

EFFECT OF OPPOSITELY MOVING PLATES ON CONVECTIVE HEAT AND MASS TRANSFER THROUGH TWO IMMISCIBLE FLUIDS- FEA

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ABSTRACT

In this paper we present the novel of two immiscible fluids flow and the effect of heat and mass transfer along a oppositely moving vertical plates. The vertical channel is subjected to the transverse magnetic field and both plates are moving with constant velocity w_0 in opposite directions. The coupled governing equations of the flow and heat transfer with appropriate boundary conditions are solved using Finite Element method. The profiles of velocity, Micro rotation and temperature are studied for various parameters Grashof Number (Gr), magnetic field (H), Reynolds Number(R), Eckert Number (Ec), Material Parameter (K) and represented graphically. The Nusselt number and shear stress values are also analyzed.

KEYWORDS: Micropolar Fluid, Viscous Fluid, Vertical Channel, Moving Plates, Viscous Dissipation, MHD, FEM, Magnetic Field

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