WSEAS Transactions on Environment and Development

Contents: 2014 Print ISSN: 1790-5079 E-ISSN: 2224-3496

Acceptance Rate (for the years 2013 and 2014): 30.32%

Acceptance Rate = C/D where: C = the number of accepted papers, D= the number of submitted papers. Withdrawn Papers are not considered for the numbers C and D.

Editorial Board:

Editor-in-Chief

Professor Vincenzo Niola Departement of Mechanical Engineering for Energetics University of Naples "Federico II" Via Claudio, 21 - 80125 Naples ITALY

Associate Editors:

Prof. Luís Loures, Instituto Politécnico de Portalegre, Portugal

Prof. Gamal Elnagar, University of South Carolina Upstate, Spartanburg, SC, USA

Prof. Germano Lambert-Torres, Itajuba, MG, Brazil

Prof. Jiri Klima, Technical faculty of CZU in Prague, Czech Republic

Prof. Biswa Nath Datta, IEEE Fellow, Distinguished Research Professor, Northern Illinois University, USA

Prof. I. Kazachkov, National Technical University of Ukraine (NTUU KPI), Kyiv, Ukraine

Prof. Panos Pardalos, Distinguished Professor Director, Center for Applied

Optimization, University of Florida, USA

Prof. Goricanec Darko, University of Maribor, Maribor, Slovenia

Prof. Thomas Panagopoulos, University of Algarve, Faro, Portugal

Prof. J. Van Mierlo, Vrije Universiteit Brussel, Belgium

Prof. A. Kurbatskiy, Novosibirsk State University, Department of Physics, Russia

Prof. Ze Santos, Rua A, 119. Conj. Jardim Costa do Sol, Brazil

Prof. Ehab Bayoumi, Chalmers University of Technology, Goteborg, Sweden

Prof. Luis Tavares Rua, Cmte Guyubricht, 119. Conj. Jardim Costa do Sol. Atalaia, Brazil

Prof. Igor Kuzle, Faculty of Electrical Engineering and Computing, Zagreb, Croatia

Prof. Maria do Rosario Alves Calado, University of Beira Interior, Portugal

Prof. Gheorghe-Daniel Andreescu, "Politehnica" University of Timisoara, Romania

Prof. Patricia Jota, Av. Amazonas 7675, BH, MG, Brazil

Prof. Bharat Doshi, John Hopkins University, Mayrland, USA

Prof. Gang Yao, University of Illinois at Urbana - Champaign, USA

Prof. Lu Peng, Luisian State University, Baton Rouge, LA, USA

- Prof. Pavel Loskot, Swansea University, UK
- Prof. Y. Baudoin, Royal Military Academy, Brussels, Belgium
- Prof. N. Afgan, Instituto Superior Tecnico, Lisbon, Portugal
- Prof. Fotios Rigas, School of Chemical Engineering, National Technical University of Athens, Greece
- Prof. F. Akgun, Gebze Kocaeli, Turkey
- Prof. Helmut Jaberg, Graz University of Technology, Austria
- Prof. Hamido Fujita, Iwate Prefectural University (IPU), Japan
- Prof. Anastassios Stamou, National Technical University of Athens, Greece
- Prof. M. Heiermann, Department of Technology Assessment and Substance Flow, Potsdam, Germany
- Prof. Cyril Fleaurant, Institut Superieur Des Sciences Agronomiques, Angers, France
- Prof. A. M. A. Kazim, UAE University, United Arab Emirates
- Prof. S. Linderoth, Head of Research on Fuel Cells and Materials Chemistry at Riso National Laboratory, Denmark
- Prof. P. Lunghi, Dipartimento di Ingegneria Industriale, University degli Studi di Perugia, Italy
- Prof. Periklis Papadopoulos, San Jose State University, San Jose, CA, USA
- Prof. Lajos Barna, Budapest University of Technology and Economics, Hungary
- Prof. Jiri Strouhal, University of Economics Prague, Czech Republic
- Prof. Sidney Burrus, IEEE Fellow, Rice University, USA
- Prof. Steven Collicott, Purdue University, USA
- Prof. Anastassios I. Zouboulis, Dept. of Chemistry, Aristotle University of Thessaloniki, Greece.
- Prof. S. Ozdogan, Marmara University, Goztepe Campus, Kuyubasi, Kadikoy, Istanbul, Turkey
- Prof. Siavash Sohrab, Northwestern University, IL, USA
- Prof. A. F. Zobaa, University of Cairo, Faculty of Engineering, Department of Electrical Power & Machines
- Prof. Z. A. Vale, ISEP Instituto Superior de Engenharia do Porto Rua Antonio Bernardino de Almeida, Portugal
- Prof. Gregoire Thomas, Institut Superieur Des Sciences Agronomiques, Angers, France
- Prof. Paul E. Dimotakis, California Institute of Technology (Caltech), USA

