

## **Heat transfer flow of Maxwell hybrid nanofluids due to pressure gradient into rectangular region**

### **ABSTRACT**

In this work, influence of hybrid nanofluids (Cu and Al<sub>2</sub>O<sub>3</sub>) on MHD Maxwell fluid due to pressure gradient are discussed. By introducing dimensionless variables the governing equations with all levied initial and boundary conditions are converted into dimensionless form. Fractional model for Maxwell fluid is established by Caputo time fractional differential operator. The dimensionless expression for concentration, temperature and velocity are found using Laplace transform. As a result, it is found that fluid properties show dual behavior for small and large time and by increasing volumetric fraction temperature increases and velocity decreases respectively. Further, we compared the Maxwell, Casson and Newtonian fluids and found that Newtonian fluid has greater velocity due to less viscosity. Draw the graphs of temperature and velocity by Mathcad software and discuss the behavior of few parameters and the effect of fractional parameters.