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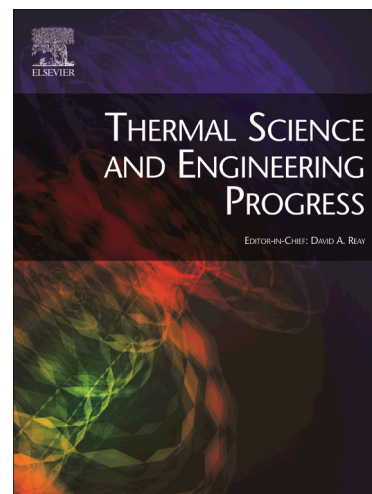
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Effects Of Heat Source And Sink On Entropy Generation And MHD Natural Convection Of A Al_2O_3 -Cu/Water Hybrid Nanofluid Filled With Square Porous Cavity

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Abstract

The present work is focused on the analysis of the entropy generation and magneto-hydrodynamics natural convection flow and heat transfer in a square porous cavity differentially heated and cooled by heat source and sink, respectively filled with the Cu- Al_2O_3 -Water hybrid nanofluid. The effective segments of the left and right sides of the cavity are kept at cooled temperature and the effective segments of top and bottom sides are kept at hot temperature. The enclosure's ineffective segments of its sides are kept adiabatic. The thermal conductivity and the dynamic viscosity of the nanofluid are represented by different experimental correlations those are suitable to each nanoparticles (see [19, 20, 23]). The finite difference methodology is used to solve the dimensionless partial differential equations governing the problem. A comparison with previously published studies and the present results shows very good agreement. Results are presented for entropy production in terms of Hartmann number, nanoparticle volume fraction and geometric parameters of the cavity.

Keywords: *Magneto-hydrodynamics; Entropy Generation, natural convection; hybrid nanofluid; square cavity.*

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