Topics:

Environment and sustainable development Sustainable management Indoor Air Quality in Offices and Houses Quality of water Global change, climate and biodiversity Sustainable marine ecosystems Climate and global change Advanced Marine research Research on Natural hazards Cleaner energy systems Renewable energy Systems Combined Heat and Power Systems Combustion and gasification Energy Storage Materials Chemistry Electrochemistry Hydrogen energy production, storage and transmission Fuel Cells Electrolysis Hydrides Biomass an Bio-energy Wind energy and wind resources Solar Energy Systems Cogeneration Systems Distributed generation systems Energy conservation and generation Distributed generation, embedded generation Industrial Gas Turbines and Microturbines Energy conservation in Industry Economic and efficient energy systems Socio-

economic aspects of energy Energy technology transfer Oceanographic laser remote sensing Applied thermodynamics and Eco-informatics Thermodynamics of Ecosystems
Environmental management Biodiversity Petroleum & Natural Gas Engineering Air pollution and its effects on ecosystems Cost reduction and less emission Coasts and Seas Sustainability indicators Environmental risk Recovery of damaged areas Brownfields Forestation Science and the humanities Soil and agricultural issues Landscapes The city of tomorrow and cultural heritage Impact on society, the economy and employment Sustainable Process Model Strategic Management Natural resources management Feasibility Analysis Refurbishment Investment Appraisal Governance, urban design and cultural heritage Nuclear Energy and Environmental Protection Socio-economic and infrastructure issues International strategy for energy, development and environment Design and nature

Articles:

Natural Disasters' Management and Detection of Priority Problems for Future	
Research	14
Authors: Dana Prochazkova	
Feasibility of Saving Energy by Using VSD in HVAC System, A Case Study of Large	
Scale Hospital in Malaysia	25
Authors: M. M. S. Dezfouli, S. Moghimi, F. Azizpour, S. Mat, K. Sopian	
Analysis of the Relationships among Motivation to Recycle, Willingness to Recycle,	
and Satisfaction with Recovery Stations in Taiwan	34
Authors: Ruey-Chyn Tsaur	
Equilibrium Isotherm Models for Adsorption of Zinc (II) Ion from Aqueous Solution	
on Pulp Waste	47
Authors: Panida Sampranpiboon, Pisit Charnkeitkong, Xianshe Feng	
6,	
Sustainable Construction Waste Management Strategic Implementation Model	59
Authors: Jannatun Naemah Ismam, Zulhabri Ismail	33
Authors. Jannatun Naeman Ismani, Zumabn Isman	
The Effect of Surfactants upon Spectrophotometric Monitoring of the Efficiency of	
Removal of Crude Petroleum Products from Waste Water by Means of Pressure-	
Driven Membrane Processes	70
Authors: Jaromíra Chýlková, Jiří Cuhorka, Petr Mikulášek	70
Authors. Jaronnia Chyrkova, Jiri Cunorka, Petr Wikulasek	
	0.0
An Incentive Mechanism for Improving Urban Water Supply System	80
Authors: Jia Wang, Jiaoju Ge, Qiang Lu	

