

# Accepted Manuscript

Title: Mixed convective peristaltic flow of carbon nanotubes submerged in water using different thermal conductivity models

Author: T. Hayat, Bilal Ahmed, F.M. Abbasi, B. Ahmad

PII: S0169-2607(16)30191-2

DOI: <http://dx.doi.org/doi: 10.1016/j.cmpb.2016.07.030>

Reference: COMM 4216

To appear in: *Computer Methods and Programs in Biomedicine*

Received date: 3-3-2016

Revised date: 12-6-2016

Accepted date: 21-7-2016

Please cite this article as: T. Hayat, Bilal Ahmed, F.M. Abbasi, B. Ahmad, Mixed convective peristaltic flow of carbon nanotubes submerged in water using different thermal conductivity models, *Computer Methods and Programs in Biomedicine* (2016), <http://dx.doi.org/doi: 10.1016/j.cmpb.2016.07.030>.

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.



# Mixed convective peristaltic flow of carbon nanotubes submerged in water using different thermal conductivity models

T. Hayat <sup>a,b</sup>, Bilal Ahmed <sup>a</sup>, F. M. Abbasi <sup>c, 1</sup> and B. Ahmad <sup>b</sup>

<sup>a</sup> Department of Mathematics, Quaid-I-Azam University 45320, Islamabad 44000, Pakistan

<sup>b</sup> Nonlinear Analysis and Applied Mathematics (NAAM) Research Group, Faculty of Science  
King Abdulaziz University, P. O. Box 80203, Jeddah 21589, Saudi Arabia

<sup>c</sup> Department of Mathematics, COMSATS Institute of Information Technology, Islamabad  
44000, Pakistan

## Highlights

- Peristaltic transport of CNTs-water nanofluid through an asymmetric channel is examined.
- Velocity slip, temperature jump, viscous dissipation, heat generation/absorption and mixed convection effects are taken into account.
- Mathematical modelling is carried out using the long wavelength and low Reynolds number approximations.
- Series solutions for the axial velocity, pressure gradient, temperature and heat transfer rate at the wall as obtained and studied graphically.
- Comparison between thermal conductivity models is also presented for the future reference.

---

<sup>1</sup>Corresponding author e-mail address: [abbasisarkar@gmail.com](mailto:abbasisarkar@gmail.com)

Download English Version:

<https://daneshyari.com/en/article/6891275>

Download Persian Version:

<https://daneshyari.com/article/6891275>

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