

Modulational Instability of Dust Ion Acoustic Waves in a Collisional Dusty Plasma

XUE Ju-Kui

College of Physics and Electronic Engineering, Northwest Normal University, Lanzhou 730070, China

(Received: 2002-12-31; Revised: 2003-5-21)

Abstract: The modulational instability of dust ion acoustic waves in a dust plasma with ion-dust collision effects is studied. Using the perturbation method, a modified nonlinear Schrödinger equation contains a damping term that comes from the effect of the ion-dust collision is derived. It is found that the inclusion of the ion-dust collision would modify the modulational instability of the wave packet and could not admit any stationary envelope solitary waves.

PACS: 52.35.Sb, 52.35.Mw, 52.25.Wz

Key words: dust plasma, ion-dust collision

[\[Full text: PDF\]](#)

Close