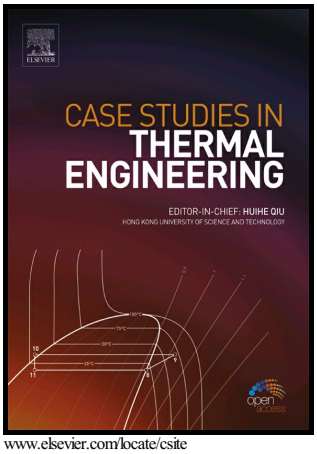

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Thermal and Concentration Aspects in Carreau Viscosity Model Via Wedge

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Abstract: The current pagination reports both the heat and mass transfer aspects subject to two dimensional steady flow over a moving wedge for the Carreau viscosity model with infinite shear rate viscosity. The results are reported for the both shear thinning and shear thickening cases. The set of ordinary differential equations has been obtained by transforming the nonlinear partial differential equations (manipulating fluid flow) with the aid of admissible transformation and then sorted out numerically by using the Runge-Kutta Fehlberg method merged with shooting proficiency. **The Carreau fluid temperature reduces via higher values of viscosity ratio parameter for shear thickening case while Carreau fluid concentration shows decline towards wedge angle for both shear thinning and thickening cases.**

Keywords: Heat transfer; Mass Transfer; Wedge; Carreau fluid

1. Introduction

From the past few decades, **it is concluded that the researchers** are paying attention **to explore the** features of the non-Newtonian **fluid models** that **admits** the non-linear relation between shear stress and shear rate. The flow diversity of non- Newtonian fluid model leads to uncertainty regarding rheological aspects and we cannot explain the complete picture by means of single constitutive equation which relates deformation rate and shear stress. The