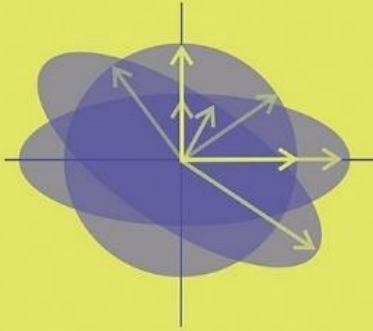




**Computational Mathematics and
Computer Modeling
with Applications**



**Computational Mathematics and Computer Modeling with Applications
(CMCMA)**

Volume 4, Issue 1, 2025

Director-in-Charge

Kourosh Parand

Department of Computer and Data Sciences, Shahid Beheshti University, Tehran, Iran

Editor-in-Chief

Masoud Hajarian

Department of Applied Mathematics, Shahid Beheshti University, Tehran, Iran

Email: cmcma@sbu.ac.ir; m_hajarian@sbu.ac.ir

Senior Editor

Biswa Nath Datta

Department of Mathematical Sciences, Northern Illinois University, DeKalb, Illinois, USA

Ravi P Agarwal

Department of Mathematics, Texas A&M University-Kingsville, Kingsville, TX 7836, USA

Ioannis Konstantinos Argyros

Department of Mathematical Sciences, Cameron University, Lawton, Oklahoma, USA

Hari Mohan Srivastava

Department of Mathematics and Statistics,
University of Victoria, Victoria, British Columbia, Canada

Junzo Watada

Graduate School of Information, Production and Systems, Waseda University, Kitakyushu, 808-0135, Japan

Ernesto G. Birgin

Department of Computer Science, Institute of Mathematics and Statistics, University of São Paulo, Brazil

Silvestru Sever Dragomir

Mathematics, College of Engineering & Science, Victoria University, Melbourne, Australia
and

DST-NRF Centre of Excellence in the Mathematical and Statistical Sciences, School of Computer Science & Applied Mathematics, University of the Witwatersrand, Johannesburg, South Africa

Ke Chen

Department of Mathematical Sciences, University of Liverpool, Liverpool, UK

Lothar Reichel

Department of Mathematical Sciences, Kent State University, Kent, USA

Dumitru Baleanu

Institute of Space Sciences, P.O. Box, MG-23, R76900, Magurele-Bucharest, Romania
and

Department of Mathematics, Faculty of Arts and Sciences, Cankaya University, 06530 Ankara,
Turkey

Associate Editor

Mehdi Dehghan

Department of Applied Mathematics, Amirkabir University of Technology, Tehran, Iran

Jacob D. Biamonte

Skolkovo Institute of Science and Technology, Moscow, Russian Federation
Head of Skoltech's Laboratory for Quantum Information Processing Center for Artificial
Intelligence Technologies (CAIT)

Jin-Ting Zhang

Department of Statistics and Data Science, National University of Singapore, Singapore

Changbum Chun

Department of Mathematics, Sungkyunkwan University, Suwon 16419, Republic of Korea

Mohsen Razzaghi

Department of Mathematics and Statistics, Mississippi State University, Mississippi State, USA

Fiorella Sgallari

Department of Mathematics, University of Bologna, Bologna, Italy

Vasile Lupulescu

University Constantin Brâncusi, Republicii 1, 210136, Târgu-Jiu, Romania

Ninoslav Truhar

Department of Mathematics, Josip Juraj Strossmayer University of Osijek, Trg Ljudevita Gaja 6
Osijek, Croatia

Denis Sidorov

Industrial Mathematics Laboratory, Baikal School of BRICS, Irkutsk National Research Technical
University, Irkutsk, Russian Federation
and

Applied Mathematics Department, Energy Systems Institute, Siberian Branch of Russian Academy of Sciences, Irkutsk, Russian Federation

Jen-Chih Yao

Department of Applied Mathematics, National Sun Yat-sen University, Kaohsiung, Taiwan
and

Research Center for Interneural Computing, China Medical University Hospital, China Medical University, Taichung, Taiwan

Frank Werner

Faculty of Mathematics, Otto-von-Guericke University, Magdeburg, Germany

Alexander Zeifman

Vologda State University, Russia

Clemente Cesarano

Section of Mathematics, International Telematic University Uninettuno, Corso Vittorio Emanuele II, 39, 00186 Roma, Italy

Ioannis Dassios

School of Electrical and Electronic Engineering, University College Dublin, Ireland

Ali A. Afzalian

Department of Electrical Engineering, Abbaspour School of Engineering, Shahid Beheshti University, Tehran, Iran

Janez Žerovnik

Institute of Mathematics, Physics and Mechanics, Ljubljana, Slovenia
and

Faculty of Mechanical Engineering, University of Ljubljana, Ljubljana, Slovenia

Hassane Abbas

Department of Mathematics, Faculty of Sciences-1
Lebanese University, Beirut, Lebanon

