

Conference Program



Catania, Sicily, Italy
November 3-5, 2011

Important Notes:

- (1) You may register at any time during the conference.
- (2) The Invoice of payment can be collected at the registration desk at any time.
- (3) The Certificate of Participation can be collected at the registration desk only after your presentation.
- (4) Session chairmen can ask for a special Certificate at the registration desk after the session
- (5) The duration of a presentation slot is 20 minutes for a regular paper and 45 minutes for a plenary speech, including questions.
- (6) All authors should give their biographies to the chairmen before the beginning of the session.
- (7) Authors can upload their presentations to the available computers 10 minutes before the beginning of their session.

**13th WSEAS International Conference on Mathematical and
Computational Methods in Science and Engineering
(MACMESE '11)**

**10th WSEAS International Conference on Data Networks,
Communications, Computers (DNCOCO '11)**

**4th WSEAS International Conference on Sensors and Signals
(SENSIG '11)**

**4th WSEAS International Conference on Visualization, Imaging
and Simulation (VIS '11)**

**4th WSEAS International Conference on Materials Science
(MATERIALS '11)**

**4th WSEAS International Conference on Natural Hazards
(NAHA '11)**

**4th WSEAS International Conference on Climate Changes, Global
Warming, Biological Problems
(CGB '11)**

**4th WSEAS International Conference on Urban Rehabilitation and
Sustainability (URES '11)**

*Catania, Sicily, Italy
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Dear colleague,

The WSEAS staff welcome you to another prestigious event.

Since 1996, the World Scientific and Engineering Academy and Society has proudly organized a vast number of successful conferences and published the work of hundreds of scientists from all over the world. We would like to express our sincere gratitude to you for helping us continue our mission by honoring us with your presence in this conference.

WSEAS publications have succeeded in joining most important International Scientific Indexes and Libraries. Thanks to our latest efforts of adopting strict deadlines and a more rigorous review process, the quality of our proceedings and journals is continuing to rise exponentially.

We trust that you will enjoy discussing the latest scientific developments with your peers during these three days, and that you will find your stay as pleasant as possible.

The WSEAS Team

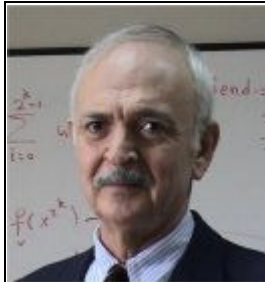
Thursday November 3rd 2011

Registration: 08:00-08:45

Conference Room: A

Time: 08:45-09:30

Keynote Lecture



Nonlinear Explicit Ordinary Differential Equations: Are They Really Nonlinear?

by Prof. Metin Demiralp, Istanbul Technical University, TURKEY.

Conference Room: A

Time: 09:30-10:15

Plenary Lecture 1



Using Information Technology to Support Knowledge Conversion Process

by Prof. Angela Repanovici, Transilvania University of Brasov, ROMANIA.

Coffee Break: 10:15-10:45

Thursday November 3rd 2011

Conference Room: A

Time: 10:45-11:30

Plenary Lecture 2



Steps in the Development of a New Skates System - Modelling, Simulation and Prototyping

by Assoc. Prof. Mihaela Iliescu, "POLITEHNICA" University of Bucharest, ROMANIA.

Conference Room: A

Time: 11:30-14:00

DNCOCO Session: Data Networks and Computers

Chair: Vojtech Ondryhal, Hussein Al-Zoubi

Detecting the Trend Component for Selected Network Parameters	Antonin Mazalek, Vojtech Ondryhal, Vaclav Platenka, Zuzana Vranova	672-932
A Simple Automatic Classifier of PSK and FSK Signals Using Characteristic Cyclic Spectrum	Antonin Mazalek, Zuzana Vranova, Vojtech Ondryhal, Vaclav Platenka	689-121
An Expert-Assistance System in the Cataract Surgery	Klaus Peter Scherer, Helmut Guth, Dominik Muller, Constantin Rieder	672-132
A Simple and Efficient Traffic Light Preemption by Emergency Vehicles Using Cellular Phone Wireless Control	Hussein R. Al-Zoubi, Balqees A. Mohammad, Sahar Z. Shatnawi, Alaa I. Kalaf	672-174
Using Neural Networks for Marketing Research Data Classification	Jiri Stastny, Pavel Turcinek, Arnost Motycka	672-196
Providing Load Balancing and Fault Tolerance in the OSGi Service Platform	Arne Koschel, Thole Schneider, Johannes Westhuis, Jurgen Westerkamp, Irina Astrova, Roman Roelofsen	689-111
Performance Analysis of Secured VoIP Local Area Network	Savitri Bevinakoppa, Ravish Goyal	672-184

