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UNSTEADY MHD POISEUILLE DISSIPATIVE FLUID FLOW THROUGH A POROUS MEDIUM WITH TRANSPIRATION COOLING

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ABSTRACT

In this paper, an analysis of an oscillatory flow of a viscous, incompressible and electrically conducting fluid with heat radiation in a horizontal porous channel with dissipation function is carried out. The lower stationary plate and the upper plate in unsteady periodic motion are subjected to a same constant injection and suction velocity respectively. The temperature of the upper plate in periodic motion varies periodically with time. The flow in the channel is also acted upon by periodic variation of the pressure gradient. A magnetic field of uniform strength is applied in the direction normal to the plates. A closed form solution of the problem is obtained. The effects of various flow parameters on the velocity and temperature fields have been shown graphically and discussed in detail.

KEYWORDS: Heat Radiation, Incompressible Fluid, MHD, Porous Medium and Unsteady