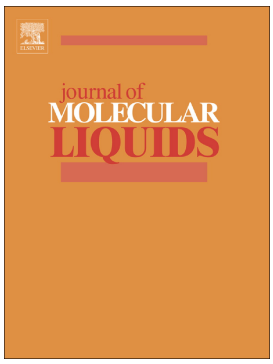

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M. Sheikholeslami, Houman B. Rokni

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CVFEM for effect of Lorentz forces on nanofluid flow in a porous complex shaped enclosure by means of Non-equilibrium model

M. Sheikholeslami [1,a], Houman B. Rokni [b]

[a] *Department of Mechanical Engineering, Babol Noshirvani University of Technology, Babol, Iran*

[b] *Department of Mechanical and Materials Engineering, Tennessee Technological University, Cookeville, TN 38505, USA*

Abstract

Influence of magnetic field on nanofluid transportation inside a porous cavity by means of two-temperature model is reported via Control volume based finite element method (CVFEM). Nanofluid properties are estimated by means of KKL. Boussinesq-Darcy estimation is employed for momentum equations. Roles of Rayleigh number (Ra), solid-nanofluid interface heat transfer parameter (Nhs), porosity (ε) and Hartmann number (Ha) are depicted. Results show that porosity has opposite relationship with temperature gradient. Nusselt number reduces with augment of Nhs.

Keywords: Porous media; Thermal non-equilibrium; Nanofluid; Natural convection; Magnetic field; CVFEM; KKL.

Nomenclature

[1] Corresponding author:
Email address: mohsen.sheikholeslami@nit.ac.ir, m.sheikholeslami1367@gmail.com (M. Sheikholeslami), houman.b.rokni@gmail.com (Houman B. Rokni)