS PLASMA

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The previously developed statistical approach of "quasi-neutral heterogeneous plasma cells" [1-2] is summarized in a report on the case of heterogeneous plasma (HP) interacting with an external electrostatic field of thermostat sources. The anisotropy of the velocity distribution function of the gas phase (electrons and ions) in the local thermodynamic equilibrium regions of the plasma is taken