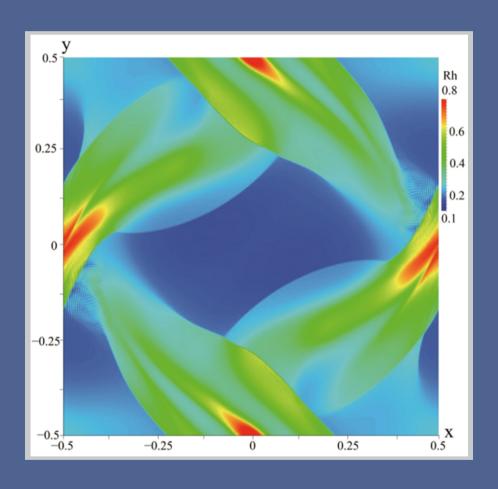




Applied Mathematics

Special Issue on "Numerical Analysis"





Journal Editorial Board

ISSN Print: 2152-7385 ISSN Online: 2152-7393

http://www.scirp.org/journal/am

Editor in Chief

Prof. Chris Cannings University of Sheffield, UK

Editorial Board

Prof. Tamer Başar University of Illinois at Urbana-Champaign, USA

Prof. Leva A. Beklaryan Russian Academy of Sciences, Russia

Dr. Aziz Belmiloudi Institut National des Sciences Appliquees de Rennes, France

Dr. Anjan Biswas Delaware State University, USA

Prof. Mark Broom City University, UK

Prof. Amares Chattopadhyay

Dr. Badong Chen

Tsinghua University, China

University of Belgrade, Serbia

Prof. Jose Alberto Cuminato

University of Sao Paulo, Spain

Prof. Konstantin Dyakonov

University of Strathclyde, UK

Prof. Zhiqing HanDalian University of Technology, China

Prof. Anwar H. Joarder King Fahd University of Petroleum and Minerals, Saudi Arabia

Prof. Palle Jorgensen University of Iowa, USA

Dr. Vladimir A. Kuznetsov Bioinformatics Institute, Singapore

Prof. Kil Hyun Kwon Korea Advanced Institute of Science and Technology, Korea (South)

Prof. Hong-Jian LaiWest Virginia University, USADr. Goran LesajaGeorgia Southern University, USAProf. Tao LuoGeorgetown University, USA

Prof. Agassi Melikov National Aviation Academy, Azerbaijan

Prof. María A. Navascués
University of Zaragoza, Spain
Pr. Donatus C. D. Oguamanam
Ryerson University, Canada
Prof. Alexander S. Rabinowitch
Moscow State University, Russia

Dr. Epaminondas Sidiropoulos Aristotle University of Thessaloniki, Greece

Prof. Sergei Silvestrov Mälardalen University, Sweden

Prof. Jacob SturmRutgers University, USADr. Zheng SuGenentech, Inc., USA

Prof. Mikhail Sumin Nizhnii Novgorod State University, Russia

Dr. Chengbo Wang Zhejiang University, China



TABLE OF CONTENTS

Volume 3 Number 11	November 2012
An Algorithm to Optimize the Calculation of the Fourth Order Runge-Kutta Me to the Numerical Integration of Kinetics Coupled Differential Equations	thod Applied
S. Isotani, W. M. Pontuschka, S. Isotani	1583
Computing Reachable Sets as Capture-Viability Kernels in Reverse Time	
N. Bonneuil	1593
The Geometrical Theory of Science	
A. Nduka	1598
An Algorithm for Global Optimization Using Formula Manupulation	
T. Shohdohji, F. Yano	1601
Limit Theorems for a Storage Process with a Random Release Rule	
L. Meziani	1607
An Application of Linear Automata to Near Rings	
S. F. You, Y. J. Feng, M. Cao, Y. P. Wei.	1614
An Informative System Based on the Skill Gap Analysis to Planning Training Course	es
L. Antonucci, F. D. d'Ovidio	1619
Sinc-Collocation Method for Solving Linear and Nonlinear System of Second-Ord Boundary Value Problems	der
M. El-Gamel.	1627
On the Ellipsoid and Plane Intersection Equation	
P. P. Klein.	1634
Normal Form for Systems with Linear Part $N_{3(n)}$	
G. Gachigua, D. Malonza, J. Sigey	1641
Zero-M-Cordial Labeling of Some Graphs	
F. Selvanayagom, R. S. Chellathurai	1648
Optimal Campaign in Leptospirosis Epidemic by Multiple Control Variables	
M. A. Khan, G. Zaman, S. Islam, M. I. Chohan	1655



