

Dust Ion Acoustic Shock Waves in Dissipative Superthermal Plasmas

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Abstract : In this paper, the properties of dust-ion-acoustic (DIA) shock waves in an unmagnetized dusty plasma, whose constituents are inertial ions, superthermal electrons, and stationary dust particles, are investigated by employing the reductive perturbation method. The dissipation is taken into account the kinematic viscosity among the plasma constituents. It is shown that the basic features of DIA shock waves are significantly modified by the effects of electron superthermality and ion kinematic viscosity.

Keywords : reductive perturbation method, dust ion acoustic shock wave, superthermal electron, dissipative plasmas

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