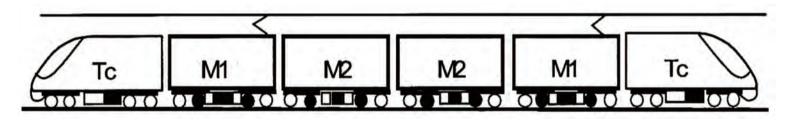




# Engineering





## **Journal Editorial Board**

ISSN Print: 1947-3931 ISSN Online: 1947-394X

......

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

# Editor-in-Chief

Prof. David L. Carroll Wake Forest University, USA

#### **Editorial Board**

Dr. Murad Abu-Farsakh Louisiana State University, USA

Prof. Moh'd A. M. Al-Nimr Jordan University of Science and Technology, Jordan

Prof. Shahnor Basri Putra University, Malaysia

**Dr. Hengky Chandrahalim** Swiss Federal Institute of Technology, Switzerland

**Prof. Bin Chen** Xi'an Jiaotong University, China

Prof. Adinel GavrusEuropean University of Brittany, FranceDr. Krzysztof GórskiTechnical University of Radom, PolandDr. Sung-Cheon HanDaewon University College, South Korea

Prof. David HuiUniversity of New Orleans, USADr. Yunho HwangUniversity of Maryland, USAProf. Shouetsu ItouKanagawa University, JapanProf. Jae Moung KimInha University, South Korea

Prof. Yi-Yang Li

The Chinese University of Hong Kong, China

Dr. C. W. LimCity University of Hong Kong, ChinaDr. Durães LuisaUniversity of Coimbra, PortugalDr. Vandna LuthraUniversity of Delhi, India

**Prof. Magdi Mahmoud** King Fahd University for Petroleum and Minerals, Saudi Arabia

Prof. Andrzej S. NowakAuburn University, USAProf. Reinaldo Rodriguez RamosUniversity of Havana, Cuba

Prof. Yuri Ribakov Ariel University Center of Samaria, Israel

Dr. Arvind K. Srivastava LightField Corporation, USA

Prof. Kune Y. Suh Seoul National University, South Korea

Prof. Hongbin SunTsinghua University, ChinaProf. Gui-Hua TangXi'an Jiaotong University, ChinaDr. Costin D. UntaroiuUniversity of Virginia, USA

Prof. Baolin Wang Harbin Institute of Technology, China

Dr. Rodrigo Sérgio Wiederkehr University of Louisville, USA

Dr. Yufei WuCity University of Hong Kong, ChinaDr. Yuanchang XieUniversity of Massachusetts Lowell, USA

Dr. Wei Yan Trend Micro, USA

Prof. Bo Yu China University of Petroleum-Beijing, China

Dr. Wei ZhanTexas A & M University, USADr. Lei ZhangUniversity of Maryland, USADr. Ming ZhangSchlumberger Limited, USA



#### TABLE OF CONTENTS

Volume 5	Number 9	September 2013
Development	of an Efficient Tapered Slip-Form System Applying BIM Technology	7
H. Yoon, W.	J. Chin, H. S. Kim, Y. J. Kim.	693
Remote Laser	r Welding with High Power Fiber Lasers	
P. Kah, J. H. I	Lu, J. Martikainen, R. Suoranta	700
<b>Surface Modi</b>	fication on Ti-30Ta Alloy for Biomedical Application	
P. Capellato, I	N. A. Riedel, J. D. Williams, J. P. B. Machado, K. C. Popat, A. P. R. A. Claro	707
Kinetics of M	anganese Oxides Dissolution in Sulphuric Acid Solutions Containing	Oxalic Acid
I. V. Artamon	ova, I. G. Gorichev, E. B. Godunov	714
Development	of Optimal Structural System for Hybrid Cable-Stayed Bridges Using	g Ultra High
Performance	Concrete	
H. S. Kim, Y.	J. Kim, W. J. Chin, H. Yoon	720
A Study on th	e Characteristics for the Ground Vibration Due to the Travelling Til	ting Train
H. S. Kim		729
<b>Enhanced Ma</b>	ass Transfer in Microbubble Driven Airlift Bioreactor for Microalgal	Culture
K. Ying, M. k	K. H. Al-Mashhadani, J. O. Hanotu, D. J. Gilmour, W. B. Zimmerman	735
<b>Conceptual D</b>	esign of Hybrid Cable-Stayed Bridge with Central Span of 1000 m U	sing UHPC
H. Yoon, W.	J. Chin, H. S. Kim, M. S. Keum, Y. J. Kim	744
Computation	of Impact Factor of High-Speed Railway Bridge by KTX Train Ridir	ng Test
H. Yoon, W. J	J. Chin, J. Y. Kang, J. Kwark, ES. Hwang	751
Comparison o	of Measured and Dynamic Analysis Vertical Accelerations of High-Sp	eed Railway
	sed by KTX Train	-
H. Yoon, W.	J. Chin, JR. Cho, J. Y. Kang, J. Kwark	756

The figure on the front cover is from the article published in Engineering, 2013, Vol. 5, No. 9, pp. 729-734 by Hee Seok Kim.

