FREE AND FORCED CONVECTIVE FLOW OF A SECOND GRADE FLUID IN A VERTICAL CHANNEL WITH THE EFFECTS OF RADIATION AND MAGNETIC FIELD

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Abstract

In this paper we investigate the effect of magnetic field on the fully developed free and forced convective flow of a second grade fluid in a vertical channel with permeable walls under the influence of radiation. It is assumed that the flow is steady and fully developed. The governing non-linear equations are solved for the velocity field and the temperature field using the traditional perturbation technique. The effects of various emerging parameters like visco-elastic parameter (k), Hartmann number (M), Cross-flow Reynolds number (R), Reynolds number (Re), Prandtl number (Pr), radiation parameter (N), Grashof number (Gr), wall temperature parameter (rT) are discussed in detail through graphs.

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