

ABSTRACT

Dispersion and damping of kinetic Alfvén waves (KAWs) and inertial Alfvén waves (IAWs) are studied for the electron-ion Cairns distributed plasmas in the framework of kinetic theory. The phase velocities and damping rates of KAWs and IAWs are evaluated for different values of non-thermal parameter Λ . It is shown that the phase velocities of both the waves are enhanced as Λ increases. In the case of damping, it is found that the damping of KAWs becomes smaller for larger values of Λ , whereas for IAWs, the magnitude of damping first increases and then decreases as perpendicular wavelength increases. The results and findings of the present work may help us to understand the dynamics of KAW and IAW, particularly, the damping through Landau mechanism in space plasmas where non-Maxwellian distribution of particles is routinely observed.