

# ICCS'2004 Program

/as at 4 June/

## 6 June, SUNDAY

*building/room*

- D-10/1** 13.00 - 19.30 Registration  
15.00 - 18.30 Tutorial1 and Tutorial2
- C-2/429** TUT1 - Practical Introduction to Grid, Grid Services Globus Toolkit 3  
*Pawel Plaszczak, Krzysztof Wilk, Gridwise Technologies*
- C-2/224** TUT2 - Software Engineering Methods for Computational Science  
*Marian Bubak, ICS and ACC Cyfronet AGH; Grzegorz Mlynarczyk, WebSoft*
- A-0/Aula** 19.00 - 21.30 Welcome Reception, Opening

## 7 June, MONDAY

- D-10/1** 07.30 - 19.00 Registration

**D-10/A, transmission to: D-10/B, D-10/108, C-2/224**

**08.15 - 10.30 Plenary Session I - Chairs: Marian Bubak and Peter Sloot**

**08.15 - 08.30 Opening**

**08.30 - 09.20 Invited Lecture:**

I1 - From ICCS'2003 to ICCS'2004 - Personal Overview of Recent Advances in Computational Science

*David Abramson, Monash University, Clayton, Australia*

*Alexander V. Bogdanov, Institute for High Performance Computing and Information Systems, St. Petersburg, Russia*

**09.20 - 10.00 Keynote Lecture:**

K1 - Semantic Grid - *David De Roure, University of Southampton, UK*

**10.00 - 10.30 Invited Lecture:**

I2 - Future Technological Trends and its Application to Business Design and Innovation - *Jeffrey Greenwald, SGI*

10.30 - 11.00 coffee

**11.00 -12.40 PARALLEL SESSIONS:**

**C-2/224 T2 - Grid Computing - Chair: David Abramson**

Towards OGSA Compatibility in Alternative Metacomputing Frameworks

*G. Stuer, V. Sunderam, J. Broeckhove*

DartGrid: Semantic-based Database Grid

*Z. Wu, H. Chen, Changhuang, G. Zheng, J. Xu*

A 3-tier Grid Architecture and Interactive Applications Framework for Community Grids

*O. Ardaiz, K. Sanjeevan, R. Sanguesa*

Incorporation of Middleware and Grid Technologies to Enhance Usability in Computational Chemistry Applications

*J.P. Greenberg, S. Mock, M. Katz, G. Bruno, F. Sacerdoti, P. Papadopoulos, K.K. Baldrige*

An Open Grid Service Environment for Large-scale Computational Finance Modeling Systems  
*C. Wiesinger, D. Giczi, R. Hochreiter*

**C-2/429 WS5 - Computing in Science and Engineering Academic Programs**  
**Chair: Denis Donnelly**

Some Remarks on CSE Education in Germany  
*H.-J. Bungartz*

The Computational Science and Engineering (CS&E) Program at Purdue  
*T. Downar, T. Kozłowski*

Adapting the CSE Program at ETH Zurich to the Bologna Process  
*R. Jeltsch, K. Nipp*

Computational Engineering and Science Program at the University of Utah  
*C. DeTar, A.L. Fogelson, C.R. Johnson, C.A. Sikorski, T. Truong*

A Comparison of C, MATLAB, and Python as Teaching Languages in Engineering  
*H. Fangohr*

**D-10/108 T8 - Neural Networks - Chair: Andrzej Z. Maksymowicz**

Self-organizing Multi-layer Fuzzy Polynomial Neural Networks Based on Genetic Optimization  
*S.K. Oh, W. Pedrycz, H.K. Kim, J.B. Lee*

Information Granulation-based Multi-layer Hybrid Fuzzy Neural Networks: Analysis and Design  
*B.J. Park, S.K. Oh, W. Pedrycz, T.C. Ahn*

Efficient Learning of Contextual Mappings by Context-dependent Neural Nets  
*P. Ciskowski*

An Unsupervised Neutral Model to Analyse Thermal Properties of Construction Materials  
*E. Corchado, P. Burgos, M. Rodríguez, V. Tricio*

Intrusion Detection Based on Feature Transform Using Neural Network  
*W. Kim, S.C. Oh, K. Yoon*

**D-10/B WS20 - Dynamic Data Driven Application System - Chair: Frederica Darema**

Dynamic Data Driven Applications Systems: A New Paradigm for Application Simulations and Measurements  
*F. Darema*

