

**EFFECTS OF HALL CURRENT ON HYDROMAGNETIC NATURAL CONVECTION
AND MASS TRANSFER FLOW OF A HEAT RADIATING FLUID PAST AN
IMPULSIVELY MOVING VERTICAL PLATE WITH RAMPED TEMPERATURE**

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ABSTRACT

Effects of Hall current on unsteady hydromagnetic natural convection and mass transfer flow of an electrically conducting, viscous, incompressible and time dependent heat radiating fluid past an impulsively moving vertical plate in a porous medium, in the presence of thermal diffusion, is studied. Exact solution of the equations of concentration, energy and momentum is obtained in closed form by Laplace transform technique. Expressions for skin friction due to primary and secondary flows, Nusselt number and Sherwood number are derived. Numerical values of primary and secondary fluid velocities, fluid temperature, and fluid concentration are displayed graphically whereas those of skin friction and Nusselt number are presented in tabular form for various values of pertinent flow parameters. Natural convection and mass transfer flow near a ramped temperature plate is also compared with natural convection and mass transfer flow near an isothermal plate.