The Public Zoo as Recreation and Environmental Education Area: Visitor's	
Perceptions and Management Implications	91
Authors: Paraskevi Karanikola, Stilianos Tampakis, Georgios Tsantopoulos, Christina	
Digbasani	
	405
Eco-Economic Analysis of Different Heating Systems for a New Housing Project	105
Authors: Amaryllis Audenaert, Sven De Cleyn, Liesje De Boeck	
Two Realistic Scenarios of Intentional Release of Radionuclides (Cs-137, Sr-90) -	
The Use of the HotSpot Code to Forecast Contamination Extent	122
Authors: D. Di Giovanni, E. Luttazzi, F. Marchi, G. Latini, M. Carestia, A. Malizia, M. Ge	lfusa,
R. Fiorito, F. D'amico, O. Cenciarelli, A. Gucciardino, C. Bellecci, P. Gaudio	
Radiation Doses Due to Natural Radioactivity in Selected Areas in Southern Part of	
Jordan	126
Authors: Abdul-Wali Ajlouni	
Additional	
Analysis of the Diurnal Distribution of Ultraviolet Exposure on Upper Body	
Anatomical Sites for Outdoor Workers	134
Authors: G. Nardini, D. Neri, M. Paroncini	
Zeolite and Mixed Oxide Catalysts for VOCs Oxidation	144
Authors: Jana Gaálová, Květuše Jirátová, Jan Klempa, Olga Šolcová, Irene Maupin, Jero	ome
Mijoin, Patrick Magnoux, Jacques Barbier, Jr.	
Development and the contraction of the March 1 of the Treatment and March 1 of the Contraction of the Contra	
<u>Development and Investigation of the Moebius Strip in Tensioned Membrane</u> Structures	149
	149
Authors: Hooi Min Yee, Samsudin	
A New Method Voltage and Frequency Regulation of Self-Excited Induction	
Generator Operating in Stand Alone	159
Authors: Dhikra Chermiti, Adel Khedher	
Construction of an Unpaved Road Using Industrial By-Products (Bauxite Residue)	168
Authors: Fotini Kehagia	
Using of Geographical Information Systems (GIS) in the Ecosystems Assessment on	
the Landscape Level: Case Study from the Czech Republic	176
	170
Authors: Vilém Pechanec, Ivo Machar, Aleš Vávra, Helena Kilianová	
A New Fuzzy Weighted Based Computation for Environmental Performance: A	
Case of ASEAN Countries	185
Authors: Lazim Abdullah	
A Numerical Procedure for the Preliminary Design of a ORC Power Plants with	
Positive Displacement Expanders	196
Authors: T. Donateo, A. Fazio	

Part Sheet Usage in the Assembly Process of Small Hydro Power Plants	201
Authors: Ivan Szilva, Dagmar Cagáňová, Paul Woolliscroft	
Prediction of Slag Occurrence in a Lignite-Fired Utility Boiler	210
Authors: Pakamon Pintana, Nakorn Tippayawong	
Seawater Intrusion and Nitrate Pollution in Coastal Aquifer of Almyros – Nea	
Anchialos Basin, Central Greece	222
Authors: Gounari Christina, Skordas Konstantinos, Gounaris Alexandros, Kosmidis Dimitrios, Karyoti Aikaterini	
Analyse Options for Relationship between Sustainability Development Indicators	232
Authors: Bohuslav Sekerka, Ilona Obršálová, Robert Bata	
Economic Implications of Climate Change for Agricultural Productivity	241
Authors: Maurizio Lanfranchi, Carlo Giannetto, Angela De Pascale	
The Analysis of the Possible Use of Harvested Rainwater and its Potential for Water	
Supply in Real Conditions	249
Authors: Gabriel Markovič, Daniela Kaposztásová, Zuzana Vranayová	
Aerogation: Crop Root-Zone Aeration through Subsurface Drip Irrigation System	255
Authors: P. Vyrlas, M. Sakellariou-Makrantonaki, D. Kalfountzos	
Higher Body Anatomical Distribution of Solar Ultraviolet Radiation on Farm	
Workers	263
Authors: G. Nardini, D. Neri, M. Paroncini	
Building Information Modelling (BIM) in the Malaysian Architecture Industry	273
Authors: M. F. I. Mohd-Nor, Michael P. Grant	
Analysis of Citizens' Qualitative Risk Assessment for the Development of	
Environmental Risk Communication in Contaminated Sites	287
Authors: Janmaimool Piyapong, Tsunemi Watanabe	
Saving Potential of Reused Batteries by Waste Production	297
Authors: Robert Bata, Radko Kříž	
Statistical Trends of Precipitation in Chosen Climatic Station in Slovakia and Libya	305
Authors: Martina Zeleňáková, Pavol Purcz, Helena Hlavatá, Ibrahim Gargar, Maria	303
Manuela Portela	
Feasibility Study of Using Rice Husk and its Treated Forms with Alkali Solution as a	
Desiccant Material	311
Authors: Zeynab Emdadi, Nilofar Asim, Zatil Amali Che Ramali, M. A. Yarmo, Roslinda	
Shamsudin, K. Sopian	

