

Flow and heat transfer of aligned magnetic field with Newtonian heating boundary condition

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ABSTRACT

Influence of aligned magnetic field on the steady boundary layer flow and heat transfer over a stretching sheet with Newtonian heating boundary condition is considered. The transformed governing nonlinear boundary layer equations in the form of ordinary differential equations are solved numerically by Keller box method. The details on computation have been presented and elaborated. The obtained numerical solutions have been captured graphically in the form of velocity and temperature distributions for different values of aligned angle, magnetic field parameter, Prandtl number and conjugate parameter. It is found that, increases in aligned angle associated with magnetic field delayed the velocity profile of the flow and enhances the temperature profile.

KEYWORDS:

Heat transfer; Aligned magnetic field; Newtonian heating boundary condition