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Effects of G-jitter Combined with Heat and Mass Transfer by Mixed Convection MHD Flow of Maxwell Fluid in a Porous Space

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Abstract : In this article, the effects of g-jitter induced and combined with heat and mass transfer by mixed convection of MHD Maxwell fluid in microgravity situation is investigated for a simple system. This system consists of two heated vertical parallel infinite flat plates held at constant but different temperatures and concentrations. By using modified Darcy's law, the equations governing the flow are modelled. These equations are solved analytically for the induced velocity, temperature and concentration distributions. Many interesting available results in the relevant literature (i.e. Newtonian fluid) is obtained as the special case of the present general analysis. Finally, the graphical results for the velocity profile of the oscillating flow in the channel are presented and discussed for different values of the material constants.

Keywords : g-jitter, heat and mass transfer, mixed convection, Maxwell fluid, porous medium
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