Distributed Collaborative Adaptive Sensing for Hazardous Weather Detection, Tracking, and Predicting  
*J. Brotzge, V. Chandresakar, K. Droegemeier, J. Kurose, D. McLaughlin, B. Philips, M. Preston, S. Sekelsky*

Rule-Based Support Vector Machine Classifiers Applied to Tornado Prediction  
*T.B. Trafalis, B. Santosa, M.B. Richman*

Adaptive Coupled Physical and Biogeochemical Ocean Predictions: A Conceptual Basis  
*P.F.J. Lermusiaux, C. Evangelinos, R. Tian, P.J. Haley, J.J. McCarthy, N.M. Patrikalakis, A.A. Robinson, H. Schmidt*

Dynamic-Data-Driven Real-Time Computational Mechanics Environment  
*J. Michopoulos, C. Farhat, E. Houstis*

**D-11/104 WS11 - Modern Technologies for Web-Based Adaptive Systems**  
**Chair: Ngoc Thanh Nguyen**

Creation of Information Profiles in Distributed Databases as a n-Person Game  
*J. Kulikowski*

Domain Knowledge Modelling for Intelligent Instructional Systems  
*E. Pecheanu, L. Dumitriu, C. Segal*

Hybrid Adaptation of Web-Based Systems User Interfaces  
*J. Sobecki*

Collaborative Web Browsing Based on Ontology Learning from Bookmarks  
*J.J. Jung, Y.-H. Yu, G.S. Jo*

Information Retrieval Using Bayesian Networks  
*L. Neuman, J. Kozlowski, A. Zgrzywa*

**D-10/18 WS3 - Computational Modeling of Transport on Networks**  
**Chair: Bosiljka Tadic**

Evolution of the Internet Map and Load Distribution  
*K.I. Goh, B. Kahng, D. Kim*

Complex Network of Earthquakes  
*S. Abe, N. Suzuki*

Universal Features of Network Topology  
*K. Austin, G.J. Rodgers*

Network Brownian Motion: A New Method to Measure Vertex-Vertex Proximity and to Identify Communities and Subcommunities  
*H. Zhou, R. Lipowsky*

Contagion Flow through Banking Networks  
*S. Thurner, M. Boss, M. Summer*

**D-11/18 T6 - Numerical Algorithms - Chair: Vassil Alexandrov**

Hierarchical Matrix-Matrix Multiplication Based on Multiprocessor Tasks  
*S. Hunold, T. Rauber, G. Rünger*

Improving Geographical Locality of Data for Shared Memory Implementations of PDE Solvers  
*H. Löf, M. Nordén, S. Holmgren*

Cache Oblivious Matrix Transposition: Simulation and Experiment  
*D. Tsifakis, A.P. Rendell, P.E. Strazdins*

An Intelligent Hybrid Algorithm for Solving Non-linear Polynomial Systems  
*J. Xue, Y. Li, Y. Feng, L. Yang, Z. Liu*

A Jacobi--Davidson Method for Nonlinear Eigenproblems  
*H. Voss*

**D-10/A T9 - Applications - Chair: Alexander Bogdanov**

Accelerating Wildland Fire Prediction on Cluster Systems

*B. Abdalhaq, A. Cortés, T. Margalef, E. Luque*

High Precision Simulation of Near Earth Satellite Orbits for SAR-Applications  
*M. Kalkuhl, K. Nöh, O. Loffeld, W. Wiechert*

Hybrid Approach to Reliability and Functional Analysis of Discrete Transport  
*T. Walkowiak, J. Mazurkiewicz*

Mathematical Model of Gas Transport in Anisotropic Porous Electrode of the PEM Fuel Cell  
*E. Kurgan, P. Schmidt*

Numerical Simulation of Anisotropic Shielding of Weak Magnetic Fields  
*E. Kurgan*

**D-10/304 WS7 - Computer Algebra Systems and Applications (CASA 2004)**  
**Chair: Akemi Galvez**

Design of Interactive Environment for Numerically Intensive Parallel Linear Algebra Calculations  
*P. Luszczek, J. Dongarra*

Computer Algebra for Real-Time Dynamics of Robots with Large Numbers of  
*R. Bansevicius, A. Cepulkauskas, R. Kulvietiene, G. Kulvietis*

Development of SyNRAC-Formula Description and New Functions  
*H. Yanami, H. Anai*

DisCAS: A Distributed-Parallel Computer Algebra System  
*Y. Wu, G. Yang, W. Zheng, D. Lin*

