The stagnation-point flow towards a shrinking sheet with homogeneous – heterogeneous reactions effects: a stability analysis

ABSTRACT

A numerical study is performed to evaluate the problem of stagnation ï point flow towards a shrinking sheet with homogeneous ï heterogeneous reaction effects. By using non-similar transformation, the governing equations be able to reduced to an ordinary differential equation. Then, results of the equations can be obtained numerically by shooting method with maple implementation. Based on the numerical results obtained, the velocity ratio parameter ∂< 0, the dual solutions do exist. Then, the stability analysis is carried out to determine which solution is more stable between both of the solutions by bvp4c solver in Matlab.

Keyword: Dual solutions; Heterogeneous; Homogeneous; Shrinking sheet; Stability analysis