MHD mixed convection stagnation point flow along a vertical stretching permeable surface with heat source/sink

ABSTRACT

In this paper, we consider a two-dimensional stagnation point flow and heat transfer due to suction or injection towards a stretching surface. The governing nonlinear boundary layer equations are transformed into the system of nonlinear ordinary differential equation (ODE) using similarity transformation. The equations are then solved numerically by using the bvp4c function in MATLAB software. The effects of the governing parameters, namely velocity ratio parameter, Hartmann number, mixed convection parameter, Prandtl number, heat generation/absorption coefficient and suction/injection parameter are discussed and presented graphically.

Keyword: MHD; Mixed convection; vertical stretching; Stagnation point flow; bvp4c