



## Electron acoustic double layers in a four component magnetized plasma

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Electrostatic solitary waves (ESWs) are large amplitude acoustic-mode or kinetic-scale structures which have been frequently observed in the boundary layers of the magnetosphere where large gradients in particle properties often generate beam or acoustic instabilities leading to large amplitude electrostatic fluctuations. Bale et al. (1998) have shown the presence of electrostatic bipolar structures at the bow shock from the WIND observations [1]. Similar structures have also been observed by the GEOTAIL, and more recently by CLUSTER multi-spacecraft missions, while CASSINI has reported ESWs at the bow shock of Saturn and at a crossing of an Interplanetary Shock [2]. We have previously studied fully nonlinear electron acoustic solitary waves in a magnetized plasma and compared our results with recent CLUSTER observations [3]. In the present work, we intend to study the electron acoustic double layer solutions in a multi-component magnetized plasma and to investigate the parametric dependence of such solutions in detail. Our analysis is expected to throw light on acceleration processes at the boundary layer.

### References :

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