Abstract

In the present research work, effect of drifting velocity of electrons have been studied in plasma systems consisting of cold positive and negative ions and electron beam. The electrons are assumed to obey non-extensive velocity distribution. Standard reductive perturbation method is used to derive dispersion relation, which comes out to be a polynomial of four degree in phase velocity that corresponds to four ion-acoustic modes. The expression for critical velocity is found to be the function of various parameters including nonextensive parameter q. The nonextensivity and electron beam parameters play crucial role in the characterization of solitons. We have taken (Ar+F-), (H+ H-), (H+O2-) plasma systems for our study.
References

- Tribeche, M. and Djebarri, L., and Amour, R. 2010 Ion acoustic solitary waves in a
plasma with a q-nonextensive electron velocity distribution. Phys. Plasmas 17, 04211

**Index Terms**

Computer Science
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**Keywords**

Multi-ion Plasma    Nonextensive Distribution    Reductive Perturbation Method.