

ISSN: 2165-3852

Volume 15, Number 2, June 2025



# Open Journal of Fluid Dynamics

ISSN: 2165-3852



<https://www.scirp.org/journal/ojfd>

# Journal Editorial Board

ISSN: 2165-3852 (print) ISSN: 2165-3860 (online)

<https://www.scirp.org/journal/ojfd>

---

## Editor-in-Chief

**Prof. Heuy-Dong Kim**

Gyeongbuk National University (Andong National University),  
South Korea

## Associate Editor

**Prof. Mohammad Mehdi Rashidi**

University of Electronic Science and Technology of  
China (UESTC), China

## Editorial Board

**Prof. Saeid Abbasbandy**

Imam Khomeini International University, Iran

**Prof. Ramesh K. Agarwal**

Washington University in St. Louis, USA

**Prof. Rinie Akkermans**

Hamburg University of Applied Sciences, Germany

**Dr. Wei Bai**

Manchester Metropolitan University, UK

**Prof. Mostafa Barigou**

The University of Birmingham, UK

**Prof. Pavel Belik**

Augsburg University, USA

**Dr. Ahmet Ozan Celik**

Eskisehir Technical University, Türkiye

**Prof. Bin Chen**

Xi'an Jiaotong University, China

**Prof. Juergen Czarske**

University of Technology, Germany

**Prof. Edisson Savio de Goes Maciel**

University of Pernambuco, Brazil

**Prof. Sandip Ghosal**

Northwestern University, USA

**Prof. Anup Gokarn**

Flow Science Inc., USA

**Prof. M. Masud K. Khan**

Auckland University of Technology, Australia

**Dr. Rajan Kumar**

Florida State University, USA

**Prof. Mario Mlsale**

University of Genoa, Italy

**Prof. Ivanova Tatyana Nikolaevna**

Udmurt State University, Russia

**Prof. Raphael de Oliveira Garcia**

Federal University of São Paulo, Brazil

**Dr. Khaled A. Sallam**

Oklahoma State University, USA

**Dr. Bhupendra Kumar Sharma**

BITS Pilani, India

**Prof. Hamit Yurtseven**

Middle East Technical University, Türkiye

# Table of Contents

**Volume 15    Number 2**

**June 2025**

**Analysis of the Effect of Temperature on MHD Electrical Power Generation with Lattice Boltzmann Method**

D. A. Ayine, R. Musah, C. J. Etwire ..... 47

**Combined Effects of Magnetic Field and Nanoparticles on Rotating Engine-Oil Flow Using a New Local Thermal Non-Equilibrium Formulation**

S. J. Dèdèwanou, T. M. P. Diallo, M. B. Doumbouya, M. C. Sylla, F. Camara, A. L. Hinvì ..... 64

**Analysis of Heat and Mass Transfer in MHD Free Convection with Chemical Reaction Effects on a Moving Vertical Porous Plate**

T. F. Lihonou, A. Laouer, K. P. Mathos, F. M. Yombouno ..... 87

**Influence of Boundary Conditions on Oscillatory Flow in a Grooved Channel**

T. Masuda, M. M. A. Alam, T. Hamada, M. Sakaguchi, T. Fujii, Y. Hayamizu ..... 116

# Open Journal of Fluid Dynamics (OJFD)

## Journal Information

### SUBSCRIPTIONS

The *Open Journal of Fluid Dynamics* (Online at Scientific Research Publishing, <https://www.scirp.org/>) is published quarterly by Scientific Research Publishing, Inc., USA.

#### Subscription rates:

Print: \$79 per issue.

To subscribe, please contact Journals Subscriptions Department, E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### SERVICES

#### Advertisements

Advertisement Sales Department, E-mail: [service@scirp.org](mailto:service@scirp.org)

#### Reprints (minimum quantity 100 copies)

Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.

E-mail: [sub@scirp.org](mailto:sub@scirp.org)

### COPYRIGHT

#### Copyright and reuse rights for the front matter of the journal:

Copyright © 2025 by Scientific Research Publishing Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY).

<http://creativecommons.org/licenses/by/4.0/>

#### Copyright for individual papers of the journal:

Copyright © 2025 by author(s) and Scientific Research Publishing Inc.

#### Reuse rights for individual papers:

Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

#### Disclaimer of liability

Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any materials, instructions, methods or ideas contained herein. We expressly disclaim any implied warranties of merchantability or fitness for a particular purpose. If expert assistance is required, the services of a competent professional person should be sought.

