

## Accepted Manuscript

Arbitrary amplitude ion-acoustic solitary waves in a two-temperature nonextensive electron plasma

M.M. Hatami, M. Tribeche

PII: S0378-4371(17)30896-8

DOI: <http://dx.doi.org/10.1016/j.physa.2017.09.004>

Reference: PHYSA 18609

To appear in: *Physica A*

Received date: 5 June 2017

Please cite this article as: M.M. Hatami, M. Tribeche, Arbitrary amplitude ion-acoustic solitary waves in a two-temperature nonextensive electron plasma, *Physica A* (2017), <http://dx.doi.org/10.1016/j.physa.2017.09.004>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



# Arbitrary amplitude ion-acoustic solitary waves in a two-temperature nonextensive electron plasma

M. M. Hatami\*

*Physics Department of K. N. Toosi University of Technology, 15418-49611, Tehran, Iran*

M. Tribeche

*Faculty of Physics, Theoretical Physics Laboratory (TPL), Plasma Physics Group (PPG),*

*University of Bab-Ezzouar, USTHB, B.P. 32, El Alia, Algiers 16111, Algeria*

## Abstract

Effects of presence of ions on the existence and structure of arbitrary amplitude ion-acoustic solitary waves in a plasma consisting of thermal ions and two-temperature nonextensive electrons are investigated. It is shown that solitons of both polarity (compressive and rarefactive) can exist in such a plasma, depending on the range of the plasma parameters. Also, it is seen that the maximum amplitude and the width of both soliton types depend sensitively on the temperature and concentration of ions. To better understand the role of positive ions, the presented model is reduced to a Maxwellian plasma and the results are compared to their Maxwellian counterparts.

Keywords. Ion-electron plasma, Sagdeev's potential, Nonextensivity, Two-temperature electrons, Solitons

---

\*E-mail: m\_hatami@kntu.ac.ir

Download English Version:

<https://daneshyari.com/en/article/5102357>

Download Persian Version:

<https://daneshyari.com/article/5102357>

[Daneshyari.com](https://daneshyari.com)