

# Table of Contents – Part I

## Keynote Lectures

Intrinsic Limitations in Context Modelling . . . . .	3
<i>Maria E. Orłowska</i>	
EU Research in Software and Services: Activities and Priorities in FP7 . . . . .	5
<i>Jesús Villasante</i>	
Computational Materials Science at the Cutting Edge . . . . .	6
<i>Stefan Blügel</i>	
Multiple Criteria Mathematical Programming and Data Mining . . . . .	7
<i>Yong Shi, Rong Liu, Nian Yan, and Zhenxing Chen</i>	
HPC Opportunities and Challenges in e-Science . . . . .	18
<i>Fabrizio Gagliardi</i>	
Integrated Data and Task Management for Scientific Applications . . . . .	20
<i>Jarek Nieplocha, Sriram Krishamoorthy, Marat Valiev, Manoj Krishnan, Bruce Palmer, and P. Sadayappan</i>	
Why Petascale Visualization and Analysis Will Change the Rules . . . . .	32
<i>Hank Childs</i>	
Computational Modeling of Collective Human Behavior: The Example of Financial Markets . . . . .	33
<i>Andy Kirou, Błażej Ruszczycki, Markus Walser, and Neil F. Johnson</i>	
Intel’s Technology Vision and Products for HPC . . . . .	42
<i>Paweł Gepner</i>	

## e-Science Applications and Systems

Grid-Supported Simulation of Vapour-Liquid Equilibria with GridSFEA . . . . .	45
<i>I.L. Muntean, E. Elts, M. Buchholz, and H.-J. Bungartz</i>	
Towards a System-Level Science Support . . . . .	56
<i>Tomasz Gubata, Marek Kasztelnik, Maciej Malawski, and Marian Bubak</i>	

Incorporating Local $\text{Ca}^{2+}$ Dynamics into Single Cell Ventricular Models . . . . .	66
<i>Anna Sher, David Abramson, Colin Enticott, Slavisa Garic, David Gavaghan, Denis Noble, Penelope Noble, and Tom Peachey</i>	
Grid-Enabled Non-Invasive Blood Glucose Measurement . . . . .	76
<i>Ibrahim Elsayed, Jianguo Han, Ting Liu, Alexander Wöhrer, Fakhri Alam Khan, and Peter Brezany</i>	
Simulating N-Body Systems on the Grid Using Dedicated Hardware . . . . .	86
<i>Derek Groen, Simon Portegies Zwart, Steve McMillan, and Jun Makino</i>	
Supporting Security-Oriented, Collaborative nanoCMOS Electronics Research . . . . .	96
<i>Richard O. Sinnott, Thomas Doherty, David Martin, Campbell Millar, Gordon Stewart, and John Watt</i>	
Comparing Grid Computing Solutions for Reverse-Engineering Gene Regulatory Networks . . . . .	106
<i>Martin Swain, Johannes J. Mandel, and Werner Dubitzky</i>	
Interactive In-Job Workflows . . . . .	116
<i>Branislav Šimo, Ondrej Habala, Emil Gatjal, and Ladislav Hluchý</i>	
Pattern Based Composition of Web Services for Symbolic Computations . . . . .	126
<i>Alexandru Cârstea, Georgiana Macariu, Dana Petcu, and Alexander Konovalov</i>	
DObjects: Enabling Distributed Data Services for Metacomputing Platforms . . . . .	136
<i>Pawel Jurczyk, Li Xiong, and Vaidy Sunderam</i>	
Behavioural Skeletons Meeting Services . . . . .	146
<i>M. Danelutto and G. Zoppi</i>	
Functional Meta-programming for Parallel Skeletons . . . . .	154
<i>Jocelyn Serot and Joel Falcou</i>	
Interoperable and Transparent Dynamic Deployment of Web Services for Service Oriented Grids . . . . .	164
<i>Michael Messig and Andrzej Goscinski</i>	
Pollarder: An Architecture Concept for Self-adapting Parallel Applications in Computational Science . . . . .	174
<i>Andreas Schäfer and Dietmar Fey</i>	
The Design and Evaluation of MPI-Style Web Services . . . . .	184
<i>Ian Cooper and Yan Huang</i>	

Automatic Data Reuse in Grid Workflow Composition . . . . .	194
<i>Ondrej Habala, Branislav Simo, Emil Gatial, and Ladislav Hluchy</i>	
Performance Analysis of GRID Middleware Using Process Mining . . . . .	203
<i>Anastas Misev and Emanouil Atanassov</i>	

## Scheduling and Load Balancing

Bi-criteria Pipeline Mappings for Parallel Image Processing . . . . .	215
<i>Anne Benoit, Harald Kosch, Veronika Rehn-Sonigo, and Yves Robert</i>	
A Simulation Framework for Studying Economic Resource Management in Grids . . . . .	226
<i>Kurt Vanmechelen, Wim Depoorter, and Jan Broeckhove</i>	
Improving Metaheuristics for Mapping Independent Tasks into Heterogeneous Memory-Constrained Systems . . . . .	236
<i>Javier Cuenca and Domingo Giménez</i>	
A <sup>2</sup> DLT: Divisible Load Balancing Model for Scheduling Communication-Intensive Grid Applications . . . . .	246
<i>M. Othman, M. Abdullah, H. Ibrahim, and S. Subramaniam</i>	
Evaluation of Eligible Jobs Maximization Algorithm for DAG Scheduling in Grids . . . . .	254
<i>Tomasz Szepieniec and Marian Bubak</i>	
Parallel Path-Relinking Method for the Flow Shop Scheduling Problem . . . . .	264
<i>Wojciech Bożejko and Mieczysław Wodecki</i>	
A Fast and Efficient Algorithm for Topology-Aware Coallocation . . . . .	274
<i>Valentin Kravtsov, Martin Swain, Uri Dubin, Werner Dubitzky, and Assaf Schuster</i>	

## Software Services and Tools

View-OS: A New Unifying Approach Against the Global View Assumption . . . . .	287
<i>Ludovico Gardenghi, Michael Goldweber, and Renzo Davoli</i>	
Evaluating Sparse Data Storage Techniques for MPI Groups and Communicators . . . . .	297
<i>Mohamad Chaarawi and Edgar Gabriel</i>	
Method of Adaptive Quality Control in Service Oriented Architectures . . . . .	307
<i>Tomasz Szydło and Krzysztof Zielinski</i>	

