عنوان مقاله:

Effects of Non-uniform Suction, Heat Generation/Absorption and Chemical Reaction with Activation Energy on MHD Falkner-Skan Flow of Tangent Hyperbolic Nanofluid over a Stretching/Shrinking Eedge

محل انتشار:

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تعداد صفحات اصل مقاله: 13

نویسندگان:

A. Patra - *Department of Mathematics, Govt. Autonomous College, Rourkela, Odisha, India*

M.K. Nayak - *Department of Physics, Radhakrishna Institute of Technology and Engineering, Bhubaneswar-۷۵۲۰۵۷, Odisha, India*

Ashok Misra - *Department of Mathematics, Centurion University of Technology and Management, Paralakhemundi, Gajapati-۷۶۱۲۱۱, Odisha, India*

خلاصه مقاله:

In the present investigation, the magnetohydrodynamic Falkner-Skan flow of tangent hyperbolic nanofluids over a stretching/shrinking wedge with variable suction, internal heat generation/absorption and chemical reaction with activation energy have been scrutinized. Nanofluid model is composed of Brownian motion'' and Thermophoresis''. Transformed non-dimensional coupled non-linear equations are solved by adopting the fourth-order R-K method along with the shooting technique. A comprehensive analysis of nanofluid velocity, the relative temperature, and its concentration profiles has been addressed. The major outcomes of the current study include that augmentation in the Weissenberg parameter, Hartmann number along with suction impede fluid flow and the shrinkage of the related boundary layer while internal heating develops an ascending thermal boundary layer for static and moving (stretching/shrinking) wedge. An increment in reaction rate undermines the nanoparticle concentration while that of activation energy exhibits a reverse trend.

کلمات کلیدی:

Falkner-Skan MHD Flow, Tangent Hyperbolic Nanofluid, Stretching/shrinking wedge, Variable Suction, Chemical Reaction with activation energy, Heat generation/absorption

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