

Abstract Submitted
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Collisionless nonlinear damping of dust acoustic waves due to dust charge fluctuations¹ JYOTIRMOY PRAMANIK, Institute for Plasma Research, Bhat, Gandhinagar, India — A novel technique to calculate the damping effects on dust acoustic waves due to dust charge fluctuations in a dusty (complex) plasma is reported. The perturbed distribution function of the dust charge has been obtained by solving the linearized Vlasov equation introducing charge fluctuation effects in the source term. To get the damping coefficient, we followed the Dawson's model for longitudinal plasma oscillations. The present calculations show that dust charge fluctuations and the so called charging frequency (η) enhance the damping of the dust acoustic waves and also modifying the electrostatic energy density decay rate of dust acoustic wave. The breakdown of the linear theory is also discussed.

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