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# **SYSTEMS THEORY AND SCIENTIFIC COMPUTATION**

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*Proceedings of the 7<sup>th</sup> WSEAS International  
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(ISTASC '07)*

*Vouliagmeni, Athens, Greece,  
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## Preface

The book you are currently holding contains the Proceedings of the 7th WSEAS International Conference on SYSTEMS THEORY and SCIENTIFIC COMPUTATION (ISTASC'07), which was held in Vouliagmeni, Athens, Greece, August 24-26, 2007.

Systems theory and scientific computation deal with problems of all branches of science and engineering (automatic control, robotics, mechatronics, electronics, spaces science, chemistry, applied physics, acoustics, nanotechnology, biomedicine etc.). Differential geometry finite elements, boundary elements, applied optimization, pattern recognition, computational intelligence (neural networks, fuzzy systems, genetic algorithms, etc.) are some of the most important branches of modern systems theory and scientific computation. Many papers from all these branches are published in this Volume.

The Plenary Speeches of ISTASC '07 were:

- *Software Tests for Model Based Applications in the Automotive Industry*  
by Prof. Andrzej Ordys, Kingston University, UK.
- *An Exact Calculation Method of Nonlinear Optimal Controls and Applications in Aerospace Fields*  
by Prof. Fumiaki Imado, Shinshu University, Japan.
- *Semiconductor Devices and their use in Power Electronic Applications*  
by Professor Noel Y. A. Shamma, Staffordshire University, UK.
- *On System Representation Based on a New Concept of Abstract State Space Energy*  
by Prof. Milan Stork, University of West Bohemia, Czech Republic.
- *Applications of the Malliavin Calculus of Bismut type without probability*  
by Prof. Remi Leandre, Universite de Bourgogne, France.
- *Reflective Simulation for On-Line Staff Scheduling: An Innovative Methodology in Distribution Logistics Industry Application*  
by Prof. Ing. Roberto Revetria, Docente di Impianti Industriali e Meccanici, Italy.
- *Numerical Modeling of Staggered Tube Bundle in Duct*  
by Prof. Hassan Shirvani, Anglia Ruskin University, UK.
- *A Mathematical Theory of the Asynchronous Systems*  
by Prof. Serban E. Vlad, Oradea City Hall, Romania.

We would like to thank all members of the organizing laboratories for their contribution to the organization of the conference.

The contents of this Book are also published in the CD-ROM Proceedings of the Conference. Both will be sent to the WSEAS collaborating indices after the conference: [www.worldses.org/indexes](http://www.worldses.org/indexes).

In addition, the papers of this book are permanently available to all the scientific community via the WSEAS E-Library.

Expanded and enhanced versions of papers published in these conference proceedings are also going to be considered for possible publication in one of the WSEAS journals that participate in the major International Scientific Indices (Elsevier, Scopus, EI, Compendex, INSPEC, CSA .... see: [www.worldses.org/indexes](http://www.worldses.org/indexes) ) these papers must be of high-quality (break-through work) and a new round of a very strict review will follow. (No additional fee will be required for the publication of the extended version in a journal).

We cordially thank all the people of WSEAS for their efforts to maintain the high scientific level of conferences, proceedings and journals.