Thursday November 3rd 2011

Conference Room: B

Time: 11:30-14:00

MACMESE Session: Computational Methods in Science

Chair: Metin Demiralp, Roman Prokop

Preparing of Fire in the Perspective Automated Artillery Fire Support Control System	Martin Blaha, Josef Vondrak, Ladislav Potuzak	664-203
Building an Optimal Portfolio Using a Mean-VaR Framework	Florentin Serban, Maria Viorica Stefanescu, Silvia Dedu	672-150
Autotuning of Anisochronic Controllers for Delay Systems	Roman Prokop, Libor Pekar, Radek Matusu, Jiri Korbel	672-185
Rational Approximations for Time-Delay Systems: Case Studies	Libor Pekar, Eva Kureckova	672-186
Methods for Prediction of Heat Distribution Parameters	Vasek L., Dolinay V., Kral E.	672-815
A New Adaptive E-Learning Model Based on Learner's Styles	Hazem M. El-Bakry, Ahmed A. Saleh, Taghreed T. Asfour, Nikos Mastorakis	689-122
Functor and Natural Operators on Symplectic Manifolds	Constantin Patrascoiu	672-172
Computer Simulation of Fluorescence Spectra for Molecular Ring: Exciton Dynamics	David Zapletal, Pavel Herman	672-178
The ROI Defect Statistical Analysis of Substantia Nigra to Reproducibility of Designed Experimental Algorithm for Potential Parkinson's Disease Diagnosis	Jiri Blahuta, Tomas Soukup, Petr Cermak, David Novak	672-198

Break: 14:00-14:30

Conference Room: A Time: 14:30-17:00

MATERIALS Session: Advances In Polymer Science

Chair: Berenika Hausnerova, Dagmar Merinska

Poly(vinyl Alcohol)-Poly(vinyl Pyrrolidone) Blends: Preparation and Characterization for a Prospective Medical Application	Andres Bernal, Ivo Kuritka, Petr Saha	689-114
Phase Separation of Highly Filled Powder/Polymer Compounds	Berenika Hausnerova, Petr Filip, Lukas Jiranek, Petr Saha	672-197
The Influence of Plasticizers on Mechanical and Optical Properties of Recycled Polyvinyl Butyral	D. Pistek, D. Merinska. M. Tupy	672-623
Polystyrene (Nano)Composites with Possible Antibacterial Effect	Merinska D., Dujkova Z.	672-901
Behaviour of the Sustainable Fiber Reinforced Concrete with Recycled Aggregate After Loading	Vladimira Vytlačilova	672-621
Polystyrene/Clay Nanocomposites with Compatibilizers	Zuzana Dujkova, Lucie Smetakova, Dagmar Merinska, Miroslav Slouf	672-918
The Influence of ZnO Content on Optoelectronic Properties of Films from MEH-PPV/ZnO Composite	Pavel Urbanek, Ivo Kuritka, Petr Krcmar	672-961

Thursday November 3rd 2011

Conference Room: B

Time: 15:00-17:00

VIS Session: Modelling and Simulation

Chair: Eva Miklovicova, Mihaela Iliescu

Model Predictive Control over Unreliable Communication Links	Eva Miklovicova, Marian Mrosko	672-166
Real-time Model Predictive Control	Marian Mrosko, Eva Miklovicova	672-165
Steps in the Development of a New Skates System – Modeling, Simulation and Prototyping	Mihaela Iliescu	672-180
Study on Laser Micro-Drilling Process	Mihaela Iliescu, Teodor Necsoiu, Marian Lazar	672-181
Measurement of the Wheel-rail Relative Displacement for the Active Wheelsets Steering System Using the Image Processing Algorithm	Min-Soo Kim	672-193
Towards Automation Of Low Standardized Logistic Processes by use of Cyber Physical Robotic Systems (CPRS)	Bernd Scholz-Reiter, Moritz Rohde, Stefan Kunaschk, Michael Lutjen	672-611

Coffee Break: 17:00-17:30

Friday November 4th 2011

Conference Room: A

Time: 09:00-09:45

Plenary Lecture 3



Idempotent Algebra Solutions for Some Minimax Location Problems

by Assoc. Prof. Nikolai Krivulin, St. Petersburg State University, RUSSIA.

