

## Dual Solutions in Mixed Convection Boundary Layer Flow: A Stability Analysis

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**Abstract :** The mixed convection stagnation point flow toward a vertical plate is investigated. The external flow impinges normal to the heated plate and the surface temperature is assumed to vary linearly with the distance from the stagnation point. The governing partial differential equations are transformed into a set of ordinary differential equations, which are then solved numerically using MATLAB routine boundary value problem solver bvp4c. Numerical results show that dual solutions are possible for a certain range of the mixed convection parameter. A stability analysis is performed to determine which solution is linearly stable and physically realizable.

**Keywords :** dual solutions, heat transfer, mixed convection, stability analysis

**Conference Title :** ICAMEM 2014 : International Conference on Applied Mathematics and Engineering Mathematics

**Conference Location :** Rome, Italy

**Conference Dates :** September 18-19, 2014