Flow and heat transfer over an unsteady stretching sheet in a micropolar fluid with prescribed surface heat flux.

ABSTRACT

The unsteady laminar flow of an incompressible micropolar fluid over a stretching sheet with prescribed surface heat flux is investigated. The governing partial differential boundary layer equations are first transformed into ordinary differential equations before being solved numerically by a finite-difference m 'hod. The effects of the unsteadiness parameter and Prandtl number on the flow and heat transfer characteristics are studied. It is found that the surface shear stress and the heat transfer rate at the surface are higher for micropolar fluids compared to Newtonian fluids.