

## Document details

< Back to results | 1 of 2 Next >

Export Download Print E-mail Save to PDF Add to List More... >






[Full Text](#) View at Publisher

AIP Conference Proceedings

Volume 1074, 28 June 2018 Article number 020025

25th National Symposium on Mathematical Sciences: Mathematical Sciences as the Core of Intellectual Excellence, SKSM 2017; Kuantan, Pahang; Malaysia; 27 August 2017 through 29 August 2017; Code 137617

## MHD forced convective flow past a vertical plate : An automated solution approach (Conference Paper)

Asimoni, N.R.M.<sup>a</sup> , Mohammad, N.F.<sup>a</sup> , Kasim, A.R.M.<sup>b</sup> , Shafie, S.<sup>c</sup>  

<sup>a</sup>Department of Computational and Theoretical Sciences, Kulliyah of Science, International Islamic University Malaysia, Kuantan, Pahang, 25200, Malaysia

<sup>b</sup>Faculty of Industrial Sciences and Technology, Universiti Malaysia Pahang, Gambang, Kuantan, Pahang, 26300, Malaysia

<sup>c</sup>Department of Mathematical Science, Faculty of Science, Universiti Teknologi Malaysia, Skudai, Johor, 81310, Malaysia


### Abstract

[View references \(14\)](#)

The forced convection flow in incompressible viscous fluid past a vertical plate is investigated with the effect of magnetic field. The governing equations are solved numerically using automated solution technique which is FEniCS. It is shown that the increasing of magnetic field strength lead to decrease the velocity but increase the temperature for cooled plate. Meanwhile for heated plate, increasing magnetic field strength lead to decrease the velocity and the temperature of the fluid. © 2018 Author(s).

### SciVal Topic Prominence

Topic: Magnetohydrodynamics | Stretching | Shooting technique

Prominence percentile: 99.886 

### Author keywords

automated solution technique forced convection magnetic field vertical plate

### Funding details

Funding sponsor	Funding number	Acronym
Ministry of Higher Education, Malaysia	RAGS15-067-0130	

### Funding text

This work received the financial supports from the Ministry of Higher Education (MOHE) through Research Acculturation Grant Scheme (RAGS15-067-0130).

Metrics  [View all metrics >](#)



PlumX Metrics 

Usage, Captures, Mentions, Social Media and Citations beyond Scopus.

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert >](#)

[Set citation feed >](#)

### Related documents

MHD free convective flow past a vertical plate

Mohamad Asimoni, N.R. , Mohammad, N.F. , Mohd Kasim, A.R.

(2017) *Journal of Physics: Conference Series*

Unsteady MHD boundary-layer flow and heat transfer due to stretching sheet in the presence of heat source or sink

Ibrahim, W. , Shanker, B. (2012) *Computers and Fluids*

Steady fluid flow and heat transfer over an exponentially shrinking sheet with partial slip

Sharma, R. , Ishak, A. , Pop, I. (2014) *AIP Conference Proceedings*

[View all related documents based on references](#)




[Find more related documents in Scopus based on:](#)

[Authors >](#) [Keywords >](#)

---

References (14)

[View in search results format >](#)

All    [Export](#)     Print     E-mail     Save to PDF    [Create bibliography](#)

- 
- 1    Jang, J., Lee, S.S.  
Theoretical and experimental study of MHD (magnetohydrodynamic) micropump

(2000) *Sensors and Actuators, A: Physical*, 80 (1), pp. 84-89. Cited 320 times.  
doi: 10.1016/S0924-4247(99)00302-7

[View at Publisher](#)

- 
- 2    Malik, M., Singh, D.V.  
Analysis of finite magnetohydrodynamic journal bearings

(1980) *Wear*, 64 (2), pp. 273-280. Cited 36 times.  
doi: 10.1016/0043-1648(80)90133-7

[View at Publisher](#)

- 
- 3    Louis, J.P., Lothrop, J., Brogan, T.R.  
Fluid dynamic studies with a magnetohydrodynamic generator

(1964) *Physics of Fluids*, 7 (3), pp. 362-374. Cited 15 times.  
doi: 10.1063/1.1711207

[View at Publisher](#)

- 
- 4    Merkin, J.H., Kumaran, V.  
The unsteady MHD boundary-layer flow on a shrinking sheet

