

Three-Dimensional Dust-Acoustic Waves in a Collisional Dusty Plasma with Opposite Polarity Particles

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Abstract: The dispersion relation is derived for three-dimensional dust-acoustic waves in a current-driven dusty plasmas with both positively and negatively charged dust particles. The dependencies of the frequency and the growth rate on the wave number K , the intensity of magnetic field B , and the inclination angle θ have been numerically shown in this paper. The growth rate is negative for the laboratory dusty plasma, but it is positive for the cosmic dusty plasma. It is found that when the inclination angle $\theta=\pi/2$, there is no instability. The effect of the electrostatic field E_0 has also been studied in this paper.

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Key words: dust plasma, opposite polarity particles

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