Mathematical Modelling of Steady MHD Casson Fluid Flow with Stretching Porous Walls in existence of Radiation, Chemical Reaction & Thermal Diffusion Effect

Sanju Jangid[1], Ruchika Mehta[1], Tripti Mehta[2], and Sushila Rathore[3]

[1]Manipal University Jaipur
[2]SS Jain Subodh PG College
[3]Vivekananda Global University, Jaipur-303012

September 16, 2020

Abstract

In present study, we investigate steady MHD Casson fluid flow effect with stretching porous walls together with thermal radiation amid two equidistant sheets. The heat and mass transport experience on dimensionless parameters Soret and Dufour effect on squeezing flow are interpreted along with the impression of thermal radiation also with heat source/sink. We change the partial differential equations (PDEs) into ordinary differential equations (ODEs) dealing convenient proportionality transformations & after then solve ODEs by Runge-Kutta 4th-order scheme and shooting technology. The sequel of different parameters demonstrated by graph and table of temperature, velocity, and concentration impact. We studied the efficacy of Grashof numbers, Reynolds number, dimensionless Casson fluid parameter, and Hartman/magnetic quantity on velocity, temperature, and on concentration. The skin friction coefficient (Cf), Nusselt number (Nu), and Sherwood number (Sh) are reported and calculated at the end.

Hosted file

`MMAS - Research paper - Dr. Ruchika Mehta.docx` available at https://authorea.com/users/359647/articles/481487-mathematical-modelling-of-steady-mhd-casson-fluid-flow-with-stretching-porous-walls-in-existence-of-radiation-chemical-reaction-thermal-diffusion-effect

1

3