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Influence of Lorentz forces on nanofluid forced convection considering Marangoni convection
(2017) *Journal of Molecular Liquids*, 225, pp. 750-757. Cited 111 times.

Abstract
Magnetohydrodynamic nanofluid forced convective heat transfer is investigated considering Marangoni convection. A two-phase model is selected for modeling of a nanofluid. The Runge-Kutta integration scheme is utilized to solve this problem. Influences of the Marangoni ratio, Schmidt number, Brownian motion parameter, magnetic number and thermophoretic parameter on the hydrothermal characteristics are presented. Results depict that the temperature augments with increases of the Schmidt number, Brownian motion, magnetic number and the thermophoretic parameters but it reduces with the rise of the Marangoni ratio. As the Marangoni ratio augments, the hydraulic boundary layer thickness enhances. © 2016 Elsevier B.V.

2-s2.0-85006421812
Document Type: Article
Publication Stage: Final
Source: Scopus