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Mohammad M. Rahman, Ibrahim A. Eltayeb, Sheikh Mohammad M. Rahman

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THERMO-MICROPOLAR FLUID FLOW ALONG A VERTICAL PERMEABLE PLATE WITH UNIFORM SURFACE HEAT FLUX IN THE PRESENCE OF HEAT GENERATION

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ABSTRACT

A two-dimensional steady convective flow of thermo-micropolar fluid past a vertical permeable flat plate in the presence of heat generation with uniform surface heat flux has been analyzed numerically. The local similarity solutions for the flow, microrotation (angular velocity) and heat transfer characteristics are illustrated graphically for various material parameters entering into the problem. The effects of the pertinent parameters on the local skin friction coefficient, plate couple stress, and the rate of heat transfer are also calculated and displayed graphically. The results show that skin friction coefficient (viscous drag) and the rate of heat transfer (Nusselt number) in micropolar fluid are less compared to that of the Newtonian fluid.

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