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THE INSTABILITY OF SHEAR VORTEX WAVES IN A VISCOELASTIC DUSTY PLASMA SYSTEMS: BY LOCAL APPROXIMATION METHODE

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The influence of elliptical vortex on low frequency collective modes in a viscoelastic dusty plasma is analyzed using the generalized hydrodynamic equation (GH). Recalling the local approximation method, the space dependent terms (arising from the equilibrium flows) can be described. In the limit ω≫k_x v_0x or ω≫k_y v_0y, it is shown that the correlation effects (viscosity(η) and collision frequency (⊠ v⊠_dn)) and the velocity shear of the vortex coupling supply the free energy for the instabilities consisting of transverse shear waves. The analytical solution discusses that distance from equilibrium space not affected on the growth rate of instability.

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