

Magnetohydrodynamics (MHD) Boundary Layer Flow Past A Stretching Plate with Heat Transfer and Viscous Dissipation

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Abstract : The research work focuses on the cases of MHD boundary layer flow past a stretching plate with heat transfer and viscous dissipation. The non-linear of momentum and energy equation are transform into ordinary differential equation by using similarity transformation, the resulting equation are solved using Adomian Decomposition Method (ADM). An attempt has been made to show the potentials and wide range application of the Adomian decomposition method in the comparison with the previous one in solving heat transfer problems. The Pade approximates value ($\eta = 11[11, 11]$) is use on the difficulty at infinity. The results are compared by numerical technique method. A vivid conclusion can be drawn from the results that ADM provides highly precise numerical solution for non-linear differential equations. The result where accurate especially for $\eta \leq 4$, a general equating terms of Eckert number (Ec), Prandtl number (Pr) and magnetic parameter () is derived which was used to investigate velocity and temperature profiles in boundary layer.

Keywords : MHD, Adomian decomposition, boundary layer, viscous dissipation

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