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## خلاصه مقاله:

The falling and settling of solid particles in gases and liquids is a natural phenomenon happens in many industrial processes. This phenomenon has altered pure forced convection to a combination of heat conduction and heat convection in a flow over a plate. In this paper, the coupling of conduction (inside the plate) and forced convection of a non-homogeneous nanofluid flow (over a flat plate) is investigated, which is classified in conjugate heat transfer problems. Two-component four-equation non-homogeneous equilibrium model for convective transport in nanofluids has been applied that incorporates the effects of nanoparticle migration due to the thermophoresis Nt, Brownian motion Nb, and Lewis number Le    simultaneously. Employing similarity variables, we have transformed the basic non-dimensional partial differential equations to ordinary differential ones and then solved numerically. Moreover, variation of the heat transfer and concentration rates with thermal resistance of the plate   is studied in detail. Setting the lowest dependency of heat transfer rate to the thermal resistance of the plate as a goal, we have shown that for two nanofluids with similar heat transfer characteristics, the one with higher Brownian motion is desired.

## کلمات کلیدی:

Nanofluid, Flat plate, Conjugate heat transfer, Thermophoresis, Brownian motion