A Mathematica Package for Solving and Displaying Inequalities  
*R. Ipanaqué, A. Iglesias*

**D-10/123 WS28 - Modelling and Simulation of Multi-Physics Multi-Scale Systems**  
**Chair: Valeria Krzhizhanovskaya**

Coupling a Lattice Boltzmann and a Finite Difference Scheme  
*P. Albuquerque, D. Alemani, B. Chopard, P. Leone*

Accuracy Versus Performance in Lattice Boltzmann BGK Simulations of Systolic Flows  
*A.M. Artoli, L. Abrahamyan, A.G. Hoekstra*

Mesoscopic Modelling of Droplets on Topologically Patterned Substrates  
*A. Dupuis, J.M. Yeomans*

Soot Particle Deposition within Porous Structures using a Method of Moments - Lattice Boltzmann Approach  
*B.F.W. Gschaider, C.C. Honeger, C.E.P. Redl*

Numerical Bifurcation Analysis of Lattice Boltzmann Models: a Reaction-Diffusion Example  
*P. Van Leemput, K. Lust*

**D-10/224 WS41 - Computational Economics and Finance - Chair: Yong Shi**

A Dynamic Stochastic Programming Model for Bond Portfolio Management  
*L. Yu, S. Wang, Y. Wu, K.K. Lai*

Communication Leading to Nash Equilibrium without Acyclic Condition -- S4  
Knowledge Model Case  
*T. Matsuhisa*

Support Vector Machines Approach to Credit Assessment  
*J.P. Li, J. Liu, W. Xu, Y. Shi*

Measuring Scorecard Performance  
*Z. Yang, Y. Wang, Y. Bai, X. Zhang*

**D-10/226 WS2 - Advanced Methods of Digital Image Processing - Chair: Bogdan Smolka**

The New Graphic Description of the Haar Wavelet Transform  
*P. Porwik, A. Lisowska*

On New Radon-Based Translation, Rotation and Scaling Invariant Transform for Face Recognition  
*T. Arodź*

On Bit-Level Systolic Arrays for Least-Squares Digital Contour Smoothing  
*J. Glasa*

Bayer Pattern Demosaicking Using Local-Correlation Approach  
*R. Lukac, K.N. Plataniotis, A.N. Venetsanopoulos*

Edge Preserving Filters on Color Images  
*V. Hong, H. Palus, D. Paulus*

12.40 - 14.30 lunch

**14.30 - 16.10 PARALLEL SESSIONS:**

**C-2/224 T2 - Grid Computing - Chair: Andrzej Goscinski**

The Migrating Desktop as a GUI Framework for the "Applications on Demand" Concept  
*M. Kupczyk, R. Lichwała, N. Meyer, B. Palak, M. Płóciennik, M. Stroiński, P. Wolniewicz*

Interactive Visualization for the UNICORE Grid Environment  
*P. Bała, K. Benedyczak, A. Nowiński, K.S. Nowiński, J. Wypychowski*

Efficiency of the GSI Secured Network Transmission  
*B. Baliś, M. Bubak, W. Rząsa, T. Szepieniec*

An Idle Compute Cycle Prediction Service for Computational Grids  
*S. Hwang, E.J. Im, K. Jeong, H. Park*

Infrastructure for Grid-based Virtual Organizations  
*L. Hluchy, O. Habala, V.D. Tran, B. Simo, J. Astalos, M. Dobrucky*

**C-2/429 WS5 - Computing in Science and Engineering Academic Programs  
Chair: Ulrich Ruede**

Teaching Computational Science Using VPython and Virtual Reality  
*S. Roberts, H. Gardner, S. Press, L. Stals*

Student Exercises on Fossil Fuels, Global Warming, and Gaia  
*B.W. Rust*

Teaching Scientific Computing  
*B.A. Shadwick*

Creating a Sustainable High-Performance Scientific Computing Course  
*E.R. Jessup, H.M. Tufo*

CSE Without Math? A First Course in Modeling and Simulation  
*W. Wiechert*

**D-10/108 T3 - Models and Algorithms - Chair: Vaidy Sunderam**

Knapsack Model and Algorithm for HW/SW Partitioning Problem  
*A. Ray, W. Jigang, S. Thambipillai*

A Simulated Annealing Algorithm for the Circles Packing Problem  
*D. Zhang, W. Huang*

Parallel Genetic Algorithm for Graph Coloring Problem  
*Z. Kokosiński, M. Kołodziej, K. Kwarciany*

