

## **Effects of heat generation and thermal radiation on micropolar fluid flow over an exponentially permeable shrinking sheet**

### **ABSTRACT**

In this paper, the problem of twodimensional incompressible flow of boundary layer for micropolar fluid over an exponentially permeable shrinking sheet with heat generation and thermal radiation is considered. The governing equations are first transformed into a system of non-dimensional equations via the nondimensional variables, and then into self-similar ordinary differential equations before they are solved numerically using the shooting method. Numerical results are obtained for the skin friction coefficient, couple stress coefficient and heat transfer coefficient as well as the velocity, micro rotation and temperature profiles are presented for different values of the governing parameters. It is found that the solutions for a shrinking sheet are non-unique. The results indicate that the heat tranfer coefficient decreases with heat generation parameter.

**Keyword:** Heat generation; Thermal radiation; Boundary layer; Micropolar fluid; Shooting method