

# Effect of nonthermal electrons and negative ions on ion-acoustic compressive and rarefactive double layers in magnetized plasma

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The ion-acoustic double layers in magnetized plasma consisting of positive and negative ions and nonthermal electrons. The modified Korteweg-de Vries equation is derived using reductive perturbation method. The effect of nonthermal electrons, magnetization, obliqueness angle and negative ions on ion-acoustic compressive and rarefactive double layers are discussed in details. The amplitude and width of ( $\text{Ar}^+$ ,  $\text{F}^-$ ), ( $\text{H}^+$ ,  $\text{H}^-$ ) and ( $\text{H}^+$ ,  $\text{O}_2^-$ ) plasmas are discussed in details. The present investigation may be helpful in space and astrophysical plasma system where negative ions and nonthermal electrons are present.

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