

# Open Journal of Modelling and Simulation



ISSN: 2327-4018



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

# Journal Editorial Board

ISSN: 2327-4018 (Print), 2327-4026 (Online)

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

---

## Editor-in-Chief

**Prof. Bilal Chanane**

King Fahd University of Petroleum & Minerals, Saudi Arabia

## Editorial Board

**Dr. Izhar Ahmad**

King Fahd University of Petroleum & Minerals, Saudi Arabia

**Dr. Alessandro Bazzi**

National Research Council of Italy, Italy

**Prof. Emilio Defez Candel**

Universidad Politécnica de Valencia, Spain

**Dr. Todd Easton**

Kansas State University, Afghanistan

**Prof. Beih El-Sayed El-Desouky**

Mansoura University, Egypt

**Dr. Jerome Feret**

Institute National de Recherche en Informatique et Automatique, France

**Dr. Shaojing Fu**

National University of Defense Technology, China

**Dr. Francisco Guijarro**

Universidad Politécnica de Valencia, Spain

**Prof. Mirsad Hadzikadic**

University of North Carolina at Charlotte, USA

**Prof. Antonio Hervás Jorge**

Universidad Politécnica de Valencia, Spain

**Prof. Hossein Jafari**

University of South Africa, South Africa

**Dr. Prakash Chand Jain**

Scientist DRDL Hyderabad, India

**Prof. E. Stanley Lee**

Kansas State University, USA

**Dr. Anibal Muñoz Loaiza**

Universidad del Quindío, Colombia

**Dr. Ricardo López-Ruiz**

University of Zaragoza, Spain

**Dr. Gangfeng Ma**

Old Dominion University, USA

**Dr. Morteza Mohammadzaheri**

University of Adelaide, Australia

**Dr. Md. Mamun Molla**

North South University, Bangladesh

**Dr. Terence O'kane**

Commonwealth Scientific and Industrial Research Organisation, Australia

**Dr. Tarek Ragab**

University of Tabuk, Saudi Arabia

**Dr. Beatriz Ricarte**

Universitat Politècnica de València, Spain

**Dr. Gregorio Romero**

Technical University of Madrid, Spain

**Dr. P. Sanjeevikumar**

Aalborg University, Denmark

**Dr. Sergio Serrano**

University of Zaragoza, Spain

**Dr. Santiago Silvestre**

Universitat Politècnica de Catalunya, Spain

**Dr. Yu Sun**

Our Lady of the Lake University, USA

**Dr. Néstor Thome**

Universitat Politècnica de València, Spain

**Dr. Wilfred van der Vegte**

Delft University of Technology, The Netherlands

**Dr. Hamed Yarmand**

Massachusetts General Hospital, USA

**Dr. Yu Zeng**

Duke University, USA

# Table of Contents

**Volume 9    Number 1**

**January 2021**

## **Verification of an Explicitly Coupled Thermal-Phase Field-Mechanical Electromagnetic (TPME) Framework by the Method of Manufactured Solutions**

T. S. Ramsay.....1

## **Modelling and Simulation of an Ohmic Heating Process**

H. W. Zhang, A. Mohamed, T. Breikin, M. Howarth.....26

## **Numerical Analysis of Thermal Convection in a CPU Chassis**

M. Z. I. Bangalee, Md. M. Rahman, M. Ferdows, M. S. Islam.....43

## **Empirical Models for Predicting Global Solar Radiation on the African Continent Based on Factors of Location and Season**

O. M. Bamigbola, S. E. Atolagbe.....59

## **The Marshall-Olkin Right Truncated Fréchet-Inverted Weibull Distribution: Its Properties and Applications**

N. Nader, M. A. El-Damcese, B. S. El-Desouky.....74

# Open Journal of Modelling and Simulation (OJMSi)

## Journal Information

### SUBSCRIPTIONS

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

#### Subscription rates:

Print: \$39 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 © 2021 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 © 2021 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

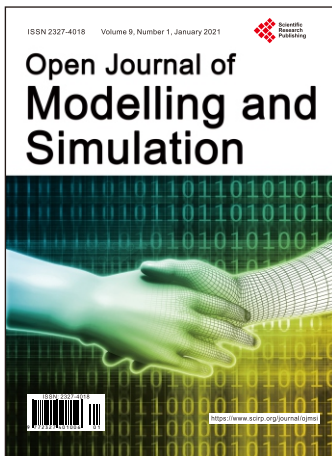
Statements and opinions expressed in the articles and communications are those of the individual contributors and not the statements and opinion of Scientific Research Publishing, Inc. We assume no responsibility or liability for any damage or injury to persons or property arising out of the use of any 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: [ojmsi@scirp.org](mailto:ojmsi@scirp.org)





## Open Journal of Modelling and Simulation

ISSN: 2327-4018 (Print) ISSN: 2327-4026 (Online)

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

**Open Journal of Modelling and Simulation (OJMSi)** is an open access journal published quarterly. 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 all aspects of modelling and simulation.

### Editorial Board

Dr. Izhar Ahmad  
Dr. Alessandro Bazzi  
Prof. Emilio Defez Candel  
Dr. Todd Easton  
Prof. Beih El-Sayed El-Desouky  
Dr. Jerome Feret  
Dr. Shaojing Fu  
Dr. Francisco Guijarro  
Prof. Mirsad Hadzikadic  
Prof. Antonio Hervás Jorge

Prof. Hossein Jafari  
Dr. Prakash Chand Jain  
Prof. E. Stanley Lee  
Dr. Anibal Muñoz Loaiza  
Dr. Ricardo López-Ruiz  
Dr. Gangfeng Ma  
Dr. Morteza Mohammadzahari  
Dr. Md. Mamun Molla  
Dr. Terence O'kane  
Dr. Tarek Ragab

Dr. Beatriz Ricarte  
Dr. Gregorio Romero  
Dr. P. Sanjeevikumar  
Dr. Sergio Serrano  
Dr. Santiago Silvestre  
Dr. Yu Sun  
Dr. Néstor Thome  
Dr. Wilfred van der Vegte  
Dr. Hamed Yarmand  
Dr. Yu Zeng

### Subject Coverage

All manuscripts must be prepared in English, and are subject to a rigorous 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:

- Aerospace Technology Simulation
- Aircraft Design Simulations
- Applications of Social and Economic Models
- Chemical Process Simulation
- Computational Intelligence
- Computer Science
- Constitutive Modelling of Materials
- Control Theory
- Dynamic Response of Mechanical Systems
- Dynamical Systems
- Finite Element/Computational Fluid Dynamics Simulation
- Many Agents Complex Systems
- Mathematical Biology
- Military Technology Simulation
- Nonlinear Processes
- Numerical Analysis
- Numerical Modelling
- Rigid/Flexible Body Mechanisms Simulations
- Seismic Simulation of Civil Structures
- Simulation Modeling Theories and Methodologies
- Visual Simulation

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 Intending Authors

Submitted papers should not have been previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. 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/ojmsi>

Email: [ojmsi@scirp.org](mailto:ojmsi@scirp.org)