عنوان مقاله:

Effects of heat generation and thermal radiation on steady MHD flow near a stagnation point on a linear stretching sheet in porous medium and presence of variable thermal conductivity and mass transfer

محل انتشار:

دو فصلنامه تحقیقات کاربردی در مهندسی مکانیک, دوره 4, شماره 2 (سال: 1394)

تعداد صفحات اصل مقاله: 12

نویسندگان:

S. Mohammed Ibrahim - *Department of Mathematics, Priyadarshini College of Engineering and Technology, Nellore, Andra Pradesh,India - ۵۲۴۰۰۴*

k Suneetha - *Department of Mathematics, Priyadarshini College of Engineering and Technology, Nellore, Andra Pradesh,India - ۵۲۴۰۰۴*

خلاصه مقاله:

present paper was aimed to study the effects of variable thermal conductivity and heat generation on the flow of a viscous incompressible electrically conducting fluid in the presence of a uniform transverse magnetic field, thermal radiation,porous medium, mass transfer, and variable free stream near a stagnation point on a non-conducting stretching sheet. Equations of continuity, momentum, energy, andmass were transformed into ordinary differential equations and solved numericallyusing shooting method. Velocity, temperature, and concentration distributions were numerically discussed and presented in the graphs. Skin-friction coefficient, theNusselt number, and Sherwood number on the sheet were derived and discussed numerically. Their numerical values for various values of physical parameters werepresented in the tables. It was found that temperature increased with increasingradiation parameter, R, and concentration decreased with increasing the Schmidt number, Sc. The numerical predications were compared with the existing information in the literature and a good agreement was obtained.

کلمات کلیدی:

boundary layer, steady, MHD, stagnation point, radiation, Mass transfer, porous medium, heat generation