



Nonlinear evolution of ion-acoustic waves in unmagnetized plasmas

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Abstract

In a fluid description large amplitude electrostatic acoustic like waves have been studied in one spatial dimension by using Lagrangian co-ordinates. We obtained exact solutions for ion-acoustic waves with nontrivial space and time dependence. The solutions demonstrate that under well defined initial conditions the amplitude of the solutions algebraically decays with time leading to short lived nonlinear structures.