A Novel Pseudo Random Number Generator Based on Two Plasmonic Maps Total Duration of Negative Surplus for a Diffusion Surplus Process with Stochastic Return on Investments Integral Inequalities of Hermite-Hadamard Type for Functions Whose 3rd Derivatives Are s-Convex Symmetric Solutions of a Nonlinear Elliptic Problem with Neumann Boundary Condition A. M. M. Ramirez, R. D. O. Ortiz, J. A. R. Ceballos. **Exact Distributions of Waiting Time Problems of Mixed Frequencies and Runs in Markov Dependent Trials** B. J. Chaderjian, M. Ebneshahrashoob, T. A. Gao. A Note on the Proof of the Perron-Frobenius Theorem Y. Cheng, T. Carson, M. B. M. Elgindi. The Discrete Agglomeration Model: Equivalent Problems The H-Decomposition Problem for Graphs A Variational Inequality Approach to a Class of Environmental Equilibrium Problems Trajectory Controllability of Nonlinear Integro-Differential System—An Analytical and a **Numerical Estimations**

The figure on the front cover is from the article published in Applied Mathematics, 2012, Vol. 3, No. 11, pp. 1601-1606 by Tsutomu Shohdohji and Fumihiko Yano.

Applied Mathematics (AM)

Journal Information

SUBSCRIPTIONS

The Applied Mathematics (Online at Scientific Research Publishing, www.SciRP.org) is published monthly by Scientific Research Publishing, Inc., USA.

Subscription rates:

Print: \$59 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©2012 Scientific Research Publishing, Inc.

All Rights Reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, scanning or otherwise, except as described below, without the permission in writing of the Publisher.

Copying of articles is not permitted except for personal and internal use, to the extent permitted by national copyright law, or under the terms of a license issued by the national Reproduction Rights Organization.

Requests for permission for other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works or for resale, and other enquiries should be addressed to the Publisher.

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 assumes 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: am@scirp.org





Applied Mathematics (AM)

http://www.scirp.org/journal/am

Applied Mathematics (AM) is an international journal dedicated to the latest advancement of applied mathematics. 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 mathematics.

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:

- Applied Probability
- Applied Statistics
- Approximation Theory
- Chaos Theory
- Combinatorics
- Complexity Theory
- Computability Theory
- Computational Methods in Mechanics and Physics
- Continuum Mechanics
- Control Theory
- Cryptography
- Discrete Geometry
- Dynamical Systems
- Elastodynamics

- Evolutionary Computation
- Financial Mathematics
- Fuzzy Logic
- Game Theory
- Graph Theory
- Information Theory
- Inverse Problems
- Mathematical Biology
- Mathematical Chemistry
- Mathematical Economics
- Mathematical Physics
- Mathematical Psychology
- Mathematical Sociology
- Matrix Computations

- Neural Networks
- Nonlinear Processes in Physics
- Numerical Analysis
- Operations Research
- Optimal Control
- Optimization
- Ordinary Differential Equations
- Partial Differential Equations
- Probability Theory
- Statistical Finance
- Stochastic Processes
- Theoretical Statistics

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.

E-mail: am@scirp.org

Website and E-mail

http://www.scirp.org/journal/am