Selected Topics in Energy, Environment, Sustainable Development and Landscaping

6th WSEAS International Conference on Energy, Environment, Ecosystems & Sustainable Development (EEESD ’10)

3rd WSEAS International Conference on Landscape Architecture (LA ’10)

Hosted and Sponsored by

“Politehnica” University of Timisoara
Faculty of Electrical & Power Engineering

Politehnica University of Timisoara, Romania
October 21-23, 2010

ISSN: 1792-5924
ISSN: 1792-5940
SELECTED TOPICS in ENERGY, ENVIRONMENT, SUSTAINABLE DEVELOPMENT and LANDSCAPING

6th WSEAS International Conference on ENERGY, ENVIRONMENT, ECOSYSTEMS and SUSTAINABLE DEVELOPMENT (EEESD '10)
3rd WSEAS International Conference on LANDSCAPE ARCHITECTURE (LA '10)

Politehnica University of Timisoara, Romania
October 21-23, 2010
SELECTED TOPICS in ENERGY, ENVIRONMENT, SUSTAINABLE DEVELOPMENT and LANDSCAPING

6th WSEAS International Conference on ENERGY, ENVIRONMENT, ECOSYSTEMS and SUSTAINABLE DEVELOPMENT (EEESD '10)
3rd WSEAS International Conference on LANDSCAPE ARCHITECTURE (LA '10)

Politehnica University of Timisoara, Romania
October 21-23, 2010
Preface
This year the 6th WSEAS International Conference on ENERGY, ENVIRONMENT, ECOSYSTEMS and SUSTAINABLE DEVELOPMENT (EEESD '10) and the 3rd WSEAS International Conference on LANDSCAPE ARCHITECTURE (LA '10) were held at the Politehnica University of Timisoara, Romania, October 21-23, 2010. The conferences remain faithful to their original idea of providing a platform to discuss environment and sustainable development, indoor air quality in offices and houses, research on natural hazards, renewable energy systems, electrochemistry, solar energy systems, industrial gas turbines and microturbines, energy conservation in industry, thermodynamics of ecosystems, environmental management, natural resources management, mathematical biology, landscape design, land art, earthworks art, playgrounds, landscape architecture and structural issues, conservation and management of ecological areas, soil and agricultural issues, natural resources management, ecological restoration etc. with participants from all over the world, both from academia and from industry.

Their success is reflected in the papers received, with participants coming from several countries, allowing a real multinational multicultural exchange of experiences and ideas.

The accepted papers of these conferences are published in this Book that will be indexed by ISI. Please, check it: www.worldses.org/indexes as well as in the CD-ROM Proceedings. They will be also available in the E-Library of the WSEAS. The best papers will be also promoted in many Journals for further evaluation.

Conferences such as these can only succeed as a team effort, so the Editors want to thank the International Scientific Committee and the Reviewers for their excellent work in reviewing the papers as well as their invaluable input and advice.

