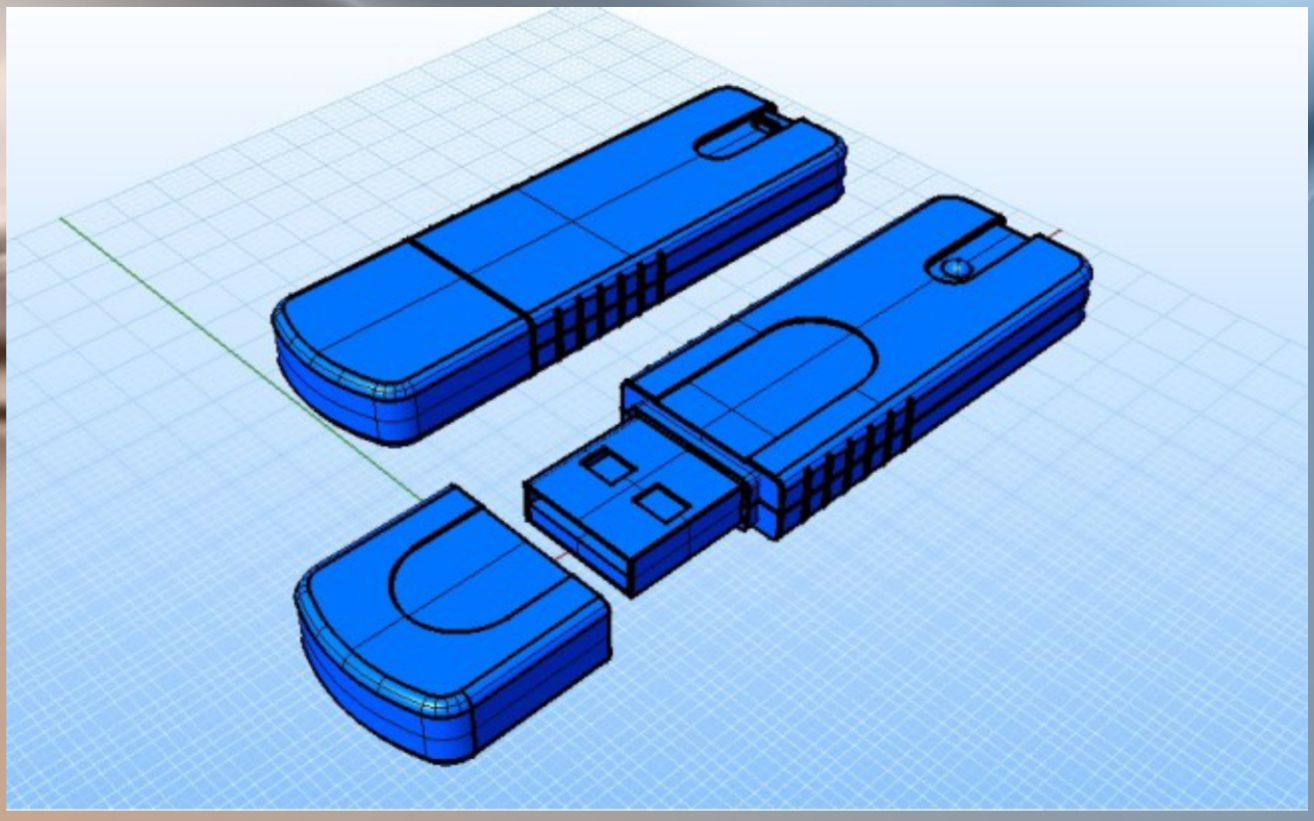
ISSN：2164-5345 Volume 14, Number 1, January 2024

Scientific Research Publishing

Modeling and Numerical Simulation of Material Science



ISSN: 2164-5345

https://www.scirp.org/journal/mnsms

Journal Editorial Board

ISSN: 2164-5345 (Print) ISSN: 2164-5353 (Online)
https://www.scirp.org/journal/mnsms

