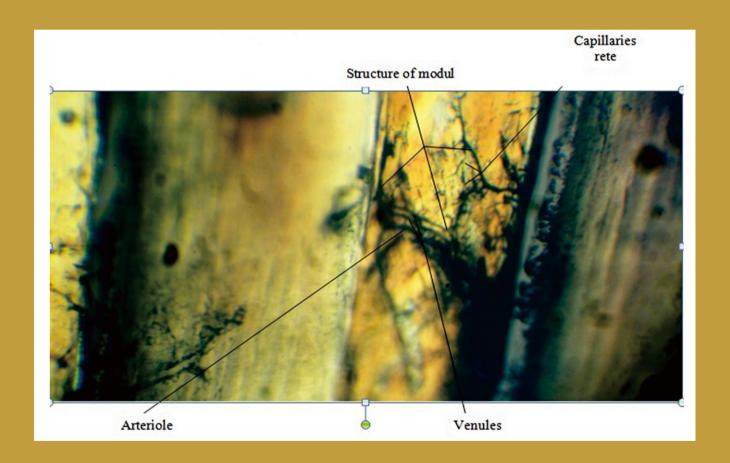


# Open Journal of Applied Sciences





# **Journal Editorial Board**

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

.....

### Editors-in-Chief

**Prof. A. C. Matin** Stanford University School of Medicine, USA

Prof. Harry E. Ruda University of Toronto, Canada

### **Editorial Board**

Prof. Terry L. Alford Arizona State University, USA

Dr. Y. Bilgin Altundas Schlumberger-Doll Research, USA

Dr. Demetrios A. ArvanitisAcademy of Athens, GreeceProf. Ezekiel BaharUniversity of Nebraska, USADr. David BerbrayerUniversity of Toronto, CanadaProf. Der-Chen ChangGeorgetown University, USAProf. Yong ChenEcole Normale Supérieure, France

**Dr. Paul Crilly**The University of Tennessee, Knoxville, USA **Prof. Andrzej T. Galecki**University of Michigan Medical School, USA

**Dr. Chunlei Guo** University of Rochester, USA

Prof. Paloma R. HorchePolytechnic University of Madri, SpainDr. Sheng-He HuangUniversity of Southern California, USA

Prof. Hiroshi Kagemoto The University of Tokyo, Japan Dr. Laura A. Frey Law University of Iowa, USA

Prof. Deqing Liang

The Chinese Academy of Sciences, China

Texas A&M University-Kingsville, USA

Prof. Jianwei Ma

Harbin Institute of Technology, China

The University of Hong Kong, China

**Prof. Richard Mu** Fisk University, USA

Dr. Edward L. Nelson University of California, Irvine, USA

Prof. Singiresu S. Rao University of Miami, USA

Dr. Noha Nabil Salama St. Louis College of Pharmacy, USA

Prof. Bruno SamorìUniversity of Bologna, ItalyDr. Michael K. SchweigertMcGill University, CanadaDr. Danial ShahmirzadiColumbia University, USA

Dr. Zan-Min SongAustralian National University, AustraliaDr. M. P. SrinivasanNational University of Singapore, Singapore

**Dr. Tian Tang** University of Alberta, Canada

**Dr. Low-Hong Tong** National University of Singapore, Singapore

Prof. Dimos A. Triantis Technological Educational Institution of Athens, Greece

**Dr. Giovanni Valdrè** University of Bologna, Italy

Dr. Yiru Xu University of Michigan Medical School, USA

Prof. Changying ZhaoShanghai Jiao Tong University, ChinaProf. Shufeng ZhouUniversity of South Florida, USA



# TABLE OF CONTENTS

Volume 3 Number 1	March 2013
Analysis of Nonlinear Stochastic Systems with Jumps Generated by Erlang Flow of Events	
A. S. Kozhevnikov, K. A. Rybakov	1
Estimating Circulation Patterns by Combining Velocity and Tracer Observations	
L. I. Piterbarg, L. M. Ivanov	8
Fabrication and Characterization of Tungsten Heavy Alloys Using Chemical Reduction and Mechanical Alloying Methods	d <b>l</b>
Z. A. Hamid, S. F. Moustafa, W. M. Daoush, F. A. Mouez, M. Hassan	15
Exploring Greek High School Students' Understanding of Basic Environmental Issues	
C. A. Tsekos, A. Plakitsi, D. G. Theocharopoulos, D. P. Matthopoulos.	28
3D DSMC Simulation of Rarefied Gas Flows around a Space Crew Capsule Using OpenFO	AM
Z. Shang, S. Chen	35
Apple Economy of Village Zandra in Light of World System Theory	
A. Mohyuddin, HUR. Chaudhry, M. Ambreen	39
A Comparison of Methods to Verify Energy-Saving Benefits for Chillers	
YC. Chang, CY. Chen, JT. Lu, TS. Chan, CL. Chen, JK. Lee	44
Nondestructive Testing Electrical Methods for Sensing Damages in Cement Mortar Beams	
C. Stergiopoulos, I. Stavrakas, G. Hloupis, A. Kyriazopoulos, D. Triantis, C. Anastasiadis, J. Stonham	50
An Optimal Control Problem for Hypoxemic Hypoxia Tissue-Blood Carbon Dioxide Excha Physical Activity	nge during
J. M. Ntaganda, B. Mampassi	56
The Structure of Internal Blood Vessels in Mongolian Fetal Vertebral Bodies	
O. Demed, Y. Damdinjav, A. Amgalanbaatar, E. Sundui, A. Dorjkhuu	62
Research for Merger and Acquisition of Petrochemical Industries Based on Value Chain	
Q. Li, H. Cheng, Y. J. Liu.	67
Immunological Variations in Epileptic Children	
S. Kumar, V. Kumar, D. C. Jain, R. Mittal.	71
The Role of CeO <sub>2</sub> -Doping of Fe <sub>2</sub> O <sub>3</sub> /Co <sub>3</sub> O <sub>4</sub> System on Its Structural Characteristics	
N. A. Hassan, G. A. Fagal, A. A. Badawy, G. A. El-Shobaky.	92
Assisting Teaching Process and Management Based on the Informatization Platform	
W. Y. Liu, J. Ya.	100