Conference Room: A

Time: 09:45-10:30

Plenary Lecture 4



**On Some Wireless Mesh Networks Issues:
Architecture, Routing, Applications, Quality of Service**

by Professor Zoran Bojkovic, University of Belgrade, SERBIA.

Coffee Break: 10:30-11:00

Friday November 4th 2011

Conference Room: A

Time: 11:00-13:30

CGB-NAHA-URES Session: Recent Researches in Environmental Science

Chair: Shafiga Topchiyeva, Frantisek Bozek

Spiders of Azerbaijan as Bioindicators	Topchiyeva Sh. A., Mehrabova M. A., Nabiyeva Kh. A., Hasanov N. H., Huseynov N. I.	672-103
The Effect of Environmental Pollution Factors on Macroinvertebrates: Obtuse Venom	Topchiyeva Sh. A., Abiyev H. A., Mehrabova M. A.	672-105
Homo Environmentalis: New Risks Faced by the Civilization	Lubos Smrcka	672-900
Sources for Emergency Water Supply I - Hazard Identification	Frantisek Bozek, Jiri Dvorak, Milan Caslavsky	672-128
Software Products for Risk Assessment	Jozef Ristvej, Tomas Lovecek	672-182
The Influence of Indoor Temperature on the Difference Between Actual and Theoretical Energy Consumption for Space Heating	Amaryllis Audenaert, Katleen Briffaerts, Dries De Boeck	672-145
Development of SEVESO Directive and Its Implementation in the Slovak Republic in the Area of Prevention Major Industrial Accidents	Katarina Zanicka Holla	672-175
Community Development and Social Participation	Gioacchino Lavanco, Carola Messina, Elisabetta Di Giovanni	672-199

Friday November 4th 2011

Conference Room: B

Time: 11:00-13:30

SENSIG Session: Sensors and Signals

Chair: Vladimir Vasek, Josef Kellner

Simple Sensor Network Utilizing Power Supply Wires for Data Transfer	Vasek V., Dolinay J., Dostalek P.	672-187
Passive Coherent Location	Martin Kaczur	672-189
Application of Portable Continuous Aerosol Concentrator	Zbynek Vecera, Pavel Mikuska, Josef Kellner, Josef Navratil, Alena Langerova	672-201
The method of Positioning Source of Radio Signal Doppler Difference - Analytical Solution and Analysis of Method	Marketa Pacalova	672-603
Effect of Functionalized Nanotubes with HNO ₃ on Electrical Sensory Properties of Carbon Nanotubes/Polyurethane Composite under Elongation	Slobodian Petr, Olejnik Robert, Riha Pavel, Saha Petr	672-756
Obtaining and Investigation of Pb _{1-x} MnxTe(Se, S) Semimagnetic Semiconductor Nanolayers Sensitive to Infrared Rays	M. A. Mehrabova, I. R. Nuriyev, R. M. Mamishova, T. I. Kerimova	672-790
The Problem of GWN	Niola V., Avagliano V., Quaremba G.	672-893
On Low Resolution Ultrasonic Image Processing for Target Recognition Purposes	Dorel Aiordachioaie, Marius Mazarel, Claudiu Chiculita, Razvan Solea, Silviu Epure, Laurentiu Frangu	672-949

Break: 13:30-14:00

Friday November 4th 2011

Conference Room: A

Time: 14:00-16:30

VIS Session: Image Processing and Multimedia

Chair: Ales Prochazka, Zoran Bojkovic

Image Data Integration for Integrity Detection in Database Systems for M-Learning Applications	Mihai Doinea, Paul Pocatilu, Cristian Ciurea	672-856
Video Segmentation Algorithm Based on Modified Mumford-Shah Functional	A. Cutolo, V. Tufano	672-202
A Survey of Semantic Multimedia Retrieval Systems	Carmelo Pino, Roberto Di Salvo	672-877
Development of the Evaluation Technology of the Braking Test for High-speed Brake Performance Tester	Min-Soo Kim, Jeong-Guk Kim, Byeong-Choon Goo	672-194
Image and Video Processing on CUDA: State of the Art and Future Directions	Roberto Di Salvo, Carmelo Pino	672-095
Computer Aided Orthodontics Measures Evaluation	A. Prochazka, J. Mares, O. Vysata, M. Kasparova, T. Dostalova	672-167
Orthodontics Objects Segmentation Using Region Growing Method and Space Illumination	M. Yadollahi, A. Prochazka, M. Mudrova, M. Kasparova, T. Dostalova	672-168
Image Processing by Pattern Formation and Clustering in a Set of Coupled Neural Chaotic Oscillators	O. Vysata, A. Prochazka	672-771