The Editors
**Table of Contents**

<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plenary Lecture 1: Photovoltaic Sources Efficiency Evaluation in Urban Ecosystems Conditions</strong></td>
<td>14</td>
</tr>
<tr>
<td>Mircea Grigoriu</td>
<td></td>
</tr>
<tr>
<td><strong>Developing Energy-Optimized Photovoltaic Applications using Virtual Instruments</strong></td>
<td>15</td>
</tr>
<tr>
<td>D. Dunea, A. Dunea, V. Moise, L. Moise</td>
<td></td>
</tr>
<tr>
<td><strong>Initial Imperfection Influences on the Structural Behavior of Steel Portal Frames with Variable Cross Sections and some Sustainability Considerations - Case Study</strong></td>
<td>21</td>
</tr>
<tr>
<td>I. Mircea Cristutiu, Zsolt Nagy</td>
<td></td>
</tr>
<tr>
<td><strong>Concept of Sustainable Development in Romanian Tourism Operators' Perception</strong></td>
<td>33</td>
</tr>
<tr>
<td>Gratiela Gavrila, Georgiana Dinca, Andreea Mihaescu, Ana-Maria Ion</td>
<td></td>
</tr>
<tr>
<td><strong>Analysis of an Enhanced SEIG Model Including Iron Losses</strong></td>
<td>37</td>
</tr>
<tr>
<td>Mateo Basic, Dinko Vukadinovic, Dusko Lukac</td>
<td></td>
</tr>
<tr>
<td><strong>Ecological Evaluation of the Natural Landscape of Fars MARGOON Waterfall in Order to Clarify Methods of Ecological Maintenance of the Bed</strong></td>
<td>43</td>
</tr>
<tr>
<td>M. R. Bemaian, Ferial Ahmadi, Alireza Sadeghi, Sara Pour Yoosef Zadeh</td>
<td></td>
</tr>
<tr>
<td><strong>Use Non-Rotating Adjustable Stabilizer to Optimize a Directional Drilling Plan</strong></td>
<td>50</td>
</tr>
<tr>
<td>Eisa Novieri, Sadegh Torfi</td>
<td></td>
</tr>
<tr>
<td><strong>Loading Strategy for Measuring Relative Humidity and Temperature Gradient for Winter Season in Ventilated Classrooms</strong></td>
<td>57</td>
</tr>
<tr>
<td>Sebastian Dorhoi, Ioan Borza, Mihai Cinca</td>
<td></td>
</tr>
<tr>
<td><strong>Modeling and Optimization of a Natural Gas Pressure Reduction Station to Produce Electricity using Genetic Algorithm</strong></td>
<td>62</td>
</tr>
<tr>
<td>Sepehr Sanaye, Amir Mohammadi Nasab</td>
<td></td>
</tr>
<tr>
<td><strong>Park in Sulistrowiczki – its Meaning in the Cultural Landscape of Poland</strong></td>
<td>71</td>
</tr>
<tr>
<td>Renata Gubanska, Janusz Gubanski</td>
<td></td>
</tr>
<tr>
<td><strong>The Performance's Improvement of the Collecting Systems from Wells</strong></td>
<td>77</td>
</tr>
<tr>
<td>Aurora Alexandrescu</td>
<td></td>
</tr>
<tr>
<td><strong>The Compensator's Calculation for the Pipe in Complex Systems</strong></td>
<td>83</td>
</tr>
<tr>
<td>Aurora Alexandrescu</td>
<td></td>
</tr>
<tr>
<td><strong>Use of Multi-Criteria Decision Analysis for Choosing an Optimal Location for a Wood Fuel based Cogeneration Plant: A Case Study in Estonia</strong></td>
<td>89</td>
</tr>
<tr>
<td>Anna Volkova, Eduard Latosov, Andres Stirde</td>
<td></td>
</tr>
<tr>
<td><strong>Respiratory Health Effects of Air Pollution and Climate in an Exposed Population: Long- and Short- Term Study</strong></td>
<td>95</td>
</tr>
<tr>
<td>Cristina Petrescu, Oana Suciu, Romanita Ionovici, Olf Herbarth, Ulrich Frank, Uwe Schlink</td>
<td></td>
</tr>
</tbody>
</table>
Power System Harmonic Pollution Limitation Using Fuzzy Logic Controlled Active Filters
Lucian Gherman, Surianu Flavius Dan, Stela Rusu – Anghel, Sergiu Mezinescu

A Holistic Vision Concerning the Revitalization of Historical Centres for Countries which Transit from a Socialist Economy Towards the Free Market Economy
Ana-Maria Branea, Radu Radoslav, Marius Gaman, Tudor Morar

Advanced System for the Control of Work Regime of Railway Electric Drive Equipment
Stela Rusu – Anghel, Ion Garnita, Ion Gavrilă, Caius Panoiu, Manuela Panoiu, Sergiu Mezinescu

The Renewal of Public Spaces as an Instrument of Urban Regeneration in Local Communities of Timișoara
Radoslav Radu, Cosoroaba-Stanciu Elisabeth

Researches and Results Regarding the Anti hail System from Romania
Laurentiu Alboteanu, Constantin Sulea, Gheorghe Manolea

A Graph Model for Optimization of Materials Selection Applied in Manufacturing of Heating Elements
Aurel Raduta, Cosmin Locovei, Mircea Nicoara, Cosmin Gruescu

Numerical Techniques Used in Characterization of Biomaterials
Aurel Raduta, Mircea Nicoara, Aurel Tulcan, Cosmin Locovei

Contributions to Optimization of Properties for Components Fabricated by Mean of Selective Laser Sintering from Composed Materials
Laurentiu Cucuruz, Mircea Nicoara, Aurel Raduta, Cosmin Locovei, Eric Labbe

Valorization of Powdery Ferrous Wastes in the Context of Sustainable Development
Ana Socalici, Teodor Heput, Erika Ardelean, Marius Ardelean

Researches Regarding the Obtaining of Active Slag by Using Reactive Admixtures Produced from Ferrous and Basic Scrap
Socalici Ana, Heput Teodor, Ardelean Erika, Ardelean Marius

Changes in Water Quality in the Lakes Along Colentina River under the Influence of the Residential Areas in Bucharest
Cristian Ioja, Diana Onose, Adina Cucu, Luminita Ghervase

Bulk Amorphous Metal Products - Technological Solutions for Obtaining of Miniaturized Components
Viorel-Aurel Serban, Cosmin Codrean, Dragos Utu, Dragos Buzdugan

