

Soret and Dufour Effect on Variable Viscosity and Thermal Conductivity of an Inclined Magnetic Field with Dissipation in Non-Darcy Porous Medium

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Abstract : The study of Soret and Dufour effect on variable viscosity and thermal conductivity of an inclined magnetic field with dissipation in non-Darcy porous medium over a continuously stretching sheet for power-law variation in the sheet temperature and concentration are investigated. The viscosity of the fluid flow and thermal conductivity are considered to vary as a function of temperature. The local similarity solutions for different values of the physical parameters are presented for velocity, temperature and concentration. The result shows that variational increase in the values of Soret and Dufour parameters increase the temperature and concentration distribution. Finally, the effects of skin friction, Nusselt and Sherwood numbers which are of physical and engineering interest are considered and discussed.

Keywords : Dufour, non-Darcy Flow, Soret, thermal conductivity, variable viscosity

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