



Effects of Dust Charge Variation On Electrostatic Waves In Dusty Plasmas With Temperature Anisotropy

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We utilize a kinetic approach to the problem of wave propagation in dusty plasmas, taking into account the variation of the charge of the dust particles due to inelastic collisions with electrons and ions. The components of the dielectric tensor are written in terms of a finite and an infinite series, containing all effects of harmonics and Larmor radius. The formulation is quite general and valid for the whole range of frequencies above the

plasma frequency of the dust particles, which are assumed motionless. The formulation is employed to the study of electrostatic waves propagating along the direction of the ambient magnetic field, in the case for which ions and electrons are described by bi-Maxwellian distributions. The results obtained in a numerical analysis corroborate previous analysis, about the important role played by the dust charge variation, particularly on the

imaginary part of the dispersion relation, and about the very minor role played in the case of electrostatic waves by some additional terms appearing in the components of the dielectric tensor, which are entirely due to the occurrence of the dust charge variation.

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