Orissa Journal of Physics
ISSN 0974-8202

Vol. 22, No.1
February 2015
pp. 161-170

Finite Difference Solution of Free Convective Heat Transfer of Non-Newtonian Power Law Fluids from a Vertical Plate

H B PATTNAYAK and I SWAIN

Raveshaw University, Cuttack, India

Received : 11.10.2014 ; Accepted : 20.1.2015

Abstract : A laminar free convective flow of a power fluid over a vertical plate is investigated. The equations governing the fluid flow are solved numerically using an implicit finite difference scheme which is shown to be unconditionally stable. The effects of the flow parameters on the velocity field and temperature profile are reflected through graphs.

Keywords : Power law fluid, magnetic field, Reynold number, Prandtl number.

[Full Paper]