Characterization of Efficiently Parallel Solvable Problems on a Class of Decomposable Graphs  
*S.Y. Hsieh*

The Computational Complexity of Orientation Search in Cryo-Electron Microscopy  
*T. Mielikäinen, J. Ravanti, E. Ukkonen*

**D-10/B WS20 - Dynamic Data Driven Application System - Chair: Frederica Darema**

A Note on Data-Driven Contaminant Simulation  
*C.C. Douglas, C.E. Shannon, Y. Efendiev, R. Ewing, V. Ginting, R. Lazarov, M.J. Cole, G. Jones, C.R. Johnson, J. Simpson*

Computational Aspects of Data Assimilation of Aerosol Dynamics  
*A. Sandu, W. Liao, G.R. Carmichael, D. Henze, J.H. Seinfeld, T. Chai, D. Daescu*

A Framework for Online Inversion-Based 3D Site Characterization  
*V. Akçelik, J. Bielak, G. Biros, I. Epanomeritakis, O. Ghattas, L.F. Kallivokas, E.J. Kim*

A Note on Dynamic Data Driven Wildfire Modeling  
*J. Mandel, M. Chen, L.P. Franca, C. Johns, A. Puhalskii, J.L. Coen, C.C. Douglas, R. Kremens, A. Vodacek, W. Zhao*

Agent-Based Simulation of Data-Driven Fire Propagation Dynamics  
*J. Michopoulos, P. Tsompanopoulou, E. Houstis, A. Joshi*

**D-11/104 WS11 - Modern Technologies for Web-Based Adaptive Systems  
Chair: Janusz Sobecki**

An Application of the DEDS Control Synthesis Method  
*F. Čapkovič*

Using Consistency Measures and Attribute Dependencies for Solving Conflicts in Adaptive Systems  
*M. Malowiecki, N.T. Nguyen, M. Zgrzywa*

Logical Methods for Representing Meaning of Natural Language Texts  
*T. Batura, F. Murzin*

Software Self-Adaptability by Means of Artificial Evolution

*M. Nowostawski, M. Purvis, A. Gecow*

Professor:e - an IMS Standard Based Adaptive E-learning Platform  
*C. Segal, L. Dumitriu*

**D-10/18 WS3 - Computational Modeling of Transport on Networks**  
**Chair: Stefan Thurner**

Local Search with Congestion in Complex Communication Networks  
*A. Arenas, L. Danon, A. Díaz-Guilera, R. Guimerà*

Guided Search and Distribution of Information Flow on Complex Graphs  
*B. Tadić*

Network Topology in Immune System Shape Space  
*J. Burns, H.J. Ruskin*

An Evolutionary Approach to Pickup and Delivery Problem with Time Windows  
*J.C. Créput, A. Koukam, J. Kozlak, J. Lukasik*

Automatic Extraction of Hierarchical Urban Networks: a Micro-Spatial Approach  
*R. Carvalho, M. Batty*

**D-11/18 T6 - Numerical Algorithms - Chair: Elena Zudilova**

Numerical Continuation of Branch Points of Limit Cycles in MATCONT  
*A. Dhooge, W. Govaerts, Y.A. Kuznetsov*

On-line Algorithm for Time Series Prediction based on Support Vector Machine  
Philosophy  
*J.M. Górriz, C.G. Puntonet, M. Salmerón*

Improved A-P Iterative Algorithm in Spline Subspaces  
*J. Xian, S.P. Luo, W. Lin*

Solving Differential Equations in Developmental Models of Multicellular Structures  
Expressed Using L-systems  
*P. Federl, P. Prusinkiewicz*

On a Family of A-stable Collocation Methods with High Derivatives  
*G.Y. Kulikov, A.I. Merkulov, E.Y. Khrustaleva*

**D-10/A T9 - Applications - Chair: Alfons Hoekstra**

Functionalization of Single-Wall Carbon Nanotubes: an Assessment of  
Computational Methods  
*B. Akdim, T. Kar, X. Duan, R. Pachter*

Improved Sampling for Biological Molecules Using Shadow Hybrid Monte Carlo  
*S.S. Hampton, J.A. Izaguirre*

A New Monte Carlo Approach for Conservation Laws and Relaxation Systems  
*L. Pareschi, M. Seaid*

A Parallel Implementation of Gillespie's Direct Method  
*A.M. Ridwan, A. Krishnan, P. Dhar*

Simulation of Deformable Objects Using Sliding Mode Control with Application to  
Cloth Animation  
*F. Rum, B.W. Gordon*