The Editors



**7th WSEAS International Conference on  
SYSTEMS THEORY AND SCIENTIFIC COMPUTATION  
(ISTASC'07)  
TABLE OF CONTENTS**

<b>Reachability, Observability and Minimality for a Class of 2D Continuous-Discrete Systems</b> <i>Valeriu Prepelita, Ionel Tevy</i>	1
<b>On Adaptive Control of an Anaerobic Digestion Bioprocess</b> <i>Emil Petre, Dan Selisteanu, Dorin Sendrescu</i>	7
<b>Weighted Moments Based Identification of Continuous-Time Systems</b> <i>Dorin Sendrescu, Emil Petre, Dan Popescu, Eugen Bobasu</i>	13
<b>On Designing of Flexible Neuro-Fuzzy Systems for Classification</b> <i>Krzysztof Cpalka, Leszek Rutkowski</i>	19
<b>A Method for Determining Stabilizability of a Class of Switched Systems</b> <i>Sallehuddin Mohamed Haris, Mohamad Hanif Md Saad, Eric Rogers</i>	27
<b>Some Aspects of Modeling and Robust Control of a Robotic Manipulator</b> <i>Eugen Bobasu, Dan Popescu, Monica Roman</i>	33
<b>Contribution to Analysis of Conservativity, Dissipativity and System Stability</b> <i>Josef Hrusak, Daniel Mayer, Milan Stork</i>	39
<b>Initial Conditions for Kalman Filtering: Prior Knowledge Specification</b> <i>Evgenia Suzdaleva</i>	45
<b>An Exact Calculation Method of Nonlinear Optimal Controls and Applications in Aerospace Fields</b> <i>Fumiaki Imado</i>	50
<b>Computational Mechanical Modeling of the Behavior of Carbon Nanotubes</b> <i>Maria Morandi Cecchi, Alberto Giovanni Busetto</i>	58
<b>Multi-Time Euler-Lagrange Dynamics</b> <i>Constantin Udriste, Ionel Tevy</i>	66
<b>On-line Parameter Estimation in Sliding-mode Control of Pioneer 3-DX Wheeled Mobile Robot</b> <i>A. Filipescu, A. Stancu, S. Filipescu, G. Stamatescu</i>	72
<b>A Check-Points Extraction Method for Formal Verification</b> <i>Chikatoshi Yamada, Yasunori Nagata</i>	78
<b>Control by Feedback Linearization of the Torque and the Flux of the Induction Motor</b> <i>M. Abdelaziz, K. Ghedjati</i>	84
<b>Model Reference Adaptive Control for Linear Time Varying and Nonlinear Systems using Virtual Linearization</b> <i>M. Abdelaziz, K. Ghedjati</i>	91
<b>Positive Solutions of Urysohn Integral Equations</b> <i>Andrei Horvat-Marc, Cosmin Sabo, Cezar Toader</i>	96

<b>A State-Space Robust Feedforward Controller for Industrial Robotic Manipulators Needless to Computed Torque Control</b>	100
<i>Alireza Izadbakhsh, Mohammadreza Rafiei, Ahmad Darabi</i>	
<b>Mitochondrial Eve Dating based on Computer Simulations of Coalescence Distributions for Stochastic vs. Deterministic Population Models</b>	107
<i>Krzysztof A. Cyran</i>	
<b>Influences of Induction Motor Parameters on Stability in Case of Operation at Variable Frequency</b>	113
<i>Monica Enache, Sorin Enache, Mircea Dobriceanu</i>	
<b>A New Method for Induction Motor Stability Analysis when Supplying at Variable Frequency</b>	117
<i>Sorin Enache, Aurel Campeanu, Ion Vlad, Monica Enache</i>	
<b>Simulation of Quantum Gates on a Novel GPU Architecture</b>	121
<i>Eladio Gutierrez, Sergio Romero, Maria A. Trenas, Emilio L. Zapata</i>	
<b>Application for Testing Control Configurations of Binary Distillation Columns</b>	127
<i>Sanda Mihalache, Marian Popescu</i>	
<b>Inverse Filters for Decomposition of Multi-Exponential and Related Signals</b>	135
<i>Vairis Shtrauss</i>	
<b>Genesis and Catastrophe of the Chaotic Double-Bell Attractor</b>	141
<i>I. N. Stouboulos, I. M. Kyprianidis, M. S. Papadopoulou</i>	
<b>Bidirectional Coupling of two Duffing-type Circuits</b>	147
<i>C. K. Volos, I. M. Kyprianidis, I. N. Stouboulos</i>	
<b>Incorporating Pheromone Courtship Mode into Swarm Intelligence with Convergence Analysis</b>	153
<i>Jiann-Horng Lin, Meei-Ru Lin, Chun-Kai Wang</i>	
<b>Threshold Gate with Hysteresis using Neuron MOS</b>	159
<i>Mototsune Nakahodo, Chikatoshi Yamada, Yasunori Nagata</i>	
<b>Noninvasive Radial Pressure Waveform Estimation by Transfer Functions Using Particle Swarm Optimization</b>	165
<i>Ti-Ho Wang, Chen-Chien Hsu, Po-Chou Chen</i>	
<b>Medical Image Reconstruction using an Exact Formula for Solid Angle of View</b>	171
<i>S. Zimeras</i>	
<b>Modelling and Simulation of Locomotives with Traction Induction Motors and Three Levels Converters</b>	177
<i>Daniel Cristian Cismaru, Doru Adrian Nicola, Gheorghe Manolea, Mirceadrian Drighiciu</i>	
<b>C Software for Some New Autonomous Methods</b>	182
<i>Adrian Ionescu, Olin Johnson</i>	
<b>Intelligent Support to Structural Design Analyses</b>	187
<i>Marina Novak</i>	
<b>Experimental Design and Models of Power System Optimization and Control</b>	191
<i>R. C. Berredo, P. Y. Ekel, L. C. A. Ferreira, M. V. C. Maciel</i>	
<b>Optimizing Selective Decoupling Capacitors by Genetic Algorithm for Multiplayer Power Bus</b>	197
<i>Yun-Hsih Chou, Yang-Han Lee, Ming-Jer Jeng, Liann-Be Chang</i>	
<b>Diophantine Frequency Synthesizer with New Coincidence Mixer</b>	203
<i>Milan Stork, Josef Hrusak, Daniel Mayer</i>	

