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FINITE DIFFERENCE TECHNIQUE OF THERMAL DIFFUSION ON STEADY LAMINAR FREE CONVECTIVE FLOW IN POROUS HOT PLATE THROUGH MAGENTIC FIELD IN THE PRESENCE OF HEAT TRANSFER

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Abstract

In this paper we are studying the effect of thermal diffusion on a steady laminar free convective flow in the presence of porous medium through a moving porous hot vertical plate in the effect of magnetic field, heat source with mass transfer. The governing equations have been solved by finite difference method. The expressions temperature, concentration profile and skin friction at the hot plate have been obtained and numerically worked out for different values of parameters involved in this solution. The induced magnetic field is neglected. The numerical results depicts that the motion with velocity profile in the given Hartmann number, Pradndtl number, Grashof number, Thermal diffusion parameter, velocity profile are shown graphically by taking into different cases:
Case 1 : When the Grashof number is greater than zero, the velocity increases with increases in thermal diffusion parameter and velocity ratio parameter.
Case 2 : When the Grashof number is less than zero, the velocity increases with increase in thermal diffusion parameter and velocity ratio parameter.