Ontology Supported Selection of Versions for N-Version Programming in Semantic Web Services .....	317
<i>Paweł L. Kaczmarek</i>	
Hybrid Index for Metric Space Databases .....	327
<i>Mauricio Marin, Veronica Gil-Costa, and Roberto Uribe</i>	
Structural Testing for Semaphore-Based Multithread Programs .....	337
<i>Felipe S. Sarmanho, Paulo S.L. Souza, Simone R.S. Souza, and Adenildo S. Simão</i>	
Algorithms of Basic Communication Operation on the Biswapped Network .....	347
<i>Wenhong Wei and Wenjun Xiao</i>	
Rule Engine Based Lightweight Framework for Adaptive and Autonomic Computing .....	355
<i>Jakub Adamczyk, Rafał Chojnacki, Marcin Jarząb, and Krzysztof Zieliński</i>	
A Monitoring Module for a Streaming Server Transmission Architecture .....	365
<i>Sadick Jorge Nahuz, Mario Meireles Teixeira, and Zair Abdelouahab</i>	
BSP Functional Programming: Examples of a Cost Based Methodology .....	375
<i>Frédéric Gava</i>	
On the Modeling Timing Behavior of the System with UML(VR) .....	386
<i>Leszek Kotulski and Dariusz Dymek</i>	
Reducing False Alarm Rate in Anomaly Detection with Layered Filtering .....	396
<i>Rafał Pokrywka</i>	

## **New Hardware and Its Applications**

Performance of Multicore Systems on Parallel Data Clustering with Deterministic Annealing .....	407
<i>Xiaohong Qiu, Geoffrey C. Fox, Huapeng Yuan, Seung-Hee Bae, George Chrysanthakopoulos, and Henrik Frystyk Nielsen</i>	
Second Generation Quad-Core Intel Xeon Processors Bring 45 nm Technology and a New Level of Performance to HPC Applications .....	417
<i>Paweł Gepner, David L. Fraser, and Michał F. Kowalik</i>	
Heuristics Core Mapping in On-Chip Networks for Parallel Stream-Based Applications .....	427
<i>Piotr Dziurżanski and Tomasz Maka</i>	

Max-Min-Fair Best Effort Flow Control in Network-on-Chip Architectures . . . . .	436
<i>Fahimeh Jafari, Mohammad H. Yaghmaee, Mohammad S. Talebi, and Ahmad Khonsari</i>	
Fast Quadruple Precision Arithmetic Library on Parallel Computer SR11000/J2 . . . . .	446
<i>Takahiro Nagai, Hitoshi Yoshida, Hisayasu Kuroda, and Yasumasa Kanada</i>	
Characterizing the Basic Synchronization and Communication Operations in Dual Cell-Based Blades . . . . .	456
<i>José L. Abellán, Juan Fernández, and Manuel E. Acacio</i>	
Performance Evaluation of the NVIDIA GeForce 8800 GTX GPU for Machine Learning . . . . .	466
<i>Ahmed El Zein, Eric McCreath, Alistair Rendell, and Alex Smola</i>	
Hardware Implementation Aspects of New Low Complexity Image Coding Algorithm for Wireless Capsule Endoscopy . . . . .	476
<i>Paweł Turcza, Tomasz Zieliński, and Mariusz Duplaga</i>	

## Computer Networks

Database Prebuffering as a Way to Create a Mobile Control and Information System with Better Response Time . . . . .	489
<i>Ondrej Krejcar and Jindrich Cernohorsky</i>	
Network Traffic Classification by Common Subsequence Finding . . . . .	499
<i>Krzysztof Fabjański and Tomasz Kruk</i>	
A Hierarchical Leader Election Protocol for Mobile Ad Hoc Networks . . . . .	509
<i>Orhan Dagdeviren and Kayhan Erciyes</i>	
Distributed Algorithms to Form Cluster Based Spanning Trees in Wireless Sensor Networks . . . . .	519
<i>Kayhan Erciyes, Deniz Ozsoyeller, and Orhan Dagdeviren</i>	
The Effect of Network Topology and Channel Labels on the Performance of Label-Based Routing Algorithms . . . . .	529
<i>Reza Moraveji, Hamid Sarbazi-Azad, and Arash Tavakkol</i>	
On the Probability of Facing Fault Patterns: A Performance and Comparison Measure of Network Fault-Tolerance . . . . .	539
<i>Farshad Safaei, Ahmad Khonsari, and Reza Moraveji</i>	
Cost-Minimizing Algorithm for Replica Allocation and Topology Assignment Problem in WAN . . . . .	549
<i>Marcin Markowski and Andrzej Kasprzak</i>	

Bluetooth ACL Packet Selection Via Maximizing the Expected Throughput Efficiency of ARQ Protocol . . . . .	559
<i>Xiang Li, Man-Tian Li, Zhen-Guo Gao, and Li-Ning Sun</i>	

## Simulation of Complex Systems

High Performance Computer Simulations of Cardiac Electrical Function Based on High Resolution MRI Datasets . . . . .	571
<i>Michał Plotkowiak, Blanca Rodriguez, Gernot Plank, Jürgen E. Schneider, David Gavaghan, Peter Kohl, and Vicente Grau</i>	
Statistical Modeling of Plume Exhausted from Herschel Small Nozzle with Baffle . . . . .	581
<i>Gennady Markelov and Juergen Kroeker</i>	
An Individual-Based Model of Influenza in Nosocomial Environments . . .	590
<i>Boon Som Ong, Mark Chen, Vernon Lee, and Joc Cing Tay</i>	
Modeling Incompressible Fluids by Means of the SPH Method: Surface Tension and Viscosity . . . . .	600
<i>Paweł Wróblewski, Krzysztof Boryczko, and Mariusz Kopeć</i>	
Optimal Experimental Design in the Modelling of Pattern Formation . . .	610
<i>Adrián López García de Lomana, Àlex Gómez-Garrido, David Sportouch, and Jordi Villà-Freixa</i>	
Self-Organised Criticality as a Function of Connections' Number in the Model of the Rat Somatosensory Cortex . . . . .	620
<i>Grzegorz M. Wojcik and Wiesław A. Kaminski</i>	
Approximate Clustering of Noisy Biomedical Data . . . . .	630
<i>Krzysztof Boryczko and Marcin Kurdziel</i>	
Domain Decomposition Techniques for Parallel Generation of Tetrahedral Meshes . . . . .	641
<i>Barbara Głut and Tomasz Jurczyk</i>	
The Complete Flux Scheme for Spherically Symmetric Conservation Laws . . . . .	651
<i>J.H.M. ten Thije Boonkkamp and M.J.H. Anthonissen</i>	
Computer Simulation of the Anisotropy of Fluorescence in Ring Molecular Systems: Tangential vs. Radial Dipole Arrangement . . . . .	661
<i>Pavel Heřman, Ivan Barvík, and David Zapletal</i>	
Functional Availability Analysis of Discrete Transport System Realized by SSF Simulator . . . . .	671
<i>Tomasz Walkowiak and Jacek Mazurkiewicz</i>	