Hua Dai

Department of Mathematics, Nanjing University of Aeronautics and Astronautics, Nanjing, China

Hamid Reza Karimi

Department of Mechanical Engineering, Politecnico di Milano, Milan, Italy
Member Academia Europa, Distinguished Fellow IIAV, Fellow ISCM

Yimin Wei

School of Mathematical Sciences and Shanghai Key Laboratory of Contemporary Applied Mathematics, Fudan University, Shanghai, PR China

Mehiddin Al-Baali

Department of Mathematics and Statistics, Sultan Qaboos University, Muscat, Oman

Yadollah Ordokhani

Department of Mathematics, Alzahra University, Tehran, Iran

Juan R. Torregrosa

Mutidisciplinary Mathematical Institute, Universitat Politècnica de València, Valencia, Spain

Jin Yun Yuan

Dongguan University of Technology, China
and
Federal University of Paraná, Brazil

Sohrabali Yousefi

Department of Applied Mathematics, Shahid Beheshti University, Tehran, Iran

Abbas Saadatmandi

Department of Applied Mathematics, Faculty of Mathematical Sciences, University of Kashan, Kashan, Iran

Predrag Stanimirović

Faculty of Sciences and Mathematics, University of Nis, Nis, Serbia

Ivan I. Kyrchei

Pidstryhach Institute for Applied Problems of Mechanics and Mathematics of NAS of Ukraine, L'viv, Ukraine

Aims and Scope

Computational Mathematics and Computer Modeling with Applications is an international journal published by Shahid Beheshti University, Tehran, Iran, free of page charges. The purpose of the journal is to provide a forum for the publication of high quality research and tutorial papers in modelling, applied and computational mathematics.

The following are the principal areas of interest of the journal:

- **Tensor computations and applications**
- **Numerical linear algebra**
- **Application of methods of numerical linear algebra in science, engineering and economics**
- **Machine learning**
- **Numerical optimization**
- **Computational statistics**
- **Control systems**
- **Iterative methods for nonlinear equations**
- **Fast numerical algorithms**
- **Parallel computations**
- **Numerical solutions of PDEs**
- **Theory and computations of non-local modelling and fractional partial differential equations**
- **Imaging algorithms, deep neural network configurations and vision restorations**
- **Stochastic partial differential equations**
- **Computational finance and applications**
- **Computational medicine, biomedicine and epidemiology**
- **Inverse problems and data analysis**
- **Modeling using PDEs**
- **Analysis of mathematical models, formulated in terms of PDEs**
- **Discretization methods and numerical analysis for PDEs**
- **Verification and validation**
- **Interpolation and approximation**
- **Integral equations**

Guide for Authors

Submission: Your manuscripts should be written in Good English and using LaTeX. By submitting, the authors confirm that their articles have been **neither published nor submitted for publication** elsewhere.

Submissions should be sent online in the web site: <https://cmcma.sbu.ac.ir/> and by emailing the PDF file of your manuscripts to the Director-in-Charge (**Masoud Hajarian**) at: cmcma@sbu.ac.ir.

LaTeX: A **LaTeX template** is available for this journal. Please save the LaTeX template to your hard drive and open it. You are recommended to use LaTeX template to prepare your manuscript and **BibTeX** to generate your bibliography.

Refereeing process: Our review process type is the **single-blind peer review**.

After the **Director-in-Charge** approves that a submitted paper meets the aims and scope of the journal, it will be sent to one or two experts, advised by the **Editorial Board**, to review it. The refereeing should be completed in three months, unless the paper is longer than 15 pages.

Based on the referee's report, the **Editorial Board** decides on the paper as:

(1) The paper is accepted without changes, (2) The paper is accepted subject to minor changes, in which case the revised version should be sent back to the journal in at most one month, (3) The paper will be accepted subject to more substantial changes being made, in which case the revised version should be sent back to the journal in at most two months, (4) The paper might be acceptable but requires major revisions, in which case the paper will be regarded as withdrawn and any new version will be regarded as a new submission, (5) The paper is rejected.

Accepted articles: If a paper is accepted, the corresponding author will be required to provide the original TeX files of it, **without changes**, using the **style of the journal** given in the **link (cmcma.tex and cmcma.cls)**. Please ensure the **references** are produced in the same style as the sample article.

Copyright: The authors of the accepted papers, by sending the final original files of their articles, agree that the copyright of their articles are transferred to this journal. Also, they should notice that we follow the CC BY creative commons copyright license.

Contents

A new rational Legendre neural network for solving the Blasius equation

Mohammad Mohammadi; Yeganeh Ghaderi; Hassan Dana Mazraeh; Kourosch Parand

Pages 1-9

10.48308/CMCMA.4.1.1
