

## Documents

Dogonchi, A.S., Chamkha, A.J., Ganji, D.D.

**A numerical investigation of magneto-hydrodynamic natural convection of Cu–water nanofluid in a wavy cavity using CVFEM**  
(2019) *Journal of Thermal Analysis and Calorimetry*, 135 (4), pp. 2599-2611. Cited 26 times.

### Abstract

In this work, magneto-hydrodynamic natural convection of a nanofluid in a wavy cavity considering Brownian motion is studied numerically using the control volume finite element method. The effective viscosity and thermal conductivity of the nanofluid are defined by the correlation in which the impact of Brownian motion on the thermal conductivity is considered. The considered wavy cavity is heated from the left side and it cooled from the right side. Also, the top and bottom walls of the considered wavy cavity are assumed adiabatic. The impacts of various controlling parameters such as the Rayleigh number, wavy contraction ratio, Hartmann number and undulation number are examined on the contour maps of the streamlines and the isotherms. Further, the average and local Nusselt numbers are calculated and presented graphically and discussed. The findings narrate that the strength of the convective flow has a direct relationship with the Rayleigh number and also it has a reverse relationship with the wavy contraction ratio. © 2018, Akadémiai Kiadó, Budapest, Hungary.

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