Conference Room: B

Time: 14:30-16:30

MACMESE Session: Mathematical Methods in Mechanics

Chair: Angela Repanovici, Barbara Szyszka

Monitoring and Shaping the Thermal Processes of the Detritiation Pilot Plant Using Infrared Thermography	Sorin Gherghinescu	672-141
Using Information Technology to Support Knowledge Conversion Process	Angela Repanovici	672-176
Optimization of Elastic Plastic Circular Plates Made of Von Mises Material	Jaan Lellep, Boriss Vlassov	672-188
An Interval Difference Method for Solving Hyperbolic Partial Differential Equations	Barbara Szyszka	672-797
Lateral Buckling of a Thin-Walled Beam under Combined Load	Ewa Magnucka-Blandzi	672-924

Coffee Break: 16:30-17:00

Conference Banquet: 19:00

Saturday November 5th 2011

Conference Room: A

Time: 09:00-09:45

Plenary Lecture 5



Knowledge Visualization - Approaches and Application

by Prof. Wladimir Bodrow, University of Applied Sciences Berlin, GERMANY.

Conference Room: A

Time: 09:45-10:30

Plenary Lecture 6



Controlling the Structure and Properties of Plastics by Specific Nucleation

by Assoc. Prof. Roman Cermak, Tomas Bata University in Zlin, CZECH REPUBLIC.

Coffee Break: 10:30-11:00

Saturday November 5th 2011

Conference Room: A

Time: 11:00-13:30

MATERIALS Session: Materials Science - Theory and Applications

Chair: Liliana Sandu, Dagmar Merinska

Study the Structural Changes of Titanium Oxide Thin Layers under Heat Process	Haleh Kangarlou, Nikolaos E. Mastorakis, Saeid Rafizadeh	672-099
Microwave Assisted Synthesis of Ag-ZnO Particles and Their Antibacterial Properties	Bazant Pavel, Kuritka Ivo, Machovsky Michal, Sedlacek Tomas, Pastorek Miroslav	672-827
Effect of Mineral Fillers Surface Treatment on Gas Permeability of Filled Vulcanized Rubber Compounds	Betik M., Malac J., Fryzelka V.	672-494
Influence of Chemical Composition on Stainless Steels Mechanical Properties	Bogdan Moisa	672-133
Finite Element Analysis of MOD Prosthetic Restored Premolars	Liliana Sandu, Florin Topala, Sorin Porojan	672-958
Preparation and Characterization of Keratin Hydrolysates	Ondrej Krejci, Pavel Mokrejs, Svatopluk Sukop	672-625
Formation, Characterization and Stability of Nanoemulsions Prepared by Phase Inversion	P. Sevcikova, P. Vltavska, V. Kasparkova, J. Krejci	672-155
Finite Element Analysis of Molars Restored with Complete Cast Crowns	Sorin Porojan, Liliana Sandu, Florin Topala	672-960
Rapid Microwave-Assisted Synthesis of Twinned Hexagonal ZnO Microparticles	Machovsky Michal, Kuritka Ivo, Saha Petr	672-962

Conference Room: B

Time: 11:00-13:30

MACMESE Session: Mathematical Methods in Engineering

Chair: Karel Kolomaznik, Amin Almasri

Mathematical Modeling of Gelatine Production Processes	Karel Kolomaznik, Dagmar Janacova, Jaroslav Solc, Vladimir Vasek	672-770
Finite Element Study of Using Concrete Tie Beams to Reduce Differential Settlement Between Footings	Amin H. Almasri, Ziad N. Taqieddin	672-144
Design Assisted by Testing Applied to the Determination of the Design Resistance of Steel-Concrete Composite Columns	Marcela Karmazinova, Jindrich J. Melcher	689-109
Variations in Flue Gas of Power Plant Heat Exchanger and Their Determination with the Assistance of the Mathematical Model	Pies Martin, Ozana Stepan, Nevriya Pavel	672-125
Robust RHC Method with Adaptive DA Converter Applied to BMI Based Robotic Wheelchair	Tohru Kawabe	672-136
Polynomial Approach to Digital Self-Tuning Control: Industrially Motivated Application	Radek Matusu, Roman Prokop	672-190
Modeling of Printed Circuit Boards Separation by Cutting	Dagmar Janacova, Hana Charvatova, Karel Kolomaznik, Vladimir Vasek, Zdenek Dvorak, Pavel Mokrejs, Rudolf Drga	672-878

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