Abstract

The aim of this paper is to analyze the effects of variable viscosity and thermal conductivity on magneto hydrodynamic forced convective boundary layer flow past a stretching/shrinking sheet prescribed with variable heat flux in the presence of heat source and constant suction. The fluid viscosity and thermal conductivity are assumed to be inverse linear functions of temperature. The boundary equations are transformed into ordinary differential equations with similarity transformations. The effects of viscosity variation parameter and thermal conductivity variation parameter on velocity profile and temperature profile are discussed numerically by solving the governing transformed ordinary differential equations with the help of Runge-Kutta shooting method and plotted graphically. Skin-friction coefficient and wall temperature are also explored for typical values of the parameter involved in the study.

References


- Fadzilah MD Ali, Roslinda Nazar, Norihan MD Arifin. (2010). MHD viscous flow and heat transfer due to a permeable shrinking sheet with prescribed surface heat flux. WSEAS
Transactions on Mathematics 5(9), 365-375. (ISSN: 1109-2769)
- Herwig, H. & Gersten, K. Warme and Stafubertr, 20, (1986), P47

Index Terms
Computer Science Information Science

Keywords
Variable viscosity Variable thermal conductivity skin-friction stretching/shrinking sheet.