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**Investigation on ethylene glycol-water mixture fluid suspend by hybrid nanoparticles
(TiO₂-CuO) over rotating cone with considering nanoparticles Shape factor**

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Abstract

One of the most important tasks in increasing heat transfer of the fluids is the application of hybrid nanoparticles instead of nanoparticles. Hence the purpose of this article is to investigate natural convection heat transfer of magnetiohydrodynamic (MHD) non-Newtonian Carreau nanofluid consist of TiO₂-CuO hybrid nanoparticles/ ethylene glycol-water (50%-50%) mixture base fluid over a rotating cone with considering non-linear thermal radiation, heat generation/ absorption and variable thermal conductivity effects. also a different nanoparticles Shapes (Bricks, cylinders, platelets and Blades) effects have been investigated. The PDEs governing equations of the problem have been solved after conversion to ODEs by numerical method. The most important results of this study are the effect of different variable parameters such as Hartman number, Weissenberg number, radiation parameter, joule heating effect and nanoparticle volume fraction on the velocity profile, temperature profile, skin friction coefficient and local Nusselt number. As a result hybrid nanoparticles also have a greater effect on the temperature profile than nanoparticles.

Keywords: Hybrid nanoparticles; Mixture base fluid; Carreau non- Newtonian; Shapes factor; Rotating cone; MHD;

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