Parallel Implementation of Vascular Network Modeling . . . . .	679
<i>Krzysztof Jurczuk and Marek Krętownski</i>	
Some Remarks about Modelling of Annular Three-Layered Plate Structure . . . . .	689
<i>Dorota Pawlus</i>	
Parallel Quantum Computer Simulation on the CUDA Architecture . . . .	700
<i>Eladio Gutierrez, Sergio Romero, Maria A. Trenas, and Emilio L. Zapata</i>	
Comparison of Numerical Models of Impact Force for Simulation of Earthquake-Induced Structural Pounding . . . . .	710
<i>Robert Jankowski</i>	

## Image Processing and Visualisation

Large-Scale Image Deblurring in Java . . . . .	721
<i>Piotr Wendykier and James G. Nagy</i>	
A New Signature-Based Indexing Scheme for Trajectories of Moving Objects on Spatial Networks . . . . .	731
<i>Jaewoo Chang, Jungho Um, and Youngjin Kim</i>	
Effective Emission Tomography Image Reconstruction Algorithms for SPECT Data . . . . .	741
<i>J. Ramírez, J.M. Górriz, M. Gómez-Río, A. Romero, R. Chaves, A. Lassl, A. Rodríguez, C.G. Puntonet, F. Theis, and E. Lang</i>	
New Sky Pattern Recognition Algorithm . . . . .	749
<i>Wojciech Makowiecki and Witold Alda</i>	
A Generic Context Information System for Intelligent Vision Applications . . . . .	759
<i>Luo Sun, Peng Dai, Linmi Tao, and Guangyou Xu</i>	
Automated Positioning of Overlapping Eye Fundus Images . . . . .	770
<i>Povilas Treigys, Gintautas Dzemyda, and Valerijus Barzdziukas</i>	
Acceleration of High Dynamic Range Imaging Pipeline Based on Multi-threading and SIMD Technologies . . . . .	780
<i>Radosław Mantiuk and Dawid Pajk</i>	
Monte Carlo Based Algorithm for Fast Preliminary Video Analysis . . . . .	790
<i>Krzysztof Okarma and Piotr Lech</i>	
Interactive Learning of Data Structures and Algorithmic Schemes . . . . .	800
<i>Clara Segura, Isabel Pita, Rafael del Vado Várseda, Ana Isabel Saiz, and Pablo Soler</i>	

## Optimization Techniques

Prediction and Analysis of Weaning Results of Ventilator-Dependent Patients with an Artificial Neuromolecular System . . . . .	813
<i>Jong-Chen Chen, Shou-Wei Chien, and Jinchyr Hsu</i>	
Licence Plate Character Recognition Using Artificial Immune Technique . . . . .	823
<i>Rentian Huang, Hissam Tawfik, and Atulya Nagar</i>	
Integration of Ab Initio Nuclear Physics Calculations with Optimization Techniques . . . . .	833
<i>Masha Sosonkina, Anurag Sharda, Alina Negoita, and James P. Vary</i>	
Non-uniform Distributions of Quantum Particles in Multi-swarm Optimization for Dynamic Tasks . . . . .	843
<i>Krzysztof Trojanowski</i>	
An Integer Linear Programming for Container Stowage Problem . . . . .	853
<i>Feng Li, Chunhua Tian, Rongzeng Cao, and Wei Ding</i>	
Using Padding to Optimize Locality in Scientific Applications . . . . .	863
<i>E. Herruzo, O. Plata, and E.L. Zapata</i>	
Improving the Performance of Graph Coloring Algorithms through Backtracking . . . . .	873
<i>Sanjukta Bhowmick and Paul D. Hovland</i>	
Automatic Identification of Fuzzy Models with Modified Gustafson-Kessel Clustering and Least Squares Optimization Methods . . . . .	883
<i>Grzegorz Glowaty</i>	
Extending the Four Russian Algorithm to Compute the Edit Script in Linear Space . . . . .	893
<i>Vamsi Kundeti and Sanguthevar Rajasekaran</i>	
Accuracy of Baseline and Complex Methods Applied to Morphosyntactic Tagging of Polish . . . . .	903
<i>Marcin Kuta, Michał Wrzeszcz, Paweł Chrzęszcz, and Jacek Kitowski</i>	
Synonymous Chinese Transliterations Retrieval from World Wide Web by Using Association Words . . . . .	913
<i>Chung-Chian Hsu and Chien-Hsing Chen</i>	

## Numerical Linear Algebra

Parallel Approximate Finite Element Inverses on Symmetric Multiprocessor Systems . . . . .	925
<i>Konstantinos M. Giannoutakis and George A. Gravvanis</i>	

Fast and Small Short Vector SIMD Matrix Multiplication Kernels for the Synergistic Processing Element of the CELL Processor . . . . .	935
<i>Wesley Alvaro, Jakub Kurzak, and Jack Dongarra</i>	
Tridiagonalizing Complex Symmetric Matrices in Waveguide Simulations . . . . .	945
<i>W.N. Gansterer, H. Schabauer, C. Pacher, and N. Finger</i>	
On Using Reinforcement Learning to Solve Sparse Linear Systems . . . . .	955
<i>Erik Kuefler and Tzu-Yi Chen</i>	
Reutilization of Partial LU Factorizations for Self-adaptive <i>hp</i> Finite Element Method Solver . . . . .	965
<i>Maciej Paszynski and Robert Schaefer</i>	
Linearized Initialization of the Newton Krylov Algorithm for Nonlinear Elliptic Problems . . . . .	975
<i>Sanjay Kumar Khattri</i>	
Analysis and Comparison of Reordering for Two Factorization Methods (LU and WZ) for Sparse Matrices . . . . .	983
<i>Beata Bylina and Jarostaw Bylina</i>	
<b>Numerical Algorithms</b>	
KCK-Means: A Clustering Method Based on Kernel Canonical Correlation Analysis . . . . .	995
<i>Chuan-Liang Chen, Yun-Chao Gong, and Ying-Jie Tian</i>	
Application of the Variational Iteration Method for Inverse Stefan Problem with Neumann’s Boundary Condition . . . . .	1005
<i>Damian Słota</i>	
Generalized Laplacian as Focus Measure . . . . .	1013
<i>Muhammad Riaz, Seungjin Park, Muhammad Bilal Ahmad, Waqas Rasheed, and Jongan Park</i>	
Application of R-Functions Method and Parallel Computations to the Solution of 2D Elliptic Boundary Value Problems . . . . .	1022
<i>Marcin Detka and Czesław Cichoń</i>	
Using a (Higher-Order) Magnus Method to Solve the Sturm-Liouville Problem . . . . .	1032
<i>Veerle Ledoux, Marnix Van Daele, and Guido Vanden Berghe</i>	
Stopping Criterion for Adaptive Algorithm . . . . .	1042
<i>Sanjay Kumar Khattri</i>	
<b>Author Index</b> . . . . .	1051



