

Influence of Generalized (r, q) Distribution Function on Electrostatic Waves

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Abstract: Non-Maxwellian particle distribution functions possessing high energy tail and shoulder in the profile of distribution function considerably change the damping characteristics of the waves. In the present paper Landau damping of electron plasma (Langmuir) waves and ion-acoustic waves in a hot, isotropic, unmagnetized plasma is studied with the generalized (r, q) distribution function. The results show that for the Langmuir oscillations Landau damping becomes severe as the spectral index r or q reduces. However, for the ion-acoustic waves Landau damping is more sensitive to the ion temperature than the spectral indices.

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