Boundary layer flow over a permeable stretching sheet embedded in a non-Darcian porous medium with thermal radiation and ohmic dissipation

ABSTRACT

An analysis is performed to study the non-Darcy fluid flow and heat transfer over a stretching sheet embedded in porous media with thermal radiation and ohmic dissipation. The sheet is considered to be permeable and the problem is nondimensionalized by using similarity transformation. The resulting problem is solved numerically by using shooting method for some values of the physical parameters. Numerical results for the velocity and temperature profiles are reported graphically for various values of physical parameters. The results indicate that suction enhances the heat transfer coefficient while injection causes a decrease in heat transfer.

Keyword: Boundary layer; Heat transfer; Injection; Stretching surface; Suction