

Entropy Generation Analysis for a Reactive Couple Stress Fluid Flow through a Channel Saturated With Porous Material

Samuel O. Adesanya , Semiu O. Kareem , John A. Falade , Samson A. Arekete

Abstract: In this work, the second law analysis for a reactive couple stress fluid flowing steadily through a channel filled with porous material is investigated. Based on perturbation method, analytical expressions for fluid velocity and temperature are derived and used to compute entropy generation rate, irreversibility distribution ratio in the flow field and results are presented graphically and discussed.

Keywords: Entropy generation, Nonlinear internal heat generation, Couple stress fluid, Porous medium