

This study highlights the interaction between gas radiation and double diffusive convection in cooperating cases. We consider a square differentially-heated cavity filled with nongray air-CO₂ or air-H₂O mixtures. The governing equations are solved by a finite-difference method. The radiative sources are evaluated by the discrete ordinates method associated to the SLW spectral model. Results obtained for two average concentrations of CO₂ and H₂O (10% and 25%) show that radiation influences the temperature and concentration fields by creating oblique stratifications. The Nusselt numbers are decreased, whereas the Sherwood numbers are only slightly reduced. These effects are accentuated in air-H₂O mixtures