

عنوان مقاله:

Thermal Radiation Effects on MHD Boundary Layer Slip Flow Past a permeable Exponential Stretching Sheet in the Presence of Joule Heating and Viscous Dissipation

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خلاصه مقاله:

An analysis of the thermal radiation effects on MHD boundary layer flow past a permeable exponential stretching surface in the presence of Joule heating and viscous dissipation is presented. Velocity and thermal slips are considered instead of no-slip conditions at the boundary. Stretching velocity and wall temperature are assumed to have specific exponential function forms. The governing system of partial differential equations is transformed into a system of ordinary differential equations using similarity transformations and then solved numerically using the Runge-Kutta fourth order method along with shooting technique. The effects of the various parameters on the velocity, shear stress, temperature and temperature gradient profiles are illustrated graphically and discussed in detail. The influence of the slip parameters causes significant fluctuations in velocity of the flow field. Viscous dissipation characterized by Eckert number enhances the temperature of the fluid, as the heat gets transferred from the sheet to the fluid.

کلمات کلیدی:

Exponentially stretching surface, MHD, Thermal radiation, Viscous dissipation, Boundary layer flow, Joule heating

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