Onset of Double Diffusive Convection in a Thermally Modulated Fluid-Saturated Porous Medium

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The onset of double diffusive convection in a sparsely packed porous medium was studied under modulated temperature at the boundaries, and a linear stability analysis has been made. The primary temperature field between the walls of the porous layer consisted of a steady part and a time-dependent periodic part and the Galerkin method and the Floquet were used. The critical Rayleigh number was found to be a function of frequency and amplitude of modulation, Prandtl number, porous parameter, diffusivity ratio and solute Rayleigh number.