عنوان مقاله:

Conjugate Effect of Joule Heating and Unsteady MHD Natural Convection in a Differentially Heated Skewed Porous Cavity Saturated by Cu-water Nanofluid

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خلاصه مقاله:

Conjugate effect of Joule heating and Lorentz force in a differentially skewed porous lid-driven cavity saturated by Cu-water nanofluid have been examined numerically. A coordinate transformation is utilized to transform the physical domain to the computational domain in an orthogonal coordinate. The Darcy-Brinkman-Forchheimer model with Boussinesq approximation is adopted and the developed mathematical model is solved by finite volume method based on SIMPLE algorithm. The influence of porous medium permeability (Darcy number), Joule heating (Eckert number), nanoparticle volume fraction, as well as inclination angle of skewed cavity on fluid flow and heat transfer characteristics are studied. The entropy generation and Bejan number also evaluated to examine thermodynamic optimization of the MHD mixed convection in porous media. The results have been presented in terms of streamlines, .average Nusselt number, entropy generation, and Bejan number for a wide range of key parameters

کلمات کلیدی:

Skewed cavity, MHD mixed convection, Porous media, Nanofluid, Heat transfer, Entropy generation