

Magnetohydrodynamic Flow and Mass Transfer of a Jeffery Fluid over a Nonlinear Stretching Surface

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This paper investigates the magnetohydrodynamic (MHD) boundary layer flow of a Jeffery fluid induced by a nonlinearly stretching sheet with mass transfer. The relevant system of partial differential equations has been reduced into ordinary differential equations by employing the similarity transformation. Series solutions of velocity and concentration fields are developed by using the homotopy analysis method (HAM). Effects of the various parameters such as Hartman number, Schmidt number, and chemical reaction parameter on velocity and concentration fields are discussed by presenting graphs. Numerical values of the mass transfer coefficient are also tabulated and analyzed.

Key words: Jeffery Fluid; Chemical Reaction; Series Solutions.