<b>An Implementation for Stability in Hybrid Systems</b> <i>Lavinia Bejenaru</i>	208
<b>Intelligent Design for X</b> <i>Bojan Dolsak</i>	213
<b>Different Parameters of the Negative Hypergeometric Distribution as a Discriminating Feature for Musical or Composer's Style</b> <i>Zuzana Martinakova-Rendekova</i>	217
<b>Structural Approach to Instability and Chaos in Non-Linear Causal Systems</b> <i>Josef Hrusak, Daniel Mayer, Milan Stork</i>	223
<b>Design and Simulation of a Micromachined Accelerometer</b> <i>Hazem Hassan, Hassan Ibrahim, Salah Elsedawy</i>	229
<b>On the Resultant of Degree-Deficient Polynomials</b> <i>Alexander Lifshitz, Yuval Bistriz</i>	236
<b>Identification of Dynamic Non-Linear Models of Aircrafts with Big Incidence Angles</b> <i>Romulus Lungu, Mihai Lungu, Nicolae Jula, Costin Cepisca</i>	241
<b>Distribution Networks Load Forecasting Using Improved Clustering Method with Particular Software</b> <i>Hossein Najafi, Shahram Javadi, Zolfeghar Asherloo</i>	247
<b>Saddle Point Formulation of the Quasistatic Contact Problems with Friction</b> <i>Nicolae Pop</i>	252
<b>An Ant-based Technique for the Dynamic Generalized Traveling Salesman Problem</b> <i>Camelia M. Pinte, Petrica C. Pop, D. Dumitrescu</i>	257
<b>Parallel Sorting on ILLIAC Array Processor</b> <i>Masumeh Damrudi, Kamal Jadidy Aval</i>	262
<b>Induction Motor Drive using Fuzzy Logic</b> <i>Shahram Javadi</i>	266
<b>Tolerance Analysis in MOSFET Analog Integrated Circuits</b> <i>F. Vallette, G. Vasilescu, S. Feruglio, P. Garda</i>	274
<b>Controllability Matrix of Second Order Generalized Linear Systems</b> <i>M. I. Garcia-Planas</i>	278
<b>Observability Indices and Segre Characteristic for Multi-Input Standardizable Singular Systems</b> <i>M. I. Garcia-Planas, A. Diaz</i>	282
<b>Structural Stability of Polynomial Matrices Related to Linear Time-Invariant Singular Systems</b> <i>M. I. Garcia-Planas, M. D. Magret</i>	287
<b>Waveguide Method for Measuring Dielectric Constant of Asphalt Concrete at 2.45GHz</b> <i>Gaoyuan-Ci, Xie Kuo-Jun, Bao Jing-Fu</i>	293
<b>An Environment for Simulating Multi-Agents Based on Ants Behavior</b> <i>Mohamed Hamada</i>	296
<b>Computer-Aided Multi-Optimization through Genetic Algorithms for Funding Allocation</b> <i>Antonio Carlos Pinto Dias Alves</i>	302