Enabling Systems Biology: A Scientific Problem-Solving Environment  
*M. Singhal, E.G. Stephan, K.R. Klicker, L.L. Trease, G.J. Chin, D.K. Gracio, D.A. Payne*

**D-10/304 WS7 - Computer Algebra Systems and Applications (CASA 2004)**  
**Chair: Akemi Galvez**

Choleski-Banachiewicz Approach to Systems with Non-positive Definite Matrices with Mathematica  
*R.A. Walentyński*

A Closed Form Solution of the Run-time of a Sliding Bead Along a Freely Hanging Slinky  
*H. Sarafian*

Analytical Theory of Motion of a Mars Orbiter  
*J.F. San Juan, S. Serrano, A. Abad*

Computing Theta-Stable Parabolic Subalgebras Using LiE  
*A.G. Noël*

Graphical and Computational Representation of Groups  
*A. Bretto, L. Gillibert*

**D-10/123 WS28 - Modelling and Simulation of Multi-Physics Multi-Scale Systems**  
**Chair: Bastien Chopard**

Particle Models of Discharge Plasmas in Molecular Gases  
*S. Longo, M. Capitelli, P. Diomede*

Fully Kinetic Particle-in-Cell Simulation of a Hall Thruster  
*F. Taccogna, S. Longo, M. Capitelli, R. Schneider*

Standard of Molecular Dynamics Modeling and Simulation of Relaxation in Dense Media  
*A.Y. Kuksin, I.V. Morozov, G.E. Norman, V.V. Stegailov*

Implicit and Explicit Higher Order Time Intergration Schemes for Fluid-Structure Interaction Computations  
*A. van Zuijlen, H. Bijl*

Accounting for Nonlinear Aspects in Multiphysics Problems: Application to Poroelasticity  
*D. Néron, P. Ladevèze, D. Dureisseix, B.A. Schrefler*

**D-10/224 WS41 - Computational Economics and Finance - Chair: Yong Shi**

Parallelism of Association Rules Mining and Its Application in Insurance  
*J. Tian, L. Zhu, S. Zhang, G. Huang*

No Speculation under Expectations in Awareness  
*K. Horie, T. Matsuhisa*

A Method on Solving Multiobjective Conditional Value-at-Risk  
*M. Jiang, Q. Hu, Z. Meng*

Cross-validation and Ensemble Analyses on Multiple-Criteria Linear Programming Classification for Credit Cardholder Behavior  
*Y. Peng, G. Kou, Z. Chen, Y. Shi*



**D-10/226 WS2 - Advanced Methods of Digital Image Processing - Chair: Bogdan Smolka**

Segmentation of Fundus Eye Images Using Methods of Mathematical Morphology for Glaucoma Diagnosis

*K. Stapor, A. Świtonski, R. Chrastek, G. Michelson*

Automatic Detection of Glaucomatous Changes Using Adaptive Thresholding and Neural Networks

*K. Stapor, L. Pawlaczyk, R. Chrastek, G. Michelson*

Analytical Design of 2-D Narrow Bandstop FIR Filters

*P. Zahradnik, M. Viček*

Analytical Design of Arbitrary Oriented Asteroidal 2-D FIR Filters

*P. Zahradnik, M. Viček*

A  $\{k,n\}$ -Secret Sharing Scheme for Color Images

*R. Lukac, K.N. Plataniotis, A.N. Venetsanopoulos*

16.10 - 16.40 coffee

**16.40 - 18.40 PARALLEL SESSIONS:**

**C-2/224 T2 - Grid Computing - Chair: Ladislav Hluchy**

Air Pollution Modeling in the CrossGrid Project

*J.C. Mouriño, M.J. Martín, P. González, R. Doallo*

The Genetic Algorithms Population Pluglet for the H2O Metacomputing System

*T. Ampuła, D. Kurzyniec, V. Sunderam, H. Witek*

Applying Grid Computing to the Parameter Sweep of a Group Difference Pseudopotential

