

1. Hazem Ali Attia, Ahmed LotfyAboul-Hassan, Mostafa A. M. Abdeen, Alaa El-Din Abdin, W. Abd El-Meged, "Unsteady Couette flow of a thermally conducting viscoelastic fluid under constant pressure gradient in a porous medium", Chinese Journal of Physics, accepted for publication

**Abstract:**

The unsteady Couette flow through a porous medium of an incompressible non-Newtonian viscoelastic fluid between two parallel horizontal porous plates is studied. A constant pressure gradient in the axial direction and a uniform suction and injection normal to the surface of the plates are applied. The two plates are kept at different but constant temperatures and heat transfer through the conducting fluid is considered and viscous dissipation is not neglected. Numerical solutions for the governing momentum and energy equations are obtained using the finite difference method. The results show that the porosity of the medium and the departure from the Newtonian characteristics of the fluid to viscoelasticity result in a drop in velocity of flow and a drop in temperature and change the transient duration. The suction and injection reduce both velocity and temperature at the middle plane.