<b>Investigating on the Possible Radial Structures of a Real Medium Voltage Distribution System</b> <i>Horia Andrei, Gianfranco Chicco, Nicolae Coroiu, Mircea Popa, Marius Silaghi</i>	308
<b>Two-Dimensional Simulation of Air Pollution Distribution over an Urban Canyon</b> <i>Saeed-Reza Sabbagh-Yazdi, Abbas Hadian, Nikos E. Mastorakis</i>	312

## Authors Index ISTASC 2007

Abdelaziz, M.	84, 91	Fumiaki, I.	50	Pintea, C. M.	257
Alireza, I.	100	Gaoyuan-Ci	293	Pinto Dias Alves, A. C.	302
Andrei, H.	308	Garcia-Planas, M. I.	278, 282, 287	Pop, P. C.	257
Andrei, H. M.	96	Garda, P.	274	Popa, M.	308
Asherloo, Z.	247	Ghedjati, K.	84, 91	Popescu, D.	13, 33
Aval, K. J.	262	Gheorghe, M.	177	Popescu, M.	127
Bao, J.-F.	293	Gutierrez, E.	121	Prepelita, V.	1
Bejenaru, L.	208	Hadian, A.	312	Rafiei, M.	100
Berredo, R. C.	191	Hamada, M.	296	Rogers, E.	27
Bistriz, Y.	236	Hanif Md Saad, M.	27	Roman, M.	33
Bobasu, E.	13, 33	Hazem, H.	229	Romero, S.	121
Busetto, A. G.	58	Hrusak, J.	39, 203, 223	Rutkowski, L.	19
Campeanu, A.	117	Hsu, C.-C.	165	Sabbagh-Yazdi, S.-R.	312
Cepisca, C.	241	Ibrahim, H.	229	Sabo, C.	96
Chang, L.-B.	197	Ionescu, A.	182	Sallehuddin, M. H.	27
Chen, P.-C.	165	Javadi, S.	247, 266	Selisteanu, D.	7
Chicco, G.	308	Jeng, M.-J.	197	Sendrescu, D.	7, 13
Chikatoshi, Y.	78, 159	Johnson, O.	182	Shtrauss, V.	135
Chou, Y.-H.	197	Kyprianidis, I. M.	141, 147	Silaghi, M.	308
Cismaru, D. C.	177	Lee, Y.-H.	197	Stamatescu, G.	72
Coroiu, N.	308	Lifshitz, A.	236	Stancu, A.	72
Cpalka, K.	19	Lin, J.-H.	153	Stork, M.	39, 203, 223
Cyran, K. A.	107	Lin, M.-R.	153	Stouboulos, I. N.	141, 147
Damrudi, M.	262	Lungu, M.	241	Suzdaleva, E.	45
Darabi, A.	100	Lungu, R.	241	Tevy, I.	1, 66
Diaz, A.	282	Maciel, M. V. C.	191	Toader, C.	96
Dobriceanu, M.	113	Magret, M. D.	287	Trenas, M. A.	121
Dolsak, B.	213	Martinakova-Rendekova, Z.	217	Udriste, C.	66
Doru, A. N.	177	Mastorakis, N. E.	312	Vallette, F.	274
Drighiciu, M.	177	Mayer, D.	39, 203, 223	Vasilescu, G.	274
Dumitrescu, D.	257	Mihalache, S.	127	Vlad, I.	117
Ekel, P. Y.	191	Morandi Cecchi, M.	58	Volos, C. K.	147
Elsedawy, S.	229	Najafi, H.	247	Wang, C.-K.	153
Enache, M.	113, 117	Nakahodo, M.	159	Wang, T.-H.	165
Enache, S.	113, 117	Nicolae, J.	241	Xie, K.-J.	293
Ferreira, L. C. A.	191	Nicolae, P.	252	Yasunori, N.	78, 159
Feruglio, S.	274	Novak, M.	187	Zapata, E. L.	121
Filipescu, A.	72	Papadopoulou, M. S.	141	Zimeras, S.	171
Filipescu, S.	72	Petre, E.	7, 13		