1117-80-526   **Anilkumar Devarapu*** (`anilkumar.devarapu@asurams.edu`), Department of Mathematics and Computer Scienc, 504 College Dr, Albany, GA 31705. *Non-similar solution of an Unsteady Mixed Convection Heat Transfer.*

Unsteady mixed convection heat transfer equations do not necessarily admit self-similarity solutions in many practical situations. A general analysis has been developed to study heat transfer characteristics of an unsteady mixed convection on a continuously moving vertical slender cylinder. We formulated this problem in a more general settings by using the parameter λ. When $\lambda = 0$, we have the case of stationary cylinder in a moving stream, whereas when $\lambda = 1$ we have the case of moving cylinder with no external motion imposed on the free stream. For the intermediate values of λ we have the case of simultaneous motion of the slender cylinder and the free stream. The governing unsteady boundary layer equations are solved by the implicit finite difference method. Heat transfer characteristics for a variety of accelerating and decelerating situations are presented graphically and discussed. (Received January 19, 2016)