INTERNATIONAL JOURNAL OF ENERGY AND ENVIRONMENT

Official Journal of the International Energy and Environment Foundation

ISSN 2076-2895 (Print)  ISSN 2076-2909 (Online)

Volume 4, Issue 4, 2013

© 2013 International Energy and Environment Foundation. All rights reserved
Aims and Scope

The International Journal of Energy and Environment (IJEE) is the official journal of the International Energy and Environment Foundation providing an international forum for the fields of Energy and Environment. The journal aims to provide the most complete and reliable source of information on current developments in the field. The emphasis will be on publishing quality articles rapidly and making them freely available to researchers worldwide. The journal has a distinguished editorial board with extensive academic qualifications, ensuring that the journal will maintain high academic standards and has a broad international coverage. There are no page charges and all articles are indexed by the major indexing media therefore providing the maximum exposure to the articles. The scope of the journal includes the following:

Energy
- Fuel cells.
- Hydrogen energy.
- Solar energy conversion and photovoltaics.
- Wind energy.
- Hydro energy.
- Micro- and nano-energy systems and technologies.
- Biofuels and alternatives.
- Hybrid / integrated energy systems.
- Energy conversion, conservation and management.
- Energy efficient buildings.
- Energy storage.
- Energy and sustainable development.
- Advanced visualization techniques, virtual environments and prototyping.

Environment
- Energy and environmental impact.
- Assessment of risks from water, soil and air pollution; effective and viable remedies.
- Evaluation and management of environmental risk and safety.
- Environment and sustainable development.
- Environmental education and training.
- Analysis of contaminants.
- Contaminant source characterization, transport and deposition.
- Multi-media sampling / monitoring (air, soil, water, sediment).
- Quality assurance / control.
- Legislative issues and guidelines.
- Remediation.
- Climate change.

A note to authors

Submission of articles

Articles submitted to the Review should be original contributions and should not be under consideration for any other publication at the same time. The submitting author is responsible for obtaining agreement of all co-authors as well as any sponsors' required consent before submitting a paper. Responsibility for the content of a paper lays on the Authors and not on the Editors or the Publisher.

Formatting instructions can be found on author guidelines and must be strictly followed or else your paper will not be published. The paper template represents the basic guidelines and desired layout final manuscript of International Journal of Energy and Environment (IJEE). It’s compulsory to use the template for the preparation of your paper. Full instructions can be found on the journal homepage (http://www.IJEE.IEEFoundation.org).

Your Submitted Article
- Your article will be peer-reviewed and published very fast.
- Your biography will appear at the end of your article.
- Your article will be published free of charge. Free use of colour where this enhances the article.
- Your article can be read by potentially millions of readers, which is incomparable to publishing in a traditional subscription journal. All interested readers can read, download, and/or print your article at no cost!
- Your article will obtain more citations.
- Moreover, all articles are indexed by the major indexing media therefore providing the maximum exposure to the articles.
Editor-in-Chief
Maher A.R. Sadiq Al-Baghdadi
President of the International Energy and Environment Foundation (IEEF), Al-Najaf, P.O.Box. 39, Iraq.

Associate Editor
Hashim R. Abdol Hamid
Vice President of the International Energy and Environment Foundation (IEEF), Al-Najaf, P.O.Box. 39, Iraq.

Editorial Advisory Board

Tarek Abdel-Salam
Center of Sustainable Energy, Department of Engineering, East Carolina University, 207 Slay Bldg., Greenville, NC 27858-4353, USA.

Amitava Bandyopadhyay
Department of Chemical Engineering, University of Calcutta, 92, A.P.C. Road, Kolkata 700 009, India.

Angelo Basile
Institute on Membrane Technology of the Italian National Research Council, ITM-CNR, c/o University of Calabria, via P. Bucci, cubo 17/C, 87030 Rende (CS), Italy.

Wojciech Budzianowski
Wroclaw University of Technology, ul. Wybrzeze Wyspiańskiego 27, 50-370 Wroclaw, Poland.

Eloy Velasco Gomez
ETS Ingenieros Industriales, Universidad de Valladolid, Paseo del Cauce, no 59, 47011 Valladolid, Spain.

Arunachala Nadar Kannan
Department of Engineering Technology, TECH 156, Arizona State University, 7001 E Williams Field Rd, Mesa, AZ 85212, U.S.A.

T. Lu
School of Mechanical and Electrical Engineering, Beisanhuan East Road, Chaoyang District, Beijing 100029, P.R.China.

