A SINGULAR PERTURBATION SOLUTION FOR HYDRO MAGNETIC FLOW PAST A STRETCHING POROUS SHEET

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Abstract

An analysis to investigate the effects of magnetic parameter, permeability parameter and suction parameter (both large and small suction) on the continuously moving sheet problem is studied. The fluid flow characteristics are found to depend on the new dimensionless numbers M $\left[= \frac{\sigma B_0^2 L}{\rho V_0}\right]$, the Hartman number, $k2$ $\left[= \frac{vL}{k'V_0}\right]$, the permeability parameter and R_0 $\left[= \frac{V_0 L}{v}\right]$, the suction Reynold's number. For the governing momentum boundary layer equations of the problem, perturbation and exact solutions are obtained and the results are discussed through graphs and validation is done by comparing with the published results.

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Key Words : *Stretching sheet, Porous media, Singular perturbation, Hartman number, Reynolds number.*