Assessment of Radiation Hazard Indices and Excess Life Time Cancer Risk due to	
<u>Dust Storm for Al-Najaf, Iraq</u>	319
Authors: Ali Abid Abojassim Al-Hamidawi	
Photovoltaics Panels – Economic Return Based on the Real Effectiveness	328
Authors: P. Chrobák, M. Zálešák, M. Opluštil, S. Sehnálek, J. Vincenec	320
Authors. F. Chrobak, M. Zalesak, M. Opiustii, S. Seimalek, J. Vincenec	
Comparison between Different Photovoltaic Solar-Assisted Heat Pumps (PVT-	
SAHP) Configurations with Retrofitted Photovoltaic Panels	340
Authors: Cecilia Rossi, Mattia De Rosa, Vincenzo Bianco, Federico Scarpa, Luca A.	
Tagliafico	
The Analysis of the Factors Valid for Quality of Harvested Rainwater from	
University Building's Roof and Roofing Material Simulation	346
Authors: Daniela Kaposztasova, Gabriel Markovic, Ahmidat Mohamed, Zuzana Vranay	
Authors. Daniela Kaposztasova, Gabriel Markovic, Allinidat Mohamed, Zuzana Vranay	Ova
Seasonal and Diurnal Variations of Carbonyl Compounds and Air Criteria Pollutants	
in Monterrey, Mexico	357
Authors: J. G. Cerón-Bretón, R. M. Cerón-Bretón	
Chromium Removal from Wastewater by Reverse Osmosis	365
Authors: Pavel Kocurek, Karel Kolomazník, Michaela Bařinová	
The Indoor Climate and Energy Consumption of Educational Buildings	373
Authors: Teet-Andrus Koiv, Alo Mikola, Ulli-Kaisa Karro	
<u>Uncertainties in Runoff Components Modelling and Frequency Analysis</u>	381
Authors: Halmova D., Pekarova P., Pekar J., Miklanek P.	
Dam-Break Dry Granular Flows: Experimental and Numerical Analysis	392
Authors: Stefania Evangelista, Giovanni De Marinis, Cristiana Di Cristo, Angelo Leopard	ib
Wet and Dry Deposition of Trace Elements in Two Sites in Carmen Island,	404
Campeche, Mexico	404
Authors: J. G. Cerón-Bretón, R. M. Cerón-Bretón	
Analysis of Interpolation Methods to Map the Long-Term Annual Precipitation	
Spatial Variability for the Republic of Bashkortostan, Russian Federation	416
Authors: Ivan Afanasev, Tcvetana Volkova, Alexey Elizaryev, Antonia Longobardi	
Assessment of Low Flows Occurrence in Chosen River Stations in Slovakia	422
Authors: Martina Zeleňáková, Pavol Purcz, Tatiana Soľáková, Dorota Simonová	
Renewable Energy Resources and Their Impact on Rural Landscape	433
Authors: Donatella Cialdea, Luigi Mastronardi	

Application of the Stochastic Model for Precipitation Generation in the Complex Orographic Region (Bashkortostan Republic, Russian Federation) Authors: Tcvetana Volkova, Antonia Longobardi, Nataliya Krasnogorskaya	443
Evaluation of Al Qattara Depression Renewable Energy Potentials Authors: Asad Salem, Emad Hudaib	452
The Free License Codes as Decision Support System (DSS) for the Emergency Planning to Simulate Radioactive Releases in Case of Accidents in the New Generation Energy Plants Authors: Andrea Malizia, Mariachiara Carestia, Claudio Cafarelli, Laura Milanese, Simon Pagannone, Amedeo Pappalardo, Massimo Pedemonte, Gianna Latini, Oscar Barlascini Eugenio Fiorini, Paolo Maurizio Soave, Daniele Di Giovanni, Orlando Cenciarelli, Luca Antonelli, Fabrizio D'Amico, Leonardo Palombi, Carlo Bellecci, Pasqualino Gaudio	
Groundwater Management in Dar Es Salam Coastal Aquifer (Tanzania) under a <u>Difficult Sustainable Development</u> Authors: Giuseppe Sappa, Giulia Luciani	477
Proposal of Prognostic Parametric Method Applied to an Electrohydraulic Servomechanism Affected by Multiple Failures Authors: M. D. L. Dalla Vedova, P. Maggiore, L. Pace	490
Bivariate Process Capability Analysis of Fuel Injection Nozzles Production Authors: Lubos Kotek, Vaclav Pistek, Martin Jonak	495
A Statistical Approach for Calibrating a Microsimulation Model for Freeways Authors: Raffaele Mauro, Orazio Giuffrè, Anna Granà, Sandro Chiappone	508
Comparative Environmental and Economic Analysis of South European Building Constructive Systems Authors: Francisco Oliveira, Paulo Mendonça, João Pedro Couto, Aires Camões, Elisa Si	528 ilva
Indoor Air Quality in Waste Treatment: Environmental Issue and Biotechnology Application for Air Pollution Containment, a Case Study Authors: Alessandra Bonoli, Sara Zanni	541