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KELVIN-HELMHOLTZ DISCONTINUITY IN TWO SUPERPOSED VISCOUS CONDUCTING FLUIDS IN A HORIZONTAL MAGNETIC FIELD

ABSTRACT

The Kelvin-Helmholtz discontinuity in two superposed viscous conducting fluids has been investigated in the taking account of effects of surface tension, when the whole system is immersed in a uniform horizontal magnetic field. The streaming motion is assumed to be two-dimensional. The stability analysis has been carried out for two highly viscous fluid of uniform densities. The dispersion relation has been derived and solved numerically. It is found that the effect of viscosity, porosity and surface tension have stabilizing influence on the growth rate of the unstable mode, while streaming velocity has a destabilizing influence on the system.

KEYWORDS

[viscosity](#), [porous medium](#), [streaming velocity](#), [magnetic field](#), [surface tension](#), [instability](#)

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