

Documents

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Darcy-Forchheimer flow and heat transfer of water-based Cu nanoparticles in convergent/divergent channel subjected to particle shape effect
(2019) *European Physical Journal Plus*, 134 (3), art. no. 107, . Cited 4 times.

Abstract

The current study provides a comprehensive numerical investigation of flow and heat transfer of water-based Cu nanoparticles over a convergent/divergent channel. In order to control the random motion of nanoparticles, Darcy-Forchheimer, particle shape effect and viscous dissipation are also incorporated for the present mechanism. The resulting system of nonlinear equations is solved numerically by using the RKF-45 method. Expressions for the velocity and temperature profile are derived and plotted under the assumption of a flow parameter. The influence of various parameters on surface drag force and heat transfer rates have been discussed with the help of tables and plots. © 2019, Società Italiana di Fisica and Springer-Verlag GmbH Germany, part of Springer Nature.

2-s2.0-85063106779

Document Type: Article

Publication Stage: Final

Source: Scopus