Copyright © 2013 SciRes.

# Open Journal of Applied Sciences, 2013, 3, 1-154 Published Online March 2013 in SciRes (http://www.scirp.org/journal/ojapps/)



The Heat Treatment Effect on the Oxidation Rate of the Ge-Doped Si(100)	
B. N. Shakarab, A. Baghizadeh, D. AA. Gol.	107
An Integrated Collector Storage Solar Water Heater and Study of Its Temperature Stratification	
A. Mozumder, A. K. Singh	112
Preparation of Chiral Hydroxy Esters Using Actinobacteria: Biocatalyst Activity of Marine-Derived Micromonospora and Streptomyces Strains	
K. Ishihara, A. Fujita, A. Sakiyama, Y. Kobayashi, K. Hori, K. Maruike, N. Masuoka, N. Nakajima, H. Hamada	116
Laser Raman Spectroscopic Studies on Hemeproteins in Epileptic Children	
S. Kumar, V. Kumar, D. C. Jain.	123
Fabrication Parameter Optimization for a Multilayer Photovoltaic Cell Based on the Heterojunction: Zinc(II)-Meso-Tetrakis(4-Bromophenyl) Porphyrins/Fullerenes	
J. H. Velez, M. J. Aguirre, P. P. Zamora, M. B. L. Cattin, M. Makha, J. C. Bernede	136
Electrical Resistivity Imaging of Suspected Seepage Channels in an Earthen Dam in Zaria, North-Western Nigeria	
A. D. Chinedu, A. J. Ogah	145

The figure on the front cover is from the article published in Open Journal of Applied Sciences, 2013, Vol. 3, No. 1, pp. 62-66 by Oyuntsetseg Demed, *et al*.

Copyright © 2013 SciRes.

**Open Journal of Applied Sciences (OJAppS)** 

**Journal Information** 

SUBSCRIPTIONS

The Open Journal of Applied Sciences (Online at Scientific Research Publishing, www.SciRP.org) is published quarterly 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@2013 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: ojapps@scirp.org

# Call for Papers



# Open Journal of **Applied Sciences**

ISSN 2165-3917 (print) ISSN 2165-3925 (online) www.scirp.org/journal/ojapps

Open Journal of Applied Sciences (OJAppS) is an international peer-reviewed, open-access journal publishing in English original research studies, reviews in diverse areas of applied sciences. 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 applied sciences and to keep a record of the state-of-the-art research in related areas.

### **Subject Coverage**

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

- Applied Acoustics
- Applied Behavioral Science
- Applied Biochemistry
- Applied Biology
- Applied Catalysis
- Applied Chemistry
- Applied Climatology Applied Cognitive Psychology
- Applied Crystallography
- Applied Ecology
- Applied Econometrics
- Applied Economics
- Applied Electrochemistry
- Applied Entomology
- Applied Ergonomics
- Applied Finance

- Applied Genetics
- Applied Geochemistry
- Applied Geography
- Applied Geomatics
- Applied Geophysics
- Applied Gerontology
- Applied Ichthyology
- Applied Immunology
- Applied Intelligence
- Applied Linguistics
- Applied Mathematics
- Applied Mechanics
- Applied Microbiology Applied Nanoscience
- Applied Neurobiology
- Applied Ocean Research

- Applied Pathology
- Applied Pharmacology
- Applied Philosophy
- Applied Physics
- Applied Physiology
- Applied Polymer Science
- Applied Psychology
- Applied Sociology
- Applied Spectroscopy
- Applied Surface Science
- Applied Toxicology

E-mail: ojapps@scirp.org

- Applied Vegetation Science
- Mathematical Methods in Applied Sciences
- Mathematical Models in Applied Sciences

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 submission, please access the website.

Website and E-Mail

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