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**Braking radiation of heterogeneous plasma of solid propellant combustion products in the radio frequency range** VOLODYMYR MARENKOV, Odessa I.I. Mechnikov National University, MYKOLA POTOMKIN, National Academy of Sciences of Ukraine, YEVGENII RUDNIKOV, Taras Shevchenko National University of Kyiv — Heterogeneous plasma (HP), formed in the torch of the combustion products of rocket engines on solid metallic fuel, contains a significant proportion of particulate matter condensed dispersed phase. The self-consistent interaction of the gas of emission electrons and oppositely charged macro-particles leads to an accelerated movement of plasma charges, and to the presence of a field of electromagnetic braking radiation from the flame of the combustion products. A method for determining the parameters of the amplitude-frequency function of the braking radiation based on the statistical approach of quasineutral plasma cells and kinetic ideas about restoring local thermodynamic equilibrium is proposed. The contribution of a single charge to the integral power of braking radiation in the radio frequency range is determined by its acceleration in the electrostatic field of instantaneous plasma cells and the field of the dipole formed by the displaced particle and its electrostatic image. Model experiments carried out on the telediagnosics of plasma torch parameters of the products of combustion of Aluminium particles and the applicability of the proposed method for telediagnosics of HP by braking radiation in the radio frequency range are discussed.

Mykola Potomkin  
National Academy of Sciences of Ukraine

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