MHD stagnation-point flow of a micropolar fluid with prescribed wall heat flux.

ABSTRACT

The steady magnetohydrodynamic (MHD) mixed convection stagnation point flow towards a vertical surface immersed in an incompressible micropolar fluid with prescribed wall heat flux is investigated. The governing partial differential equations are transformed into a system of ordinary differential equations, which is then solved numerically by a finite-difference method. Numerical results are obtained for the skin-friction coefficient and the local Nusselt number as well as the velocity and temperature profiles for some values of the governing parameters, namely, the mixed convection parameter, material parameter, and Prandtl number. Dual solutions are found to exist for the opposing flow.