MIXED CONVECTION BOUNDARY LAYER FLOW PAST A VERTICAL CONE EMBEDDED IN A POROUS MEDIUM SUBJECTED TO A CONVECTIVE BOUNDARY CONDITION

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ABSTRACT

In the present paper, we study the steady mixed convection boundary layer flow past a vertical cone embedded in a porous medium subjected to a convective surface boundary condition. The governing partial differential equations are reduced to ordinary differential equations using a similarity transformation, before being solved numerically. Both assisting and opposing flows are considered. The influence of the convective parameter on the thermal field is analyzed and discussed. It is found that dual solutions exist for the opposing flow, while for the assisting flow the solution is unique.