MASS TRANSFER EFFECTS ON TRANSIENT FREE CONVECTION FLOW PAST AN INFINITE VERTICAL PLATE IN A ROTATING FLUID

V. B. BHALERAO[1] AND R. M. LAHURIKAR[2]
[1] Department of Mathematics,
Swa. Sawarkar College, Beed.-431 122 (M.S.), India
[2] Department of Mathematics,
Govt. Arts and Science College,
Aurangabad, 431004 (M.S.), India

Abstract

As exact solution of the mass transfer effects on the transient free convection flow past an infinite vertical plate in a rotating fluid has been presented by Laplace-transform technique. It is observed that flow gets unstable for small t when rotating speed increases. As increase in Schmidt number Sc leads to decrease in the axial velocity as well as transverse velocity for all buoyancy parameter N. Also increase in buoyancy parameter N leads to increase in axial velocity where as transverse velocity decreases. Axial velocity increases as t increases where as transverse velocity decreases. Angular speed or Ekman number Ek increases axial skin friction increases whereas transverse skin friction also increases. As t increases there is increase transverse skin friction.