Technological Solutions to Reduce Energy Consumption by Obtaining of Advanced Brazing Alloys
Viorel-Aurel Serban, Cosmin Codrean, Dragos Utu, Cristian Stoian

Simulation of Operating States and Characteristics of Heat Pumps
Petr Mastny, Lukas Radil

Obtaining of High Performance WC-CoCr Cermet Coatings. Alternative Ecological Spraying Methods at Reduced Power Levels
V. A. Serban, C. Codrean, D. Utu, I. Hulka
Mixing Materials Process during FSW of 5754 Al Alloy
Bogdan Radu, Radu Cojocaru

Rapid Prototyping for a Microinjection Molding Die
D. Rotar, C. Cosma, V. Tut, I. Serban

Impacts of Large-scale Integration of Wind Power on the Design and GHG Emissions of the Global Power System
Tino Aboumahboub, Peter Tzscheutschler, Maximilian Kuhne, Ulrich Wagner

Energy Efficiency Regulations Taking Action in Estonia
Erkki Seinre, Hendrik Voll

Romanian Tourist Offer between Desideratum and Sustainable Development
Andrei Toma, Felicia Dumitru, Dorina Tanasescu, Madalina Barna

A Survey about the Role of Geometry in Iranian Landscape Architecture
Mojir Jalilian

Geographical Relations Dynamics (6) - Hell to Limbo via Economic Growth -
Minoru Ueda

Theoretical Development of a Simplified Electronic Fuel Injection System for Stationary Spark Ignition Engines
Adrian Irimescu

Energy Saving Opportunities Related to the Size Reduction for the First Break, in the Wheat Milling, with a New Designed Micromill
Cristina Danciu, Ioan Danciu

Traditional Akseki Houses as a Regional Architecture in Turkish Meditarrenean
R. Eser Gultekin, Aydin Ucar

Modern Energy Distribution Management Modules with Focus on Electrical Energy Resources in Industries and Lifecycle
Mohammad Reza Daneshmand Malayeri

Factors Affecting Site Remediation of Diesel Contaminated Soils using Surfactants
A. K. Darban, H. Ganjidust, E. Salehian

A Predictive Current Control Technique in a Stand Alone Hybrid Power System Based on Photovoltaic, Fuel Cell and Battery
M. Karami, S. Lesan

A New Approach for Carbon Monoxide Measurement using Virtual Instrumentation
Patricia Gherban Draut, Raul Ionel, Aurel-Stefan Gontean, Ioana Ionel

Spectroscopic and Physico-Chemical Evaluation of Lentic Ecosystems from Bucharest City
Luminita Ghervase, Cristian Ioja, Elfrida M. Carstea, Dan Savastru, Gabriela Pavelescu, Mihai Nita, Lidia Niculita

SEM Investigations Regarding Bacterial Infections in Cyprinus Carpio
Irina Gostin, Anca Narcisa Neagu, Vasile Vulpe
A Feasibility Study of PV/Thermal Solar System with Multiple Stock Raising Applications
Ioan Luminosu, Laurentiu Fara, Nicolina Pop, Robert Maria

Detuned Filters for Power Factor Correction of Adjustable Speed Drives
Mihai Deliu, Alexandru Hedes, Ioan Sora

Introduction of Automatic Meter Reading Systems in Electro-Distribution Zrenjanin
Lilijana Dukic Petromanjanc, Dumitru Mnerie, Gabriela Mnerie

Analytical Models for Characteristic Curves of Wind Turbines
Mircea Bargazlan, Teodor Milos

Remote Monitoring of Intelligent Buildings Parameters
Nicolae Muresan, Bogdan Orza, Aurel Vlaicu

Considerations Concerning the Effects of Rubberized Asphalt on Decreasing the Phonic Pollution in Urban Environment
Vasile Bacria, Nicolae Herisanu

Influence of Welded Layers Thickness on the Cavitation Erosion Resistance
Doina Frunzaverde, Constantin Viorel Campian, Vasile Cojocaru, Gabriela Marginean, Marian Baran, Relu Ciubotarii

Magnetic Fluid as Cooling and Insulation Medium for High Power Transformers

The Impact of the Mining Activities over the Environment
Laura Golosie, Mircea Golosie

Assessment of Perbadanan Putrajaya Office Ground based on Urban Open Space Design Guideline
Y. C. Yap, I. Ms. Usman, Mm. Tahir, Is. Z. Abidin

Characteristic of Attractive Square as Public Space: Putra Square, Putrajaya
Is. Z. Abidin, I. Ms. Usman, Mm. Tahir, Y. C. Yap

Waterfront as Public Space Case Study; Klang River between Masjid Jamek and Central Market, Kuala Lumpur
S. Shaziman, I. M. S. Usman, Mm. Tahir

