COMBINED EFFECTS OF INTERNAL HEAT GENERATION AND VISCOUS DISSIPATION FOR DOUBLE DIFFUSIVE WITH FORCHHEIMER FLUID MODEL

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In this paper, a numerical study using shooting technique is applied for a double diffusive flow for the combined effects of internal heat generation and viscous dissipation over a vertical heated plate under the influence of variable fluid properties is carried out. The governing equations of the physical problem are non-linear and coupled partial differential equations for velocity, temperature and concentration distributions. Using a suitable similarity transformation, the governing equations are transformed to ordinary differential equations involving the various non-dimensional parameters of the problem. The fluid characteristics are discussed for variable fluid properties like porosity, permeability, thermal conductivity and solutal diffusivity and the results are compared for particular constant fluid properties. It is observed that our results are well agreed with the earlier works in the literature.