

عنوان مقاله:

Variable Thermal Conductivity and Thermal Radiation Effect on the Motion of a Micro Polar Fluid over an Upper Surface

محل انتشار:

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خلاصه مقاله:

The intent of this analysis is to explore the influence of thermal radiation paired with variable thermal conductivity on MHD micropolar fluid flow over an upper surface. The novelty of the present model is to consider the fluid flow along an upper horizontal surface of a paraboloid of revolution (uhspr) with the porous medium. This physical phenomenon is described by a set of coupled non-linear ODEs by using suitable scaling analysis. The ODEs along with the boundary conditions are solved numerically. Influence of various flow parameters on momentum, thermal and concentration boundary layers is discussed graphically. It is noticed that the variable thickness of the surface has a leading consequence on the boundary layer progression along the surface. Moreover, the results of this study are not only useful for industrial applications but also present a basic understanding of the physical model.

کلمات کلیدی:

Micropolar fluid, variable thermal conductivity, Thermal radiation, paraboloid of revolution

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