Copyright © 2013 SciRes.

#### **Engineering**

#### **Journal Information**

#### **SUBSCRIPTIONS**

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

#### **Subscription rates:**

Print: \$79 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: eng@scirp.org



# **Engineering (ENG)**

ISSN Print: 1947-3931 ISSN Online: 1947-394X http://www.scirp.org/journal/eng

Engineering is an international journal dedicated to the latest advancement of engineering. The goal of this journal is to provide a platform for engineers and academicians all over the world to promote, share, and discuss various new issues and developments in different areas of engineering. 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:

- Aerospace Engineering
- · Agricultural Engineering
- Applied Thermal Engineering
- Aquacultural Engineering
- Architecture and Civil Engineering
- · Automobile Engineering
- Bioengineering
- Biological Engineering
- Biomedical Engineering
- Biomolecular Engineering
- Bionic Engineering
- Bioprocess and Biosystems Engineering
- Biotechnology and Bioengineering
- Building Services Engineering
- Business & Information Systems Engineering
- Cardiovascular Engineering and Technology
- Cellular and Molecular Bioengineering
- Chemical Engineering & Technology
- Civil Engineering
- Coal Science and Engineering
- Coastal Engineering
- Communication Engineering
- Computational Methods in Engineering
- Computer-Aided Civil and Infrastructure Engineering
- Computer Aided Engineering
- Computer Applications in Engineering Education
- Computer Engineering
- Computer Methods in Applied Mechanics and Engineering
- Crystal Engineering
- Data and Knowledge Engineering
- Earthquake Engineering & Structural Dynamics
- Ecological Engineering
- Electrical and Electronic Engineering
- Energy and Power Engineering
- Energy Engineering
- Energy Systems Engineering
- Engine Engineering
- Engineering Analysis with Boundary Elements
- Engineering and Technology Management
- Engineering Applications of Artificial Intelligence
- Engineering Cybernetics
- Engineering Economy
- Engineering Education

- Engineering Failure Analysis
- Engineering for Sustainability
- Engineering Fracture Mechanics
- Engineering Geology and the Environment
- Engineering in Life Sciences
- Engineering in Medicine
- Engineering Manufacture
- Engineering Materials
- Engineering Mathematics
- Engineering Physics and Thermophysics
- Engineering Science in Medicine
- Engineering Structures
- Engineering Tribology
- Engineering with Computers
- Environmental Engineering
- Environmental Science & Engineering
- Fire Protection Engineering
- Food Engineering
- Food Process Engineering
- Fusion Engineering and Design
- Fuzzy Information and Engineering
- Geophysics and Engineering
- Geotechnical and Geological Engineering
- Green Energy Engineering
- Industrial Engineering
- Landscape and Ecological Engineering
- Macromolecular Materials and Engineering Macromolecular Reaction Engineering
- Magnetic Resonance Engineering
- Maintenance Engineering
- Management Engineering
- Maritime Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Mechatronics Engineering
- Medical Engineering & Technology
- Metabolic Engineering · Metallurgical Engineering
- Microelectronic Engineering
- · Micromechanics and Microengineering
- Military Engineering
- Mineral Resources Engineering
- Mining Engineering
- Molecular Engineering
- Nanoengineering

- Natural Gas Science and Engineering
- NeuroEngineering and Rehabilitation
- Nuclear Engineering and Design
- Numerical Methods in Engineering
- Ocean Engineering
- Oil Engineering
- Optics and Lasers in Engineering
- Optimization and Engineering
- Particle Engineering
- Petroleum Engineering
- Petroleum Science and Engineering
- Polymer Engineering and Science
- Power Engineering
- Precision Engineering and Manufacturing
- Probabilistic Engineering Mechanics
- Process Engineering
- Production Engineering
- Protein Engineering, Design and Selection
- Public Safety Information
- Radar Engineering
- Rare Metal Materials and Engineering
- · Reliability, Quality and Safety Engineering
- Renewable Energy Engineering
- · Requirements Engineering
- RF and Microwave Engineering
- Rock Mechanics and Rock Engineering
- · Safety Systems Engineering
- Science and Engineering Ethics
- Social and Environmental Impact of Engineering Innovation
- Software and Knowledge Engineering
- Soil Dynamics and Earthquake Engineering
- Sports Engineering
  Strain Analysis for Engineering Design
- Structural Engineering and Materials
- Surface Engineering and Applied Electrochemistry
- Systems and Control Engineering
- Systems and Software Engineering
- Systems Assurance Engineering and Management
- Test Engineering
- Tissue Engineering and Regenerative Medicine
- Transportation Engineering Wind Engineering and Industrial Aerodynamics

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 be previously published nor be currently under consideration for publication elsewhere. Paper submission will be handled electronically through the website. For more details, please access the website.



Website and E-Mail

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

Email: eng@scirp.org