

EXISTENCE OF RAYLEIGH-TAYLOR INSTABILITY IN A PAIR-ION PLASMA

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The Rayleigh-Taylor (RT) instability in an inhomogeneous pair-ion plasma consisting of positive and negative ions with equal masses has been analyzed. Considering two fluid model for two species of ions (positive and negative), we obtained the dispersion relation of RT instability which shows the existence of RT instability in pair-ion plasmas with equal masses. The growth rate of the RT instability as usual depends on gravity and density gradient scale length. We observed that the growth rate of RT instability does not depend on the masses of the ions, so our analysis of RT instability is also applicable to another pair-ion plasma with different mass ($m_+ \ll m_-$) and temperature ($T_+ \gg T_-$) observed experimentally. The results are discussed in context of pair-ion plasma experiments.

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