

The exponential variation of heated extending sheet in casson fluid flow

ABSTRACT

The mathematical model of the following case is developed: The magnetohydrodynamics (MHD) of Casson fluid flow over a heated surface due to Newtonian heating. This study takes into account the effect of the thermal radiation in a concentrated Casson fluid flow. Similarity transformation is applied, to convert the governing equations (continuity, momentum, energy, mass diffusion equations) into ordinary differential equations (ODE) which is later solved by using finite-difference method. The profiles of velocity, temperature, concentration and concentration gradient are depicted for various values of controlling parameters. The consequences of the controlling parameters on the system are described in details.