# Solving Momentum and Energy Equation by Using Differential Transform Techniques

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**Abstract :** Natural convection is a basic process which is important in a wide variety of practical applications. In essence, a heated fluid expands and rises from buoyancy due to decreased density. Numerous papers have been written on natural or mixed convection in vertical ducts heated on the side. These equations have been proved to be valuable tools for the modelling of many phenomena such as fluid dynamics. Finding solutions to such equations or system of equations are in general not an easy task. We propose a method, which is called differential transform method, of solving a non-linear equations and compare the results with some of the other techniques. Illustrative examples shows that the results are in good agreement.

**Keywords :** differential transform method, momentum, energy equation, boundry value problem
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