

Effect of magnetic field on mixed convection boundary layer flow over an exponentially shrinking vertical sheet with suction

ABSTRACT

A theoretical study has been presented to describe the boundary layer flow and heat transfer on an exponentially shrinking sheet with a variable wall temperature and suction, in the presence of magnetic field. The governing nonlinear partial differential equations are converted into ordinary differential equations by similarity transformation, which are then solved numerically using the shooting method. Results for the skin friction coefficient, local Nusselt number, velocity profiles as well as temperature profiles are presented through graphs and tables for several sets of values of the parameters. The effects of the governing parameters on the flow and heat transfer characteristics are thoroughly examined.

Keyword: Exponentially shrinking sheet; Magnetic field; Mixed convection; Suction