A. Mani
Refrigeration and Air-conditioning Laboratory, Department of Mechanical Engineering, Indian Institute of Technology Madras, Chennai 36, Pincode 600 036, India.

Meng Ni
Department of Building and Real Estate, The Hong Kong Polytechnic University, Hung Hom, Kowloon, Hong Kong.

S-J Park
Department of Chemistry, Inha University, 253 Yonghyun-dong, Nam-gu 402-751, Korea (south).

Andreas Poullikkas
Electricity Authority of Cyprus, 1399 Nicosia, Cyprus.

Md. Mujibur Rahman
Department of Mechanical Engineering, College of Engineering, Universiti Tenaga Nasional, Km 7, Jalan Kajang-Puchong, 43009 Kajang, Selangor, Malaysia.

Julien Ramousse
Polytech'Savoie, Université de Savoie, Campus scientifique, Savoie Technolac, 73376 Le Bourget du Lac, CEDEX, France.

Teemu Rasanen
Research Group of Environmental Informatics, Department of Environmental Sciences, University of Kuopio, FI-70211 Kuopio, Finland.
Marc A. Rosen  
University of Ontario Institute of Technology,  
Faculty of Engineering and Applied Science, 2000 Simcoe Street North, Oshawa, Ontario, L1H 7K4, Canada.

David Michael Rowe  
Cardiff School of Engineering, Queen's Buildings,  
Newport Road Cardiff CF24 1XF, U.K.

Hisham M. Sabir  
Kingston University, Faculty of Engineering, Friars Avenue, London SW15 3DW, U.K.

Suresh Babu Sadineni  
Center for Energy Research, Department of Mechanical Engineering, Howard R. Hughes College of Engineering, University of Nevada, Las Vegas (UNLV) 89154-4027, U.S.A.

Bidyut Baran Saha  
Department of Mechanical Engineering, National University of Singapore, 9 Engineering Drive 1, 117576, Singapore.

Vicente Salas  
Department of Electronic Technology, Universidad Carlos III de Madrid, Avda. de la Universidad, 30, 28911 Leganes, Madrid, Spain.

Amin U. Sarkar  
School of Business, Alabama A&M University, Normal (Huntsville), AL 35762, U.S.A.

Moinuddin Sarker  
Natural State Research, Inc., 37 Brown House Road (Second Floor), Stamford, CT-06902, USA.

Joop Schoonman  

Tomonobu Senju  
University of the Ryukus, Faculty of Engineering, 1 Senbaru Nishihara-cho Nakagami Okinawa 903-0213, Japan.

Jose Ramon Serrano  
Universidad Politécnica de Valencia, CMT-Motores Tèrmicos, Camino de Vera s/n, 46022 Valencia, Spain.

Haroun A.K. Shahad  
Department of Mechanical engineering, University of Babylon, Babylon, Iraq.

Rajnish N. Sharma  
Department of Mechanical Engineering, University of Auckland, Private Bag 92019, Auckland 1142, New Zealand.

S.A. Sherif  
HVAC Laboratory, Department of Mechanical and Aerospace Engineering, University of Florida, 232 MAE Bldg. B, Gainesville, Florida 32611-6300, U.S.A.

Shailendra Kumar Shukla  
Department of Mechanical Engineering, Institute of Technology, B.H.U., Varanasi-221005, India.

Rayan Slim  

Laizhou Song  
Department of Environmental and Chemical Engineering, Yanshan University, Qinhuangdao City, Hebei Province, P.R. China.

Adnan Sozen  
Department of Mechanical Education, Gazi University, Technical Education Faculty 06500 Teknikokullar, Ankara Turkey.

Roland Span  
Lehrstuhl für Thermodynamik, Ruhr-University Bochum, D-44780 Bochum, Germany.

Anurag K. Srivastava  
Electrical and Computer Engineering, Mississippi State University, 216 Simrall Hall, Hardy Road, Mississippi State, MS 39762, U.S.A.

Rosetta Steeneveldt  
Research Centre Trondheim, StatoilHydro, Arkitekt Ebbells vei 10, N 7005 Trondheim, Norway.

Athina Stegou-Sagia  
School of Mechanical Engineering, Department of Thermal Engineering, National Technical University of Athens, 9 Iroon Polytechniou Str. Zografou 157 80, Athens, Greece.

Peter Stigson  

Anna Stoppato  
Department of Mechanical Engineering, University of Padova, via Venezia, 1-35131 Padova, Italy.
Michael Stoukides
Department of Chemical Engineering, Aristotle University of Thessaloniki, Thessaloniki 54124, Greece.

