

Electron Acceleration and Ion Heating by Electrostatic Lower Hybrid Instability in Dusty Plasma

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Abstract—*Theoretical studies of the lower-hybrid-beam-plasma instability have been carried out. A dispersion relation is derived detailing the effect of a population of charged dust grains on the growth of lower hybrid waves excited by an electron beam and an ion beam in dusty plasma. The frequency and the growth rate of the unstable mode increase with the relative density of negatively charged dust grains. Moreover, the growth rate of the instability increases with beam density and scales as the one-third power of the beam density.*

Keywords: *Lower hybrid, frequency, dispersion, growth rate, Cerenkov.*