عنوان مقاله:

Ion acoustic cnoidal waves in electron-positron-ion plasmas with q-nonextensive electrons and positrons and high relativistic ions

محل انتشار:

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خلاصه مقاله:

In this paper propagation of the nonlinear cnoidal ion-acoustic waves in unmagnetized electron-positron-ion plasma have been studied. The nonextensivity distribution function was used to describe the plasma electrons and positrons, while plasma ions are taken high relativistic.We have used the reductive perturbation method (RPM) to study the characteristic of ionacoustic cnoidal waves in this three-component plasma. The Korteweg-de Vries equation, which describes the nonlinear waves in such plasma, has been derived. In this work, we have investigated the effects of relativistic ions and q-nonextensive distribution of electrons and positrons on the characteristics of the ionacoustic periodic (cnoidal) wave, such as the amplitude, wavelength, and frequency

کلمات کلیدی:

Plasma nonextensivity, Electron-positron-ion plasma, cnoidal ion acoustic nonlinear wave, high relativistic plasma, Weakly relativistic plasma

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