

Accepted Manuscript

Modelling electro-magneto-hydrodynamic thermo-fluidic transport of biofluids with new trend of fractional derivative without singular kernel

M. Abdulhameed, D. Vieru, R. Roslan

PII: S0378-4371(17)30494-6

DOI: <http://dx.doi.org/10.1016/j.physa.2017.05.001>

Reference: PHYSA 18286

To appear in: *Physica A*

Received date: 17 October 2016

Revised date: 29 April 2017

Please cite this article as: M. Abdulhameed, D. Vieru, R. Roslan, Modelling electro-magneto-hydrodynamic thermo-fluidic transport of biofluids with new trend of fractional derivative without singular kernel, *Physica A* (2017), <http://dx.doi.org/10.1016/j.physa.2017.05.001>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Highlights

Modelling electro-magneto-hydrodynamic thermo-fluidic transport of biofluids with new trend of fractional derivative without singular kernel

Physica A

- On the new Caputo-Fabrizio fractional derivative and application to the electro-magneto-hydrodynamic flow and thermal transport of Oldroyd-B biofluids equation.
- Closed forms of the biofluid velocity and temperature distribution are obtained by means of the finite Hankel and Laplace transforms.
- Numerical results obtained illustrated distinct behaviors of fractional order solutions when compared with classical model solutions.
- The fluid velocity and heat transfer performance in microchannel can be controlled by regulating the fractional derivative parameter which is very important in microfluidic devices.

Download English Version:

<https://daneshyari.com/en/article/5102673>

Download Persian Version:

<https://daneshyari.com/article/5102673>

[Daneshyari.com](https://daneshyari.com)