

عنوان مقاله:

Magneto Casson-Carreau Fluid Flow through a Circular Porous Cylinder with Partial Slip

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خلاصه مقاله:

In the current study, a comparative analysis of two-dimensional heat transfer by the free convective flow of non-Newtonian Casson and Carreau fluid in electro-conductive polymer on the outside surface of a horizontal circular cylinder under slip and radial magnetic field effects is regarded. The Casson and Carreau fluid model formulation were first developed for the problem of the boundary layer of the horizontal circular cylinder and by using non-similarity transformations, the combined governing partial differential equations are translated into ordinary differential equations. The differential equations obtained are resolved by the Keller Box Method (KBM). The impact of the key parameters, the rate of heat transfer and skin friction is evaluated through graphs and tables. The result reveals that an increase in magnetic number decreases the velocity field of both Casson and Carreau fluid also Casson fluid is higher values when compared to Carreau fluid in variation of magnetic number.

کلمات کلیدی:

MHD, Casson-Carreau fluid, circular cylinder, Porous medium, Keller-Box Method

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