

Documents

Li, Z., Sheikholeslami, M., Chamkha, A.J., Raizah, Z.A., Saleem, S.

Control volume finite element method for nanofluid MHD natural convective flow inside a sinusoidal annulus under the impact of thermal radiation
(2018) *Computer Methods in Applied Mechanics and Engineering*, 338, pp. 618-633. Cited 21 times.

Abstract

Control Volume Finite Element Method (CVFEM) is a new approach in which all advantages of finite volume method and finite element method are combined together. In this research, CVFEM is employed to simulate the impact of radiative heat transfer on magnetohydrodynamic free convection of water based nanofluid. Fe₃O₄-H₂O ferrofluid has been used and viscosity of nanofluid is variable respect to magnetic field. Roles of the radiation parameter Rd, numbers of undulations N, Fe₃O₄-water volume fraction ϕ , Hartmann number Ha and the Rayleigh number Ra are depicted. Nu_{ave} is present as a formula according to effect of various parameters. Results prove that the inner surface temperature decreases with the augment of buoyancy forces. Nu_{ave} enhances with the augmentation of the thermal radiation parameter while it decreases with the augment of Ha and N. © 2018 Elsevier B.V.

2-s2.0-85047241019

Document Type: Article

Publication Stage: Final

Source: Scopus