## Table of Contents – Part II

### 7th International Workshop on Computer Graphics and Geometric Modeling

VII International Workshop on Computer Graphics and Geometric Modeling – CGGM’2008 .....	3
<i>Andrés Iglesias</i>	
Sliding-Tris: A Sliding Window Level-of-Detail Scheme .....	5
<i>Oscar Ripolles, Francisco Ramos, and Miguel Chover</i>	
Efficient Interference Calculation by Tight Bounding Volumes .....	15
<i>Masatake Higashi, Yasuyuki Suzuki, Takeshi Nogawa, Yoichi Sano, and Masakazu Kobayashi</i>	
Modeling of 3D Scene Based on Series of Photographs Taken with Different Depth-of-Field .....	25
<i>Marcin Denkowski, Michał Chlebiej, and Paweł Mikołajczak</i>	
A Simple Method of the $\text{\TeX}$ Surface Drawing Suitable for Teaching Materials with the Aid of CAS .....	35
<i>Masataka Kaneko, Hajime Izumi, Kiyoshi Kitahara, Takayuki Abe, Kenji Fukazawa, Masayoshi Sekiguchi, Yuuki Tadokoro, Satoshi Yamashita, and Setsuo Takato</i>	
Family of Energy Conserving Glossy Reflection Models .....	46
<i>Michał Radziszewski and Witold Alda</i>	
Harmonic Variation of Edge Size in Meshing CAD Geometries from IGES Format .....	56
<i>Maharavo Randrianarivony</i>	
Generating Sharp Features on Non-regular Triangular Meshes .....	66
<i>Tetsuo Oya, Shinji Seo, and Masatake Higashi</i>	
A Novel Artificial Mosaic Generation Technique Driven by Local Gradient Analysis .....	76
<i>Sebastiano Battiato, Gianpiero Di Blasi, Giovanni Gallo, Giuseppe Claudio Guarnera, and Giovanni Puglisi</i>	
Level-of-Detail Triangle Strips for Deforming Meshes .....	86
<i>Francisco Ramos, Miguel Chover, Jindra Parus, and Ivana Kolingerova</i>	
Triangular Bézier Approximations to Constant Mean Curvature Surfaces .....	96
<i>A. Arnal, A. Lluch, and J. Monterde</i>	

Procedural Graphics Model and Behavior Generation . . . . .	106
<i>J.L. Hidalgo, E. Camahort, F. Abad, and M.J. Vicent</i>	
Particle Swarm Optimization for Bézier Surface Reconstruction . . . . .	116
<i>Akemi Gálvez, Angel Cobo, Jaime Puig-Pey, and Andrés Iglesias</i>	
Geometrical Properties of Simulated Packings of Spherocylinders . . . . .	126
<i>Monika Bargiel</i>	
Real-Time Illumination of Foliage Using Depth Maps . . . . .	136
<i>Jesus Gumbau, Miguel Chover, Cristina Rebollo, and Inmaculada Remolar</i>	
On-Line 3D Geometric Model Reconstruction . . . . .	146
<i>H. Zolfaghari and K. Khalili</i>	
Implementation of Filters for Image Pre-processing for Leaf Analyses in Plantations . . . . .	153
<i>Jacqueline Gomes Mertes, Norian Marranghello, and Aledir Silveira Pereira</i>	

## 5th Workshop on Simulation of Multiphysics Multiscale Systems

Simulation of Multiphysics Multiscale Systems, 5th International Workshop . . . . .	165
<i>Valeria V. Krzhizhanovskaya and Alfons G. Hoekstra</i>	
A Hybrid Model of Sprouting Angiogenesis . . . . .	167
<i>Florian Milde, Michael Bergdorf, and Petros Koumoutsakos</i>	
Particle Based Model of Tumor Progression Stimulated by the Process of Angiogenesis . . . . .	177
<i>Rafał Wcisło and Witold Dzwinel</i>	
A Multiphysics Model of Myoma Growth . . . . .	187
<i>Dominiak Szczerba, Bryn A. Lloyd, Michael Bajka, and Gábor Székely</i>	
Computational Implementation of a New Multiphysics Model for Field Emission from CNT Thin Films . . . . .	197
<i>N. Sinha, D. Roy Mahapatra, R.V.N. Melnik, and J.T.W. Yeow</i>	
A Multiphysics and Multiscale Software Environment for Modeling Astrophysical Systems . . . . .	207
<i>Simon Portegies Zwart, Steve McMillan, Breannán Ó Nualláin, Douglas Hoggie, James Lombardi, Piet Hut, Sambaran Banerjee, Houria Belkus, Tassos Fragos, John Fregeau, Michiko Fuji, Evghenii Gaburov, Evert Glebbeek, Derek Groen, Stefan Harfst, Rob Izzard, Mario Jurić, Stephen Justham, Peter Teuben, Joris van Bever, Ofer Yaron, and Marcel Zemp</i>	

Dynamic Interactions in HLA Component Model for Multiscale Simulations .....	217
<i>Katarzyna Rycerz, Marian Bubak, and Peter M.A. Sloot</i>	
An Agent-Based Coupling Platform for Complex Automata .....	227
<i>Jan Hegewald, Manfred Krafczyk, Jonas Tölke, Alfons Hoekstra, and Bastien Chopard</i>	
A Control Algorithm for Multiscale Simulations of Liquid Water .....	234
<i>Evangelos M. Kotsalis and Petros Koumoutsakos</i>	
Multiscale Models of Quantum Dot Based Nanomaterials and Nanodevices for Solar Cells .....	242
<i>Alexander I. Fedoseyev, Marek Turowski, Ashok Raman, Qinghui Shao, and Alexander A. Balandin</i>	
Multi-scale Modelling of the Two-Dimensional Flow Dynamics in a Stationary Supersonic Hot Gas Expansion .....	251
<i>Giannandrea Abbate, Barend J. Thijsse, and Chris R. Kleijn</i>	
Multiscale Three-Phase Flow Simulation Dedicated to Model Based Control .....	261
<i>Dariusz Choński, Mieczysław Metzger, and Witold Nocoń</i>	
Simulation of Sound Emitted from Collision of Droplet with Shallow Water by the Lattice Boltzmann Method .....	271
<i>Shinsuke Tajiri, Michihisa Tsutahara, and Hisao Tanaka</i>	
Multiscale Numerical Models for Simulation of Radiation Events in Semiconductor Devices .....	281
<i>Alexander I. Fedoseyev, Marek Turowski, Ashok Raman, Michael L. Alles, and Robert A. Weller</i>	
Scale-Splitting Error in Complex Automata Models for Reaction-Diffusion Systems .....	291
<i>Alfonso Caiazzo, Jean Luc Falcone, Bastien Chopard, and Alfons G. Hoekstra</i>	
Wavelet Based Spatial Scaling of Coupled Reaction Diffusion Fields ....	301
<i>Sudib K. Mishra, Krishna Muralidharan, Pierre Deymier, George Frantziskonis, Srdjan Simunovic, and Sreekanth Pannala</i>	
Domain Decomposition Methodology with Robin Interface Matching Conditions for Solving Strongly Coupled Problems .....	311
<i>François-Xavier Roux</i>	
Transient Boundary Element Method and Numerical Evaluation of Retarded Potentials .....	321
<i>Ernst P. Stephan, Matthias Maischak, and Elke Ostermann</i>	