Jian-Feng Sun
College of Food Science and Technology, Agricultural University of Hebei, Baoding City, Hebei Province, 071000 P.R.China.

Stanislaw Szwaja
Department of Engineering Mechanics, Michigan Technological University, 1400 Townsend Drive, Houghton, MI, 49931, U.S.A.

David S-K. Ting
Mechanical, Automotive & Materials Engineering, University of Windsor, Windsor, Ontario, N9B 3P4, Canada.

G. N. Tiwari
Centre for Energy Studies, Indian Institute of Technology Delhi, Hauz Khas, New Delhi - 110 016, India.

Bor-Jang Tsai
Department of Mechanical Engineering, Chung Hua University, No. 707, Sec. 2, Wu Fu Rd., Hsinchu 300, Taiwan.

Athanasios Tsolakis
School of Mechanical Engineering, University of Birmingham, Edgbaston, Birmingham, B15 2TT, U.K.

Per Tunestal
Department of Energy Sciences, Lund University, SE-221 00 Lund, Sweden.

Aynur Ucar
Department of Mechanical Engineering, Firat University, Elazig, Turkey.

Despina Vamvuka
Department of Mineral Resources Engineering, Technical University of Crete, University Campus, Hania 73100, Crete, Greece.

Virendra Kumar Vijay
Centre for Rural Development and Technology, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016, India.

Shengwei Wang
Department of Building Services Engineering, The Hong Kong Polytechnic University, Hong Kong.

Yi-Ming Wei
Center for Energy and Environmental Policy Research (CEEP), Beijing Institute of Technology, No.5 South Zhongguancun Street, Haidian District, Beijing 100081, P.R.China.

Gwomei Wu
Chang Gung University, 259 Wen Hua 1st Road, Kweisan, Taoyuan 333, Taiwan.
Contents

Numerical simulation of draft tube flow of a bulb turbine.
Coelho J. G., Brasil Junior A. C. P. 539-548

Optimization of power generation from shrouded wind turbines.
Tudor Foote, Ramesh Agarwal 549-560

Economics of wastewater treatment in GTL plant using spray technique.
G.C. Enyi, G.G. Nasr, M. Burby 561-572

Estimation of apparent soil resistivity for two-layer soil structure.
M. Nassereddine, J. Rizk, M. Nagrial, A. Hellany 573-580

Comparative evaluation of kinetic, equilibrium and semi-equilibrium models for biomass gasification.
Buljit Buragohain, Sankar Chakma, Peeush Kumar, Pinakeswar Mahanta, Vijayanand S. Moholkar 581-614

Determination trends and abnormal seasonal wind speed in Iraq.
Ahmed F. Hassoon 615-628

New solar desalination system using humidification/dehumidification process.
Adel M. Abdel Dayem 629-640

Estimation and diminution of CO₂ emissions by clean development mechanism option at power sector in Oman.
Parmal Singh Solanki, Venkateswara Sarma Mallela, Chengke Zhou 641-652

Biodegradation of hexavalent chromium (Cr⁶⁺) in wastewater using Pseudomonas sp. and Bacillus sp. bacterial strains.
Muhammad Qasim 653-662

Modelling the drying kinetics of green peas in a solar dryer and under open sun.
Sunil, Varun, Naveen Sharma 663-676

Effect of dissolved organic matter derived from waste amendments on the mobility of inorganic arsenic (III) in the Egyptian alluvial soil.
Mohamed Rashad, Faiz F. Assaad, Elsayed A. Shalaby 677-686

Investigations on the performance of a double pass, hybrid - type (PV/T) solar air heater.
M. Srinivas, S. Jayaraj 687-698
A two-equation k-omega turbulence model simulation to narrow trench on flat plate.
Antar M.M. Abdala, Qun Zheng, Fifi N.M. Elwekeel

An experimental investigation of exhaust emission from agricultural tractors.
Rashid Gholami, Hekmat Rabbani, Ali Nejat Lorestani, Payam Javadikia, Farzad Jaliliantabar

Announcements - IEEF Release

BOOK: CFD Applications in Energy and Environment Sectors: Volume 1.

BOOK: Engineering Applications of Computational Fluid Dynamics: Volume 1.

BOOK: CFD Modeling in Development of Renewable Energy Applications.

BOOK: Engineering Applications of Computational Fluid Dynamics: Volume 2.