*W. Sudholt, K.K. Baldrige, D. Abramson, C. Enticott, S. Garic*

A Grid Enabled Parallel Hybrid Genetic Algorithm for SPN

*G.L. Presti, G.L. Re, P. Storniolo, A. Urso*

An Atmospheric Sciences Workflow and its Implementation with Web Services

*D. Abramson, J. Kommineni, J.L. McGregor, J. Katzfey*

Twins: 2-hop Structured Overlay with High Scalability

*J. Hu, H. Dong, W. Zheng, D. Wang, M. Li*

**C-2/429 WS40 - HLA-Based Distributed Simulation on the Grid  
Chair: Stephen John Turner**

Using Web Services to Integrate Heterogeneous Simulations in a Grid

*J.M. Pullen, R. Brunton, D. Brutzman, D. Drake, M. Hieb, K.L. Morse, A. Tolk*

Support for Effective and Fault Tolerant Execution of HLA-Based Applications in the OGSA Framework

*K. Rycerz, M. Bubak, M. Malawski, P.M.A. Sloot*

Federate Migration in HLA-Based Simulation

*Z. Yuan, W. Cai, M.Y.H. Low, S.J. Turner*

FT-RSS: A Flexible Framework for Fault Tolerant HLA Federations

*J. Lüthi, S. Grossmann*

Design and Implementation of GPDS  
*T.D. Lee, S.H. Yoo, C.S. Jeong*

HLA\_AGENT: Distributed Simulation of Agent-Based Systems with HLA  
*M. Lees, B. Logan, T. Oguara, G. Theodoropoulos*

FedGrid: An HLA Approach to Federating Grids  
*S. Vuong, X. Cai, J. Li, S. Pramanik, D. Suttles, R. Chen*

**D-10/108 T1 - Parallel and Distributed Computing - Chair: Włodzimierz Funika**

Optimization of Collective Reduction Operations  
*R. Rabenseifner*

Predicting MPI Buffer Addresses  
*F. Freitag, M. Farreras, T. Cortes, J. Labarta*

An Efficient Load-Sharing and Fault-Tolerance Algorithm in Internet-Based Clustering Systems  
*C. In-Bok, L. Jae-Dong*

Dynamic Parallel Job Scheduling in Multi-Cluster Computing Systems  
*J.H. Abawajy*

Hunting for Bindings in Distributed Object-Oriented Systems  
*M. Sławińska*

Design and Implementation of the Cooperative Cache for PVFS  
*I.C. Hwang, H. Kim, H. Jung, D.H. Kim, H. Ghim, S.R. Maeng, J.W. Cho*

**D-10/B WS20 - Dynamic Data Driven Application System - Chair: Frederica Darema**

Model Reduction of Large-Scale Dynamical Systems  
*A. Antoulas, D. Sorensen, K.A. Gallivan, P. Van Dooren, A. Grama, C. Hoffmann, A. Sameh*

Data Driven Design Optimization Methodology Development and Application  
*H. Zhao, D. Knight, E. Taskinoglu, V. Jovanovic*

A Dynamic Data Driven Computational Infrastructure for Reliable Computer Simulations  
*J.T. Oden, J.C. Browne, I. Babuška, C. Bajaj, L.F. Demkowicz, L. Gray, J. Bass, Y. Feng, S. Prudhomme, F. Nobile, R. Tempone*

Improvements to Response-Surface Based Vehicle Design Using a Feature-Centric Approach  
*D. Thompson, S. Parthasarathy, R. Machiraju, S. Lawrence*

An Experiment for the Virtual Traffic Laboratory: Calibrating Speed Dependency on Heavy Traffic  
*A. Visser, J. Zoetebier, H. Yakali, B. Hertzberger*

**D-11/104 WS9 - Parallel Input/Output Management Techniques (PIOMT 2004)  
Chair: Jemal H. Abawajy**

File Replacement Algorithm for Storage Resource Managers in Data Grids  
*J.H. Abawajy*

Optimizations Based on Hints in a Parallel File System  
*M.S. Pérez, A. Sánchez, R. Robles, J.M. Pena, F. Pérez*

Using DMA Aligned Buffer to Improve Software RAID Performance  
*Z. Shi, J. Zhang, X. Zhou*

mNFS: Multicast-Based NFS Cluster  
*W.G. Lee, C. Park, D.W. Kim*

Balanced RM2: An Improved Data Placement Scheme for Tolerating Double Disk Failures in Disk Arrays  
*D.W. Kim, S.H. Lee, C. Park*

Diagonal Replication on Grid for Efficient Access of Data in Distributed Database Systems  
*M. Mat Deris, N. Bakar, M. Rabiei, H.M. Suzuri*

**D-10/18 WS13 - Modeling and Simulation in Supercomputing and Telecommunications Chair: Youngsong Mun**

Design and Implementation of the Web-Based PSE GridGate  
*K.W. Kang, Y.H. Kang, K.M. Cho*