(2010) *European Journal of Mechanics, B/Fluids*, 29 (5), pp. 357-363. Cited 38 times.  
doi: 10.1016/j.euromechflu.2010.03.006

[View at Publisher](#)

- 
- 5    Ali, F.M., Nazar, R., Arifin, N.M., Pop, I.  
MHD boundary layer flow and heat transfer over a stretching sheet with induced magnetic field

(2011) *Heat and Mass Transfer/Waerme- und Stoffuebertragung*, 47 (2), pp. 155-162. Cited 44 times.  
doi: 10.1007/s00231-010-0693-4

[View at Publisher](#)

- 
- 6    Ishak, A., Nazar, R., Pop, I.  
MHD boundary-layer flow due to a moving extensible surface

(2008) *Journal of Engineering Mathematics*, 62 (1), pp. 23-33. Cited 44 times.  
[www.wkap.nl/journalhome.htm/0022-0833](http://www.wkap.nl/journalhome.htm/0022-0833)

doi: 10.1007/s10665-007-9169-z

[View at Publisher](#)

---

- 7 Kudenatti, R.B., Kirsur, S.R., Achala, L.N., Bujurke, N.M.  
Exact solution of two-dimensional MHD boundary layer flow over a semi-infinite flat plate  
(2013) *Communications in Nonlinear Science and Numerical Simulation*, 18 (5), pp. 1151-1161. Cited 12 times.  
doi: 10.1016/j.cnsns.2012.09.029  
View at Publisher
- 
- 8 Aydin, O., Kaya, A.  
Radiation effect on MHD mixed convection flow about a permeable vertical plate  
(2008) *Heat and Mass Transfer/Waerme- und Stoffuebertragung*, 45 (2), pp. 239-246. Cited 59 times.  
doi: 10.1007/s00231-008-0428-y  
View at Publisher
- 
- 9 Pop, I., Kumari, M., Nath, G.  
Conjugate MHD flow past a flat plate  
(1994) *Acta Mechanica*, 106 (3-4), pp. 215-220. Cited 32 times.  
doi: 10.1007/BF01213563  
View at Publisher
- 
- 10 Sheri, S.R., Srinivasa Raju, R.  
Transient MHD free convective flow past an infinite vertical plate embedded in a porous medium with viscous dissipation  
(2016) *Meccanica*, 51 (5), pp. 1057-1068. Cited 21 times.  
doi: 10.1007/s11012-015-0285-y  
View at Publisher
- 
- 11 Raju, R.S.  
(2016) *American Journal of Heat and Mass Transfer*
- 
- 12 Mortensen, M., Langtangen, H.P., Wells, G.N.  
A FEniCS-based programming framework for modeling turbulent flow by the Reynolds-averaged Navier-Stokes equations  
(2011) *Advances in Water Resources*, 34 (9), pp. 1082-1101. Cited 19 times.  
doi: 10.1016/j.advwatres.2011.02.013  
View at Publisher
- 
- 13 Zhang, C., Zarrouk, S.J., Archer, R.  
A mixed finite element solver for natural convection in porous media using automated solution techniques  
(2016) *Computers and Geosciences*, 96, pp. 181-192. Cited 3 times.  
[www.elsevier.com/inca/publications/store/3/9/8/](http://www.elsevier.com/inca/publications/store/3/9/8/)  
doi: 10.1016/j.cageo.2016.08.012  
View at Publisher
-

□ 14 Logg, A., Wells, G.N., Mardel, K.A.  
(2012) *Springer Science and Business Media*. Cited 28 times.

🔍 Mohammad, N.F.; Department of Computational and Theoretical Sciences, Kulliyah of Science, International Islamic University Malaysia, Kuantan, Pahang, Malaysia; email:farahain@iium.edu.my

© Copyright 2018 Elsevier B.V., All rights reserved.

< Back to results | 1 of 2 Next >

^ Top of page

## About Scopus

What is Scopus  
Content coverage  
Scopus blog  
Scopus API  
Privacy matters

## Language

日本語に切り替える  
切换到简体中文  
切换到繁體中文  
Русский язык

## Customer Service

Help  
Contact us

**ELSEVIER**

[Terms and conditions ↗](#) [Privacy policy ↗](#)

Copyright © Elsevier B.V. ↗. All rights reserved. Scopus® is a registered trademark of Elsevier B.V.

We use cookies to help provide and enhance our service and tailor content. By continuing, you agree to the use of cookies.

 RELX