

Magnetohydrodynamic rotating flow of a generalized burgers' fluid in a porous medium with hall current

Abstract:

This study concentrates on the unsteady magnetohydrodynamics (MHD) rotating flow of an incompressible generalized Burgers's fluid past a suddenly moved plate through a porous medium. Modified Darcy's law for generalized Burgers's fluid in a rotating frame has been used to model the governing flow problem. The closed form solution of the governing flow problem has been obtained by employing Laplace transform technique. The integral appearing in the inverse Laplace transform has been evaluated numerically. The influence of various parameters on the velocity profile has been delineated through several graphs and discussed in detail. It was found that the fluid is decelerated with increasing Hartmann number M and porosity parameter K . However, for large Hall parameter m , the real part of velocity decreases and the imaginary part of velocity increases.