Title:

Numerical solution for falkner-skan flow of hybrid nanofluid with porosity effect

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Abstract:

Hybrid nanofluid is known to improve heat transfer performance, and its advantages have led to relatively reasonable expectations for their applications. This research considered a moving wedge, namely the Falkner- Skan model, which is well-known in the aerodynamic field. Hybrid nanofluid has been chosen where the dispersion of alumina and copper nanoparticles with water as the base fluid is considered in the unsteady mixed convection flow over moving wedge. By using similarity transformations, the governing equations are converted into ordinary differential equations and then numerically solved using MATLAB bvp4c solver. The increasing values of porosity parameter caused the velocity of hybrid nanofluid to increase. The results also indicated that, the effect of porosity parameter improved the values of skin friction coefficient but decrease the value of Nusselt number.