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Entropy generation minimization (EGM) due to mixed convective flow of viscous nanomaterial with nonlinear radiative heat flux

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Abstract: Here entropy generation and magnetohydrodynamics (MHD) impacts in unsteady viscous nanoliquid flow are elaborated. Flow induced is by impermeable rotating disk. Application of thermodynamics second law is employed for the analysis of entropy generation. Nanofluid characteristics have been addressed through thermophoresis and Brownian movement. Besides this, nonlinear versions of mixed convection and thermal radiation are introduced simultaneously. The process of non-dimensionalization is performed via implementation of suitable variables. Homotopy scheme is utilized for the computations of modeled nonlinear problems. The rate of total entropy generation is evaluated for distinct arising variables. Skin-friction and Nusselt and Sherwood numbers in addition to velocity, temperature and nanoparticles concentration are emphasized. We found increasing trend in temperature and velocity for unsteadiness factor whereas opposite scenario is noticed versus nanoparticles concentration. Besides this the entropy generation rate enhances with the

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