A Multiscale Approach for Solving Maxwell's Equations in Waveguides with Conical Inclusions .....	331
<i>Franck Assous and Patrick Ciarlet Jr.</i>	

### 3rd Workshop on Computational Chemistry and Its Applications

3rd Workshop on Computational Chemistry and Its Applications (3rd CCA) .....	343
<i>Ponnadurai Ramasami</i>	

First Principle Gas Phase Study of the Trans and Gauche Rotamers of 1,2-Diisocyanoethane, 1,2-Diisocyanodisilane and Isocyano(isocyanomethyl)silane .....	344
<i>Ponnadurai Ramasami</i>	

A Density Functional Theory Study of Oxygen Adsorption at Silver Surfaces: Implications for Nanotoxicity .....	353
<i>Brahim Akdim, Saber Hussain, and Ruth Pachter</i>	

Mechanism of Influenza A M2 Ion-Channel Inhibition: A Docking and QSAR Study .....	360
<i>Alexander V. Gaiday, Igor A. Levandovskiy, Kendall G. Byler, and Tatyana E. Shubina</i>	

A Java Tool for the Management of Chemical Databases and Similarity Analysis Based on Molecular Graphs Isomorphism .....	369
<i>Irene Luque Ruiz and Miguel Ángel Gómez-Nieto</i>	

Noncanonical Base Pairing in RNA: Topological and NBO Analysis of Hoogsteen Edge - Sugar Edge Interactions .....	379
<i>Purshotam Sharma, Harjinder Singh, and Abhijit Mitra</i>	

Design of Optimal Laser Fields to Control Vibrational Excitations in Carboxy-myoglobin .....	387
<i>Harjinder Singh, Sitansh Sharma, Praveen Kumar, Jeremy N. Harvey, and Gabriel G. Balint-Kurti</i>	

Computations of Ground State and Excitation Energies of Poly(3-methoxy-thiophene) and Poly(thienylene vinylene) from First Principles .....	396
<i>A.V. Gavrilenko, S.M. Black, A.C. Sykes, C.E. Bonner, and V.I. Gavrilenko</i>	

### Workshop on Computational Finance and Business Intelligence

Workshop on Computational Finance and Business Intelligence .....	407
<i>Yong Shi, Shouyang Wang, and Xiaotie Deng</i>	

Parallelization of Pricing Path-Dependent Financial Instruments on Bounded Trinomial Lattices . . . . .	408
<i>Hannes Schabauer, Ronald Hochreiter, and Georg Ch. Pflug</i>	
Heterogeneity and Endogenous Nonlinearity in an Artificial Stock Model . . . . .	416
<i>Hongquan Li, Wei Shang, and Shouyang Wang</i>	
Bound for the $L_2$ Norm of Random Matrix and Succinct Matrix Approximation . . . . .	426
<i>Rong Liu, Nian Yan, Yong Shi, and Zhengxin Chen</i>	
Select Representative Samples for Regularized Multiple-Criteria Linear Programming Classification . . . . .	436
<i>Peng Zhang, Yingjie Tian, Xingsen Li, Zhiwang Zhang, and Yong Shi</i>	
A Kernel-Based Technique for Direction-of-Change Financial Time Series Forecasting . . . . .	441
<i>Andrew Skabar</i>	
An Optimization-Based Classification Approach with the Non-additive Measure . . . . .	450
<i>Nian Yan, Zhengxin Chen, Rong Liu, and Yong Shi</i>	
A Selection Method of ETF's Credit Risk Evaluation Indicators . . . . .	459
<i>Ying Zhang, Zongfang Zhou, and Yong Shi</i>	
Estimation of Market Share by Using Discretization Technology: An Application in China Mobile . . . . .	466
<i>Xiaohang Zhang, Jun Wu, Xuecheng Yang, and Tingjie Lu</i>	
A Rough Set-Based Multiple Criteria Linear Programming Approach for Classification . . . . .	476
<i>Zhiwang Zhang, Yong Shi, Peng Zhang, and Guangxia Gao</i>	
Predictive Modeling of Large-Scale Sequential Curves Based on Clustering . . . . .	486
<i>Wen Long and Huiwen Wang</i>	
Estimating Real Estate Value-at-Risk Using Wavelet Denoising and Time Series Model . . . . .	494
<i>Kaijian He, Chi Xie, and Kin Keung Lai</i>	
The Impact of Taxes on Intra-week Stock Return Seasonality . . . . .	504
<i>Virgilijus Sakalauskas and Dalia Kriksciuniene</i>	
A Survey of Formal Verification for Business Process Modeling . . . . .	514
<i>Shoichi Morimoto</i>	

## Workshop on Physical, Biological and Social Networks

Network Modeling of Complex Dynamic Systems . . . . .	525
<i>Bosiljka Tadić</i>	
Clustering Organisms Using Metabolic Networks . . . . .	527
<i>Tomasz Arodź</i>	
Influence of Network Structure on Market Share in Complex Market Structures . . . . .	535
<i>Makoto Uchida and Susumu Shirayama</i>	
When the Spatial Networks Split? . . . . .	545
<i>Joanna Natkaniec and Krzysztof Kutakowski</i>	
Search of Weighted Subgraphs on Complex Networks with Maximum Likelihood Methods . . . . .	551
<i>Marija Mitrović and Bosiljka Tadić</i>	
Spectral Properties of Adjacency and Distance Matrices for Various Networks . . . . .	559
<i>Krzysztof Malarz</i>	
Simplicial Complexes of Networks and Their Statistical Properties . . . . .	568
<i>Slobodan Maletić, Milan Rajković, and Danijela Vasiljević</i>	
Movies Recommendation Networks as Bipartite Graphs . . . . .	576
<i>Jelena Grujić</i>	
Dynamical Regularization in Scalefree-Trees of Coupled 2D Chaotic Maps . . . . .	584
<i>Zoran Levnajić</i>	
Physics Based Algorithms for Sparse Graph Visualization . . . . .	593
<i>Milovan Švakov</i>	