Honorary Editor-in-Chief

Prof. Kiet Tieu University of Wollongong, Australia

Executive Editor-in-Chief

Prof. Hailiang Yu Central South University, China

Editorial Board

Dr. Jean-Pierre Badiali Laboratoire d'Electrochimie Chimie Analytique, France
Dr. François Barthelat McGill University, Canada
Prof. Giuseppe Bonifazi Università di Roma, Italy
Prof. Roberto Brighenti University of Parma, Italy
Prof. Zhenshan Cui Shanghai Jiao Tong University, China
Dr. Raj Das University of Auckland, New Zealand
Dr. Behzad Fatahi University of Technology Sydney (UTS), Australia
Prof. Ming Wang Fu The Hong Kong Polytechnic University, China
Dr. Shaogang Hao Iowa State University, USA
Prof. Alireza Heidari American International Standards Institute (AISI), Irvine, California, USA
Dr. Chen Huang Los Alamos National Laboratory, USA
Dr. Ayhan Ince General Dynamics Land Systems, Canada
Dr. Jinwu Kang Tsinghua University, China
Prof. Tariq A. Khraishi University of New Mexico (UNM), USA
Prof. Alexandre Ksenofontov National Research Nuclear University, Russia
Prof. Xianghua Liu Northeastern University, China
Dr. Yingtao Liu University of Oklahoma, USA
Dr. Cheng Lu University of Wollongong, Australia
Dr. Jane Weizhen Lu City University of Hong Kong, China
Prof. Gilles Lubineau COHMAS Laboratory, Saudi Arabia
Dr. Qing Peng Rensselaer Polytechnic Institute, USA
Dr. Lee Yiu Yin Raymond City University of Hong Kong, China
Prof. Houfa Shen Tsinghua University, China
Prof. Ashok Srvastava Louisiana State University, USA
Dr. Ivo Stachiv Institute of Physics, Czech Academy Sciences, Czech Republic
Prof. Baolin Wang The University of New South Wales, Australia
Dr. Huanan Yu Washington State University, USA
Prof. Hamit Yurtseven Middle East Technical University, Türkiye
Prof. Shihong Zhang Chinese Academy of Sciences, China

Scientific Research Publishing

Modeling and Numerical Simulation of Material Science, 2024, 14, 1-68
https://www.scirp.org/journal/mnsms
ISSN Online: 2164-5353
ISSN Print: 2164-5345

Table of Contents

Volume 14 Number 1 January 2024

Static and Thermal Analysis of Aluminium (413,390,384 and 332) Piston Using Finite Element Method

O. D. Inusah, J. K. Nkrumah, V. A. Atindana 1

Molecular Dynamics, Diffusion Coefficients and Activation Energy of the Electrolyte (Anode) in Lithium (Li and Li^+), Sodium (Na and Na^+) and Potassium (K and K^+)

A. S. D. Honguelet, T. Nsongo, B. Rodongo, E. Loumbandzila 39

Study of the Physical and Mechanical Properties of Titanium in Volume by the MEAM Method

Y. J. M. Mimboui, A. S. D. Honguelet, T. Nsongo 58

Modeling and Numerical Simulation of Material Science (MNSMS)
Journal Information

SUBSCRIPTIONS

The *Modeling and Numerical Simulation of Material Science* (Online at Scientific Research Publishing, https://www.scirp.org/) is published quarterly by Scientific Research Publishing, Inc., USA.

Subscription rates:
Print: $69 per issue.
To subscribe, please contact Journals Subscriptions Department, E-mail: sub@scirp.org

SERVICES

Advertisements
Advertisement Sales Department, E-mail: service@scirp.org

Reprints (minimum quantity 100 copies)
Reprints Co-ordinator, Scientific Research Publishing, Inc., USA.
E-mail: sub@scirp.org

COPYRIGHT

Copyright and reuse rights for the front matter of the journal:
Copyright © 2024 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 © 2024 by author(s) and Scientific Research Publishing Inc.

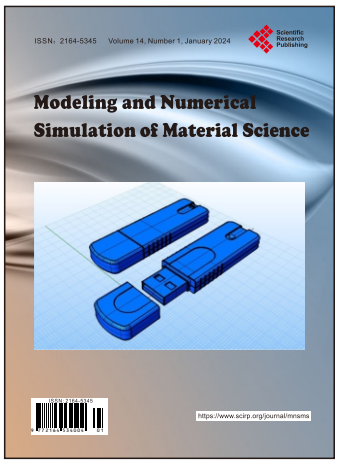
Reuse rights for individual papers:
Note: At SCIRP authors can choose between CC BY and CC BY-NC. Please consult each paper for its reuse rights.

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: mnsms@scirp.org

Call for Papers



Modeling and Numerical Simulation of Material Science

ISSN 2164-5345 (print) ISSN 2164-5353 (online)
https://www.scirp.org/journal/mnsms

Modeling and Numerical Simulation of Material Science (**MNSMS**) is an international peer-reviewed, open access journal publishing in English original research studies, reviews and case reports in all aspects of Material Science.

Honorary Editor-in-Chief

Prof. Kiet Tieu **University of Wollongong, Australia**

Executive Editor-in-Chief

Prof. Hailiang Yu **Central South University, China**

Subject Coverage

All the 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 copies. The journal publishes original papers including but not limited to the following fields:

- Application of Modeling and Numerical Simulation Methods
- Artificial Intelligence Method
- Biomaterials
- Boundary Element Method
- Carbons
- Cellular Automaton (CA)
- Ceramic Materials
- Composites
- Crystal Plasticity Finite Element Method
- Ferrous Metals and Alloys
- Finite Difference Method
- Finite Element Method
- Molecular Dynamics (MD)
- Non-Ferrous Metals and Alloys
- Polymer
- Slab Method
- Statistical Methods
- Other Advanced Materials

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/mnsms **E-mail: mnsms@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
Advertisement: service@scirp.org