

## عنوان مقاله:

Stability Analysis of Casson Nanofluid Flow over an Extending/Contracting Wedge and Stagnation Point

## محل انتشار:

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## خلاصه مقاله:

This numerical study is conducted to scrutinize the dual solutions and stability analysis of the flow of Casson nanofluid past a permeable extending/contracting wedge and stagnation point. Momentum, heat and mass transfer behaviors of the Casson nanofluid have been modeled with the use of the Buongiorno nanofluid model. Suitable self-similarity variables are employed to convert the fluid transport equations into ordinary differential equations and the bvp4c MATLAB solver is used to solve the equations. The impacts of active parameters on fluid transport properties are illustrated graphically. The outcomes of the present analysis reveal that the influence of Casson fluid parameter on velocity and temperature distributions obtained from the first and second solutions exhibit the opposite natures. From the stability analysis, it is found that the thermophoresis and Brownian motion effects acquire the same critical point value on Nusselt number. The temperature distribution of the Casson nanofluid is higher over the wedge than stagnation point. The two solutions are found for the limited range of extending/contracting parameter. The detailed stability test is carried out to determine which of the two solutions is physically realizable and stable.

## کلمات کلیدی:

Casson Nanofluid, Dual solutions, stability test, Falkner-Skan flow, Wedge/stagnation point

## لینک ثابت مقاله در پایگاه سیویلیکا:

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