### PRODUCTION INFORMATION

For manuscripts that have been accepted for publication, please contact:

E-mail: [ojfd@scirp.org](mailto:ojfd@scirp.org)



## Open Journal of Fluid Dynamics

ISSN: 2165-3852 (print) ISSN: 2165-3860 (online)

<https://www.scirp.org/journal/ojfd>

*Open Journal of Fluid Dynamics (OJFD)* is an international journal dedicated to the latest advancement of fluid dynamics. The goal of this journal is to provide a platform for scientists and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of applied science.

### Editor-in-Chief

Prof. Heuy-Dong Kim

Gyeongbuk National University (Andong National University), South Korea

### Associate Editor

Prof. Mohammad Mehdi Rashidi

University of Electronic Science and Technology of China (UESTC), China

### Editorial Board

Prof. Saeid Abbasbandy

Prof. Sandip Ghosal

Prof. Ramesh K. Agarwal

Prof. Anup Gokarn

Prof. Rinie Akkermans

Prof. M. Masud K. Khan

Dr. Wei Bai

Dr. Rajan Kumar

Prof. Mostafa Barigou

Prof. Mario MIsale

Prof. Pavel Belik

Prof. Ivanova Tatyana Nikolaevna

Dr. Ahmet Ozan Celik

Prof. Raphael de Oliveira Garcia

Prof. Bin Chen

Dr. Khaled A. Sallam

Prof. Juergen Czarske

Dr. Bhupendra Kumar Sharma

Prof. Edisson Savio de Goes Maciel

Prof. Hamit Yurtseven

### Subject Coverage

All manuscripts must be prepared in English, and are subject to a rigorous and fair peer-review process. Accepted papers will immediately appear online followed by printed hard copy. The journal publishes original papers including but not limited to the following fields:

Aerodynamics  
Bio-Fluid Mechanics  
Boundary Layer Flow  
Combustion and Reacting Flow  
Compressible Flow  
Computational Fluid Dynamics  
Environmental Fluid Dynamics  
Environmental Fluid Mechanics  
Experimental Fluid Mechanics  
Fluid Mechanics  
Fluid-Structure Interaction

Free Shear Layer Flow  
Heat and Mass Transfer  
High-Speed Flow  
Hydrodynamic  
Jet and Wake Flow  
Magnetic Fluid  
Micro and Nano Fluidics  
Micro Fluid Dynamics  
Multi-Phase Flow  
Multiphase Fluid Dynamics  
Naval Hydrodynamics

Non-Newtonian Flow  
Non-Newtonian Fluid Mechanics  
Physical-Chemical Hydrodynamics  
Plasma Dynamics  
Radiation Hydrodynamics  
Rotating and Stratified Fluid  
Rotating Flow  
Seepage Mechanics  
Theoretical Fluid Dynamics  
Turbulence Theory  
Viscous Fluid

We are also interested in: 1) Short Reports—2-5 page papers where an author can either present an idea with theoretical background but has not yet completed the research needed for a complete paper or preliminary data; 2) Book Reviews—Comments and critiques.

### Notes for Prospective Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. All papers are refereed through a peer review process. For more details about the submissions, please access the website.

### Website and E-Mail

<https://www.scirp.org/journal/ojfd>

E-mail: [ojfd@scirp.org](mailto:ojfd@scirp.org)

## ***What is SCIRP?***

Scientific Research Publishing (SCIRP) is one of the largest Open Access journal publishers. It is currently publishing more than 200 open access, online, peer-reviewed journals covering a wide range of academic disciplines. SCIRP serves the worldwide academic communities and contributes to the progress and application of science with its publication.

## ***What is Open Access?***

All original research papers published by SCIRP are made freely and permanently accessible online immediately upon publication. To be able to provide open access journals, SCIRP defrays operation costs from authors and subscription charges only for its printed version. Open access publishing allows an immediate, worldwide, barrier-free, open access to the full text of research papers, which is in the best interests of the scientific community.

- High visibility for maximum global exposure with open access publishing model
- Rigorous peer review of research papers
- Prompt faster publication with less cost
- Guaranteed targeted, multidisciplinary audience



**Scientific  
Research  
Publishing**

**Website: <https://www.scirp.org>**

**Subscription: [sub@scirp.org](mailto:sub@scirp.org)**

**Advertisement: [service@scirp.org](mailto:service@scirp.org)**