

Variable viscosity of Casson fluid flow over a stretching sheet in porous media with Newtonian heating

ABSTRACT

Casson fluid flow with variable viscosity in porous media over a heated stretching sheet is investigated. The partial differential equations representing the flow motion are first transformed to ordinary differential equations by similarity transformation before being solved numerically by the finite-difference method. The effects of the viscosity variation parameter (Ω), the permeability number (κ), Prandtl number (pr), Biot number (bi) and non-Newtonian fluid parameter (β) on the fluid flow and heat transfer, along with the temperature and velocity profiles, are presented graphically for some arbitrary values.

Keyword: Casson fluid; Stretching sheet; Newtonian heating; Variable viscosity