Technical Analysis of an Integrated Anaerobic Digester-Solid Oxide Fuel Cell System
Orlando Corigliano, Gaetano Florio, Petronilla Fragiacomo

Redefining Critique Methods as an Assessment Tools in Architecture Design Studio
Nangkula Utaberta, Badiossadat Hassanpour, Ims Usman

Role of High Performance Concrete In Sustainable Construction: A Review on High Performance Concrete Mix Design Expert System
M. Jamil, M. F. M. Zain, I. M. S. Usman, M. K. A. M. Sulaiman

Observations on the Improvement of the Blades for Small Horizontal Wind Turbines
Eugen Dobanda

Hydroelectric Components Modeling and Simulation
Mircea Grigoriu, Nikos Mastorakis, Jean-Octavian Popescu
Photovoltaic Sources Efficiency Evaluation in Urban Ecosystems Conditions
Mircea Grigoriu, Liliana Preda, Dinu Doina Cornelia

Monitoring Parameters of Environmental Safety and Quality in Brownfields Sites in Romania
Nan Marin Silviu, Dunca Emilia, Stegaru Parvu Dana, Parvu Anisor, Grigorie Petre

The Landscape from the Sacred Garden to the Urban Landform
Ioan Andreescu, Vlad Gaivoronschi

Experimental Research on Electromagnetic Disturbance Level in a Thermoelectric Power Station
Ioan Felea, Calin Secui, Emil Goia, Dan Florin

Thermoplastics Extrusion Die with Ultrasonic Thermo-Pellicular Effect
Daniel Stan, Iancu Serban, Liliana Tulcan, Cristian Turc, Aurel Tulcan

Competence in Engineering, between Enabling and Practice
Catalin Daniel Galatanu

Modelling of a Carbon Capture and Storage System for the Latvian Electricity Sector
Julija Gusca, Irina Naroznova, Dagnija Blumberga, Anna Volkova

Data Acquisition System for a Vertical Axis Wind Turbine Prototype
C. Koch-Ciobotaru

The Influence of Wind Speed Variation on Maximum Power of a Wind Turbine System
O. Gana, M. Babescu, R. Boraci, M. Greconici

Single-Phase Two Stator Windings Induction and Permanent Magnet Synchronous Generators
N. Budisan, O. Prostean, R. Boraci, C. Koch-Ciobotaru

The University Development Planning from the Aspects of Accessibility and Circulation: A Comparative Study of Four Malaysian Universities

Study of Pollution Processes in the Area Adjacent Ash Heap Utvin
Mihaela Violeta Bakos

Electric Power Quality Monitoring and Analysis at a Tri-Generation Plant under Development
Ioana Pisica, Laurentiu Constantin Lipan, Petru Postolache, Cornel Toader, Gheorghe Comanescu, Dan Constantin Dasu

Authors Index
Plenary Lecture 1

Photovoltaic Sources Efficiency Evaluation in Urban Ecosystems Conditions

Professor Mircea Grigoriu
Romanian Cleaner Production Center
University POLITEHNICA Bucharest
313 Spl.Independentei, Bucharest-6
ROMANIA
E-mail: grigoriu@hydrop.pub.ro

Abstract: The paper presents a study of the urban microclimate characteristics on the photovoltaic sources efficiency. Considering the actual interest for the renewable sources application in European Union and in the world, involving important financial efforts, the study continue with an economic component, focused to the bankability of the concrete investments projects. There are considered different photovoltaic equipments, operating in standardized and in field conditions. The conclusions are based on computer simulations and supported by measurements in the laboratory of the Hydraulic, Hydraulic Machineries and Environmental Engineering of the University Politehnica Bucharest. The results offer a clear picture of the real efficiency of photovoltaic equipments exploited in practical situations, and can be applied for a correct evaluation of renewable sources potential evaluation and planning.

Brief Biography of the Speaker:
Mircea Grigoriu is assistant professor of Department of Energy and Environmental Engineering, University POLITEHNICA of Bucharest, Romania, where he is also the coordinator of the Hydraulic Machineries Laboratory and director of the Romanian Cleaner Production Center. His main research interests concern Pumping systems energy efficiency and the energy savings and environmental impact; Pumping systems design, operation, automatics, diagnostics and protection; Climate changes assessment; Management systems. In these fields, he authored or co-authored over 50 scientific papers published in reviewed journals or presented at international conferences. He was minister of Environment counselor, national focal point of the UNFCCC of Romania and now is listed in the Roster of experts of UNFCCC. He is technical counselor of important pumping equipments producers. He is a redactor at the Energetica Journal edited by the National Energy Producers Association (IEA), representing Eurelectric in Romania.