



## **Coupled Kinetic Alfvén-Acoustic Solitary Waves with Double Spectral Index $(r, q)$ Distribution Function**

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In this study, linear and nonlinear coupled kinetic Alfvén-acoustic (CKAA) waves have been investigated in which electrons follow double spectral index  $(r, q)$  distribution function. By applying two-potential theory, we present a comprehensive study to establish how the formation of rarefactive and compressive solitary structures associated with the CKAA waves are dependent on the complete profile of the distribution function, i.e. on the high energy tail as well as the low energy part of the distribution. For the first time, we found that compressive structures are obtained when the low energy part exhibits the flat top. However, when the low energy part exhibits the spiky nature, both compressive as well as rarefactive solitary structures are obtained. Comparison with the other non-

Maxwellian distributions such as kappa and Cairns along with the Maxwellian distribution is also given in detail..

### References

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- Saba Khalid, **M. N. S. Qureshi** and W. Masood, Compressive and rarefactive solitary structures of coupled kinetic Alfvén-acoustic waves in non-Maxwellian space plasmas, *Physics Plasmas*, **26**, 092114, 2019