FLOW AND HEAT TRANSFER PAST A PERMEABLE STRETCHING/SHRINKING SURFACE IN A POROUS MEDIUM: BRINKMAN MODEL

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ABSTRACT

The steady flow and heat transfer past a permeable stretching/shrinking surface in a fluid saturated porous medium is studied. The governing partial differential equations are transformed to an ordinary differential equation, which is then solved numerically for some values of the porous medium parameter Λ, the stretching/shrinking parameter λ and the mass suction parameter s. It is found that dual solutions exist for a certain range of the mass suction as well as the porous medium parameter for the shrinking case. Moreover, the range of λ for which the solution exists increases with Λ and s. The effects of these parameters on the velocity and temperature distribution are presented graphically.