## Workshop on GeoComputation

High Performance Geocomputation - Preface . . . . .	603
<i>Yong Xue, Dingsheng Liu, Jianwen Ai, and Wei Wan</i>	
Study on Implementation of High-Performance GIServices in Spatial Information Grid . . . . .	605
<i>Fang Huang, Dingsheng Liu, Guoqing Li, Yi Zeng, and Yunxuan Yan</i>	
Numerical Simulation of Threshold-Crossing Problem for Random Fields of Environmental Contamination . . . . .	614
<i>Robert Jankowski</i>	

A Context-Driven Approach to Route Planning . . . . .	622
<i>Hissam Tawfik, Atulya Nagar, and Obinna Anya</i>	
InterCondor: A Prototype High Throughput Computing Middleware for Geocomputation . . . . .	630
<i>Yong Xue, Yanguang Wang, Ying Luo, Jianping Guo, Jianqin Wang, Yincui Hu, and Chaolin Wu</i>	
Discrete Spherical Harmonic Transforms: Numerical Preconditioning and Optimization . . . . .	638
<i>J.A. Rod Blais</i>	
A Data Management Framework for Urgent Geoscience Workflows . . . . .	646
<i>Jason Cope and Henry M. Tufo</i>	
<b>2nd Workshop on Teaching Computational Science</b>	
Second Workshop on Teaching Computational Science – WTCS 2008 . . .	657
<i>A. Tirado-Ramos and Q. Luo</i>	
Using Metaheuristics in a Parallel Computing Course . . . . .	659
<i>Ángel-Luis Calvo, Ana Cortés, Domingo Giménez, and Carmela Pozuelo</i>	
Improving the Introduction to a Collaborative Project-Based Course on Computer Network Applications . . . . .	669
<i>Felix Freitag, Leandro Navarro, and Joan Manuel Marquès</i>	
Supporting Materials for Active e-Learning in Computational Models . . .	678
<i>Mohamed Hamada</i>	
Improving Software Development Process Implemented in Team Project Course . . . . .	687
<i>Iwona Dubielewicz and Bogumiła Hnatkowska</i>	
An Undergraduate Computational Science Curriculum . . . . .	697
<i>Angela B. Shiftlet and George W. Shiftlet</i>	
Cryptography Adapted to the New European Area of Higher Education . . . . .	706
<i>A. Queiruga Dios, L. Hernández Encinas, and D. Queiruga</i>	
An Introductory Computer Graphics Course in the Context of the European Space of Higher Education: A Curricular Approach . . . . .	715
<i>Akemi Gálvez, Andrés Iglesias, and Pedro Corcuera</i>	
Collaborative Environments through Dialogues and PBL to Encourage the Self-directed Learning in Computational Sciences . . . . .	725
<i>Fernando Ramos-Quintana, Josefina Sámano-Galindo, and Víctor H. Zárate-Silva</i>	

The Simulation Course: An Innovative Way of Teaching Computational Science in Aeronautics .....	735
<i>Ricard González-Cinca, Eduard Santamaria, and J. Luis A. Yebra</i>	
<b>Author Index</b> .....	745

## Table of Contents – Part III

### Workshop on Dynamic Data Driven Application Systems

Dynamic Data Driven Applications Systems – DDDAS 2008 . . . . .	3
<i>Craig C. Douglas</i>	
Dynamic Data Driven Applications Systems (DDDAS) – A Transformative Paradigm (Abstract) . . . . .	5
<i>Frederica Darema</i>	
Evaluation of Measurement Techniques for the Validation of Agent-Based Simulations Against Streaming Data . . . . .	6
<i>Timothy W. Schoenharl and Greg Madey</i>	
Using Intelligent Optimization Methods to Improve the Group Method of Data Handling in Time Series Prediction . . . . .	16
<i>Maysam Abbod and Karishma Deshpande</i>	
Symbiotic Simulation Control in Semiconductor Manufacturing . . . . .	26
<i>Heiko Ayt, Stephen John Turner, Wentong Cai, Malcolm Yoke Hean Low, Peter Lendermann, and Boon Ping Gan</i>	
Applying a Dynamic Data Driven Genetic Algorithm to Improve Forest Fire Spread Prediction . . . . .	36
<i>Mónica Denham, Ana Cortés, Tomàs Margalef, and Emilio Luque</i>	
Real-Time Data Driven Wildland Fire Modeling . . . . .	46
<i>Jonathan D. Beezley, Soham Chakraborty, Janice L. Coen, Craig C. Douglas, Jan Mandel, Anthony Vodacek, and Zhen Wang</i>	
DDDAS Predictions for Water Spills . . . . .	54
<i>Craig C. Douglas, Paul Dostert, Yalchin Efendiev, Richard E. Ewing, Deng Li, and Robert A. Lodder</i>	

### Bioinformatics' Challenges to Computer Science

Bioinformatics' Challenges to Computer Science . . . . .	67
<i>Mario Cannataro, Mathilde Romberg, Joakim Sundnes, and Rodrigo Weber dos Santos</i>	

