

Magnetohydrodynamic Flow over an Exponentially Stretching Sheet

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Abstract : The flow of a viscous, incompressible, and electrically conducting fluid under the influence of aligned magnetic field acting along the direction of fluid flow over an exponentially stretching sheet is investigated numerically. The nonlinear partial differential equations governing the flow model is transformed to a set of nonlinear ordinary differential equations using suitable similarity transformation and the solution is obtained using a local linearization method followed by the Chebyshev spectral collocation method. The effects of various parameters affecting the flow and heat transfer as well as the induced magnetic field are discussed using suitable graphs and tables.

Keywords : aligned magnetic field, exponentially stretching sheet, induced magnetic field, magnetohydrodynamic flow

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