

عنوان مقاله:

Linear and Weak Nonlinear Double Diffusive Convection in a Viscoelastic Fluid Saturated Anisotropic Porous Medium with Internal Heat Source

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خلاصه مقاله:

This paper deals linear and weak nonlinear stability analysis of double-diffusive convection in an anisotropic porous layer with internal heat source saturated by viscoelastic fluid. For linear stability analysis we use normal mode technique and obtained the expression for oscillatory thermal Rayleigh number which is used to plot neutral stability curve for oscillatory case. For nonlinear analysis truncated representation of Fourier series upto two terms is used. The system of time dependent nonlinear equation is solved numerically and plot the curve for heat transfer and mass transfer with respect to time for different parameters. Effect of thermal anisotropy parameter, mechanical anisotropy parameter, relaxation parameter, retardation parameter, internal heat source parameter, solute Rayleigh number, diffusivity ratio, Darcy-Prandtl number on the onset of convection, heat and mass transfers have been discussed. We also draw the stream lines, isotherms, isohalines at different times

کلمات کلیدی:

Internal heat source, Double-diffusive convection, Porous media, Anisotropic, Viscoelastic

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