Grid Computing Solutions for Distributed Repositories of Protein Folding and Unfolding Simulations . . . . .	70
<i>Martin Swain, Vitaliy Ostropytskyy, Cândida G. Silva, Frederic Stahl, Olivier Riche, Rui M.M. Brito, and Werner Dubitzky</i>	
Provenance Querying for End-Users: A Drug Resistance Case Study . . . .	80
<i>Bartosz Baliś, Marian Bubak, Michal Pelczar, and Jakub Wach</i>	
Integrating and Accessing Medical Data Resources within the ViroLab Virtual Laboratory . . . . .	90
<i>Matthias Assel, Piotr Nowakowski, and Marian Bubak</i>	
Optimisation of Asymmetric Mutational Pressure and Selection Pressure Around the Universal Genetic Code . . . . .	100
<i>Paweł Mackiewicz, Przemysław Biecek, Dorota Mackiewicz, Joanna Kiraga, Krystian Baczkowski, Maciej Sobczynski, and Stanisław Cebrat</i>	
Simulating Complex Calcium-Calcineurin Signaling Network . . . . .	110
<i>Jiangjun Cui and Jaap A. Kaandorp</i>	
Web Applications Supporting the Development of Models of Chagas' Disease for Left Ventricular Myocytes of Adult Rats . . . . .	120
<i>Caroline Mendonça Costa, Ricardo Silva Campos, Fernando Otaviano Campos, and Rodrigo Weber dos Santos</i>	
A Streamlined and Generalized Analysis of Chromatin ImmunoPrecipitation Paired-End diTag Data . . . . .	130
<i>Vinsensius B. Vega, Yijun Ruan, and Wing-Kin Sung</i>	
Quality of Feature Selection Based on Microarray Gene Expression Data . . . . .	140
<i>Henryk Maciejewski</i>	
IMPRECO: A Tool for Improving the Prediction of Protein Complexes . . . . .	148
<i>Mario Cannataro, Pietro Hiram Guzzi, and Pierangelo Veltri</i>	
CartoonPlus: A New Scaling Algorithm for Genomics Data . . . . .	158
<i>Joanna Jakubowska, Ela Hunt, and Matthew Chalmers</i>	
Automatic Segmentation of Cardiac MRI Using Snakes and Genetic Algorithms . . . . .	168
<i>Gustavo Miranda Teixeira, Igor Ramalho Pommeranzembaum, Bernardo Lino de Oliveira, Marcelo Lobosco, and Rodrigo Weber dos Santos</i>	

Computational Tasks in Bronchoscope Navigation During Computer-Assisted Transbronchial Biopsy . . . . .	178
<i>Jarostaw Bulat, Krzysztof Duda, Mirosław Socha, Paweł Turcza, Tomasz Zieliński, and Mariusz Duplaga</i>	
MPEG-7 as a Metadata Standard for Indexing of Surgery Videos in Medical E-learning . . . . .	188
<i>Andrzej A. Kononowicz and Zdzisław Wiśniowski</i>	
<b>Workshop on Tools for Program Development and Analysis in Computational Science</b>	
Special Session: Tools for Program Development and Analysis in Computational Science . . . . .	201
<i>Jie Tao, Arndt Bode, Andreas Knuepfer, Dieter Kranzlmüller, Roland Wismüller, and Jens Volkert</i>	
BTL++: From Performance Assessment to Optimal Libraries . . . . .	203
<i>Laurent Plagne and Frank Hülsemann</i>	
DaStGen—A Data Structure Generator for Parallel C++ HPC Software . . . . .	213
<i>Hans-Joachim Bungartz, Wolfgang Eckhardt, Miriam Mehl, and Tobias Weinzierl</i>	
RMOST: A Shared Memory Model for Online Steering . . . . .	223
<i>Daniel Lorenz, Peter Buchholz, Christian Uebing, Wolfgang Walkowiak, and Roland Wismüller</i>	
A Semantic-Oriented Platform for Performance Monitoring of Distributed Java Applications . . . . .	233
<i>Włodzimierz Funika, Piotr Godowski, and Piotr Pęgiel</i>	
A Tool for Building Collaborative Applications by Invocation of Grid Operations . . . . .	243
<i>Maciej Malawski, Tomasz Bartyński, and Marian Bubak</i>	
Using MPI Communication Patterns to Guide Source Code Transformations . . . . .	253
<i>Robert Preissl, Martin Schulz, Dieter Kranzlmüller, Bronis R. de Supinski, and Daniel J. Quinlan</i>	
Detection and Analysis of Iterative Behavior in Parallel Applications . . .	261
<i>Karl Furlinger and Shirley Moore</i>	
Guided Prefetching Based on Runtime Access Patterns . . . . .	268
<i>Jie Tao, Georges Kneip, and Wolfgang Karl</i>	
Performance Tool Workflows . . . . .	276
<i>Wyatt Spear, Allen Malony, Alan Morris, and Sameer Shende</i>	

## Workshop on Software Engineering for Large-Scale Computing

Workshop on Software Engineering for Large Scale Computing (SELSC) . . . . .	289
<i>Daniel Rodríguez and Roberto Ruiz</i>	
Modeling Input Space for Testing Scientific Computational Software: A Case Study . . . . .	291
<i>Sergiy A. Vilkomir, W. Thomas Swain, Jesse H. Poore, and Kevin T. Clarno</i>	
Executable Platform Independent Models for Data Intensive Applications . . . . .	301
<i>Grzegorz Falda, Piotr Habela, Krzysztof Kaczmarek, Krzysztof Stencel, and Kazimierz Subieta</i>	
OCL as the Query Language for UML Model Execution . . . . .	311
<i>Piotr Habela, Krzysztof Kaczmarek, Krzysztof Stencel, and Kazimierz Subieta</i>	
Managing Groups of Files in a Rule Oriented Data Management System (iRODS) . . . . .	321
<i>Andrea Weise, Mike Wan, Wayne Schroeder, and Adil Hasan</i>	
Towards Large Scale Semantic Annotation Built on MapReduce Architecture . . . . .	331
<i>Michal Laclavík, Martin Šeleng, and Ladislav Hluchý</i>	
Managing Large Volumes of Distributed Scientific Data . . . . .	339
<i>Steven Johnston, Hans Fangohr, and Simon J. Cox</i>	
Discovering Knowledge in a Large Organization through Support Vector Machines . . . . .	349
<i>J.A. Gutiérrez de Mesa and L. Bengochea Martínez</i>	
An Event-Based Approach to Reducing Coupling in Large-Scale Applications . . . . .	358
<i>Bartosz Kowalewski, Marian Bubak, and Bartosz Baliś</i>	
Exploring Cohesion, Flexibility, Communication Overhead and Distribution for Web Services Interfaces in Computational Science . . . . .	368
<i>Miguel-Angel Sicilia and Daniel Rodríguez</i>	

## Workshop on Collaborative and Cooperative Environments

Collaborative and Cooperative Environments . . . . .	379
<i>Christoph Anthes, Vassil Alexandrov, Dieter Kranzlmüller, Jens Volkert, and Gerhard Widmer</i>	

