

The effects of assisting flow and buoyancy ratio parameters on magnetohydrodynamics newtonian fluid flow

ABSTRACT

This study describes magnetohydrodynamics (MHD) Newtonian fluid flow caused by an exponentially stretching sheet, and subjected to the parameters such as assisting flow and buoyancy ratio. The governing basic equations (flow, momentum, energy and concentration equations) are converted to nonlinear ordinary differential equations (ODEs) by using nonsimilarity method. Subsequently, the ODE are solved numerically by bvp4c program in Matlab software. Finally, the numerical results for the skin friction coefficient, the local Nusselt number and the local Sherwood number are obtained. Moreover, the variations of the velocity, temperature and concentration profiles are presented. The characteristics of the flow, heat and mass transfer are discussed in details.