Performance Evaluation of ENUM Directory Service Design  
*H.K. Lee, Y. Mun*

A Single Thread Discrete Event Simulation Toolkit for Java: STSimJ  
*W. Chen, D. Wang, W. Zheng*

Routing and Wavelength Assignments in Optical WDM Networks with Maximum Quantity of Edge Disjoint Paths  
*H. Choo, V.V. Shakhov*

**D-11/18 T6 - Numerical Algorithms - Chair: Genri Norman**

Local Sampling Problems  
*S.Y. Yang, W. Lin*

Recent Advances in Semi-Lagrangian Modelling of Flow through the Strait of Gibraltar  
*M. Seaid, M. El-Amrani, A. Machmoum*

Efficiency Study of the "black-box" Component Decomposition Preconditioning for Discrete Stress Analysis Problems  
*M.D. Mihajlović, S. Mijalković*

Direct Solver Based on FFT and SEL for Diffraction Problems with Distribution  
*H. Koshigoe*

Non-negative Matrix Factorization for Filtering Chinese Document  
*J.J. Lu, B. Xu, J. Jiang, D. Kang*

On Highly Secure and Available Data Storage Systems  
*S.J. Choi, H.Y. Youn, H.S. Lee*

**D-10/A T9 - Applications - Chair: Dieter Kranzlmüller**

Constraint-Based Contact Analysis between Deformable Objects  
*M. Hong, M.H. Choi, C. Lee*

Prediction of Binding Sites in Protein-Nucleic Acid Complexes  
*N. Han, K. Han*

Prediction of Protein Functions Using Protein Interaction Data

*H. Jung, K. Han*

Interactions of Magainin-2 Amide with Membrane Lipids  
*K. Murzyn, T. Róg, M. Pasenkiewicz-Gierula*

Dynamics of Granular Heaplets: a Phenomenological Model  
*Y.K. Goh, R.L. Jacobs*

Modelling of Shear Zones in Granular Materials within Hypoplasticity  
*J. Tejchman*

**D-10/304 WS7 - Computer Algebra Systems and Applications (CASA 2004)**  
**Chair: Akemi Galvez**

First Order ODEs: Mathematica and Symbolic-Numerical Methods  
*C. D'Apice, G. Gargiulo, M. Rosanna*

Evaluation of the Fundamental Physical Constants in Mathematica  
*A.S. Siver*

Symbolic Polynomial Interpolation Using Mathematica  
*A. Yazici, I. Altas, T. Ergenc*

Constant Weight Codes with Package CodingTheory.m in Mathematica  
*I.B. Gashkov*

Graph Coloring with web Mathematica  
*Ü. Ufuktepe, G. Bacak, T. Beseri*

Construction of Solutions for Nonintegrable Systems with the Help of the Painlevé Test  
*S.Yu. Vernov*

Computer Algebra Manipulations in Astronomy  
*T. Ivanova*

**D-10/123 WS28 - Modelling and Simulation of Multi-Physics Multi-Scale Systems**  
**Chair: Valeria Krzhizhanovskaya**

Computational Modelling of Multi-Field Ionic Continuum Systems  
*J. Michopoulos*

Formation of Dwarf Galaxies in Reionized Universe with Heterogeneous Multi-Computer System  
*T. Boku, H. Susa, K. Onuma, M. Umemura, M. Sato, D. Takahashi*

A Multi-Scale Numerical Study of the Flow, Heat and Mass Transfer in Protective Clothing  
*M.P. Sobera, C.R. Kleijn, P. Brassier, H.E.A. Van den Akker*

Thermomechanical Waves in SMA Patches Under Small Mechanical Loadings  
*L. Wang, R.V.N. Melnik*

Direct and Homogeneous Numerical Approaches to Multiphase Flows and Applications  
*R. Samulyak, T. Lu, Y. Prykarpatsky*

**D-10/224 WS18 - Simulation and Modeling of 3D Integrated Circuits - Chair: Igor Balk**

Challenges in Transmission Line Modeling at Multi-Gigabit Data Rates  
*V. Heyfitch*

MPI-based Parallelized Model Order Reduction Algorithm  
*I. Balk, S. Zorin*

3D-VLSI Design Tool  
*R. Bollapragada*

Analytical Solutions of the Diffusive Heat Equation as the Application for Multi-cellular Device Modeling - A Numerical Aspect  
*Z. Lisik, J. Wozny, M. Langer, N. Rinaldi*