Multi-Agent System for Collaboration in Hybrid Control . . . . .	381
<i>Dariusz Choiński, Witold Nocoń, and Mieczysław Metzger</i>	
Design and Evaluation of a Service Oriented Architecture-Based Application to Support the Collaborative Edition of UML Class Diagrams . . . . .	389
<i>Victor M.R. Penichet, Jose A. Gallud, Ricardo Tesoriero, and Maria Lozano</i>	
g-Eclipse – A Contextualised Framework for Grid Users, Grid Resource Providers and Grid Application Developers . . . . .	399
<i>Harald Kornmayer, Mathias Stümpert, Harald Gjermundrød, and Paweł Wolniewicz</i>	
Formal Model for Contract Negotiation in Knowledge-Based Virtual Organizations . . . . .	409
<i>Mikołaj Zuzek, Marek Talik, Tomasz Świerczyński, Cezary Wiśniewski, Bartosz Kryza, Łukasz Dutka, and Jacek Kitowski</i>	
An Approach for Enriching Information for Supporting Collaborative e-Work . . . . .	419
<i>Obinna Anya, Atulya Nagar, and Hissam Tawfik</i>	
Dynamic Virtual Environments Using Really Simple Syndication . . . . .	429
<i>Andrew Dunk, Ronan Jamieson, and Vassil Alexandrov</i>	
Immersive Co-operative Psychological Virtual Environments (ICPVE) . . . . .	438
<i>Ronan Jamieson, Adrian Haffeege, and Vassil Alexandrov</i>	
Environment for Collaborative Development and Execution of Virtual Laboratory Applications . . . . .	446
<i>Włodzimierz Funika, Daniel Harężlak, Dariusz Król, and Marian Bubak</i>	
<b>Workshop on Applications of Workflows in Computational Science</b>	
International Workshop on Applications of Workflows in Computational Science (AWCS 08) . . . . .	459
<i>Adam Belloum, Zhiming Zhao, and Marian Bubak</i>	
Framework for Workflow Gridication of Genetic Algorithms in Java . . . .	463
<i>Boro Jakimovski, Darko Cerepnalkoski, and Goran Velinov</i>	

Complex Workflow Management of the CAM Global Climate Model on the GRID .....	471
<i>V. Fernández-Quiruelas, J. Fernández, A.S. Cofiño, C. Baeza, F. García-Torre, R.M. San Martín, R. Abarca, and J.M. Gutiérrez</i>	
A Framework for Interactive Parameter Sweep Applications .....	481
<i>Adianto Wibisono, Zhiming Zhao, Adam Belloum, and Marian Bubak</i>	
Comparative Studies Simplified in GPFLOW .....	491
<i>Lawrence Buckingham, James M. Hogan, Paul Roe, Jiro Sumitomo, and Michael Towsey</i>	
Resource Discovery Based on VIRGO P2P Distributed DNS Framework .....	501
<i>Lican Huang</i>	
Securing Grid Workflows with Trusted Computing .....	510
<i>Po-Wah Yau, Allan Tomlinson, Shane Balfe, and Eimear Gallery</i>	
DaltOn: An Infrastructure for Scientific Data Management .....	520
<i>Stefan Jablonski, Olivier Curé, M. Abdul Rehman, and Bernhard Volz</i>	
 <b>Workshop on Intelligent Agents and Evolvable Systems</b>	
Intelligent Agents and Evolvable Systems .....	533
<i>Krzysztof Cetnarowicz, Robert Schaefer, Bojin Zheng, Maciej Paszyński, and Bartłomiej Śnieżyński</i>	
Task Hibernation in a Formal Model of Agent-Oriented Computing Systems .....	535
<i>Maciej Smolka</i>	
Synthesis of the Supervising Agent in MAS .....	545
<i>František Čapkovič</i>	
Grounding of Human Observations as Uncertain Knowledge .....	555
<i>Kamil Szymański and Grzegorz Dobrowolski</i>	
Application of Multi-agents in Control of Hydrogen Powered Car to Optimize Fuel Consumption .....	564
<i>Bohumil Horak, Jiri Koziorek, and Vilem Srovnal</i>	
Extensible Multi-Robot System .....	574
<i>Wojciech Turek</i>	
Agent-Based Immunological Intrusion Detection System for Mobile Ad-Hoc Networks .....	584
<i>Aleksander Byrski and Marco Carvalho</i>	

Social Layers in Agents' Behavior Evaluation System . . . . .	594
<i>Krzysztof Cetnarowicz, Renata Cięciwa, and Gabriel Rojek</i>	
Graph Transformations for Modeling <i>hp</i> -Adaptive Finite Element Method with Triangular Elements . . . . .	604
<i>Anna Paszyńska, Maciej Paszyński, and Ewa Grabska</i>	
On Some Method for Intrusion Detection Used by the Multi-agent Monitoring System . . . . .	614
<i>Agnieszka Prusiewicz</i>	
Web Accessible A-Team Middleware . . . . .	624
<i>Dariusz Barbucha, Ireneusz Czarnowski, Piotr Jędrzejowicz, Ewa Ratajczak-Ropel, and Izabela Wierzbowska</i>	
Multi-agent System for Dynamic Manufacturing System Optimization . . . . .	634
<i>Tawfeeq Al-Kanhal and Maysam Abbod</i>	
GRADIS – Multiagent Environment Supporting Distributed Graph Transformations . . . . .	644
<i>Leszek Kotulski</i>	
User-Assisted Management of Agent-Based Evolutionary Computation . . . . .	654
<i>Aleksander Byrski and Marek Kisiel-Dorohinicki</i>	
Generating Robust Investment Strategies with Agent-Based Co-evolutionary System . . . . .	664
<i>Rafał Dreżewski, Jan Sepielak, and Leszek Siwik</i>	
A Hybrid Multi-objective Algorithm for Dynamic Vehicle Routing Problems . . . . .	674
<i>Qin Jun, Jiangqing Wang, and Bo-jin Zheng</i>	
Asymptotic Behavior of <i>hp</i> -HGS ( <i>hp</i> -Adaptive Finite Element Method Coupled with the Hierarchic Genetic Strategy) by Solving Inverse Problems . . . . .	682
<i>Robert Schaefer and Barbara Barabasz</i>	
Traffic Prediction for Agent Route Planning . . . . .	692
<i>Jan D. Gehrke and Janusz Wojtusiak</i>	
Agents for Searching Rules in Civil Engineering Data Mining . . . . .	702
<i>Janusz Kasperkiewicz and Maria Marks</i>	
Grammatical Inference as a Tool for Constructing Self-learning Syntactic Pattern Recognition-Based Agents . . . . .	712
<i>Janusz Jurek</i>	

An Architecture for Learning Agents .....	722
<i>Bartłomiej Śnieżyński</i>	
Partnership Selection of Agile Virtual Enterprise Based on Grey Ant Colony Algorithm .....	731
<i>Y.D. Fang, L.H. Du, H. Chen, B. Sun, and Y.L. He</i>	
Hierarchical Approach to Evolutionary Multi-Objective Optimization ...	740
<i>Eryk Ciepiela, Joanna Kocot, Leszek Siwik, and Rafał Dreżewski</i>	
<b>Author Index</b> .....	<b>751</b>