

MHD FLOW PAST AN INFINITE VERTICAL PLATE IMMERSSED IN A STABLY STRATIFIED FLUID

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Abstract

The effect of transverse magnetic field on the flow past an impulsively started infinite vertical plate immersed in a stably stratified fluid had been investigated. The non-dimensional governing equations were solved by Laplace transform technique. Numerical computations for velocity, temperature, plate heat flux and skin friction were made for different values of the physical parameters and showed in graphs. Important observations due to the combined effect of thermal stratification and pressure gradient were made which were not seen when the pressure gradient in the energy equation was not included. It was observed that due to the application of transverse magnetic field on the flow, the steady state was reached at smaller times.

Keywords: MHD flow, electrically conducting, stably stratified fluid, vertical plate, unsteady flow.

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