Layout Based 3D Thermal Simulations of Integrated Circuits Components  
*K. Slusarczyk, M. Kamiński, A. Napieralski*

Simulation of Electrical and Optical Interconnections for Future VLSI ICs  
*G. Tosik, Z. Lisik, M. Langer, F. Gaffiot, I. O'Connor*

Balanced Binary Search Trees Based Approach for Sparse Matrix Representation  
*I. Balk, I. Pavlovsky, A. Ushakov, I. Landman*

Principles of Rectangular Mesh Generation in Computational Physics.  
*V. Ermolaev, E. Odintsov, A. Sobachkin, A. Kharitonovich, M. Bevzushenko, S. Zorin*

**D-10/226 WS23 - Evolvable Hardware - Chair: Nadia Nedjah**

The Application of GLS Algorithm to 2 Dimension Irregular-Shape Cutting Problem  
*P. Kominek, L. Budzyńska*

Biologically-Inspired: A Rule-Based Self-reconfiguration of a Virtex Chip  
*G. Tufte, P. Haddow*

Designing Digital Circuits for the Knapsack Problem  
*M. Oltean, C. Groşan, Ma. Oltean*

Improvements in FSM Evolutions from Partial Input/Output Sequences  
*S. Araújo, A. Mesquita, A. Pedrosa*

Intrinsic Evolution of Analog Circuits on a Programmable Analog Multiplexer Array  
*J.F.M. Amaral, J.L.M. Amaral, C.C. Santini, M.A.C. Pacheco, R. Tanscheit, M.H. Szwarcman*

Encoding Multiple Solutions in a Linear Genetic Programming Chromosome  
*M. Oltean, C. Groşan, M. Oltean*

Evolutionary State Assignment for Synchronous Finite State Machines  
*N. Nedjah, L. Mourelle*

## 8 June, TUESDAY

**D-10/1** 08.00 - 18.00 Registration

**D-10/A, transmission to: D-10/B, D-10/108, C-2/224**

**08.30 - 10.20 Plenary Session II - Chair: Jack Dongarra**

**08.30 - 09.10 Keynote Lecture:**

K2 - Combining Direct and Iterative Methods for the Solution of Large Sparse Systems in Different Application Areas

*Iain Duff, Rutherford Appleton Laboratory, UK and CERFACS, France*

**09.10 - 09.50 Keynote Lecture:**

K3 - True Grid: What Makes a Grid Special and Different?

*Vaidy Sunderam, Emory University, USA*

**09.50 - 10.20 Invited Lecture:**

I3 - The Future Challenges and Opportunities for COTS in HPC

*David Harper, Intel Corporation*

10.20 - 10.50 coffee

**10.50 - 12.30 PARALLEL SESSIONS:**

**C-2/224 WS16 - Programming Grids and Metasystems - Chair: Vaidy Sunderam**

High-Performance Parallel and Distributed Scientific Computing with the Common Component Architecture

*D.E. Bernholdt*

A Multiparadigm Model Oriented to Development of Grid Systems

*J.L.V. Barbosa, C.A. da Costa, A.C. Yamin, C.F.R. Geyer*

The Effect of the 2nd Generation Clusters: Changes in the Parallel Programming Paradigms

*J. Porras, P. Huttunen, J. Ikonen*

JavaSymphony, a Programming Model for the Grid

*A. Jugravu, T. Fahringer*

Adaptation of Legacy Software to Grid Services

*B. Baliś, M. Bubak, M. Węgiel*

Grid Service Registry for Workflow Composition Framework

*M. Bubak, T. Gubała, M. Kapałka, M. Malawski, K. Rycerz*

A-GWL: Abstract Grid Workflow Language

*T. Fahringer, S. Pillana, A. Villazon*

**C-2/429 WS25 - Information Technologies Enhancing Health Care Delivery  
Chair: Mariusz Duplaga**

The Impact of Information Technology on Quality of Healthcare Services

*M. Duplaga*

Computer Generated Patient Plans Based on Patterns of Care

*O.M. Winnem*

On Direct Comparing of Medical Guidelines with Electronic Health Record  
*J. Zvárová, A. Veselý, P. Hanzlíček, J. Špidlen, D. Buchtela*

Managing Information Models for E-Health via Planned Evolutionary Pathways  
*H. Duwe*

**D-10/108 T4 - Data Mining and Data Bases - Chair: Alexander Bogdanov**

Advanced High Performance Algorithms for Data Processing (Invited Lecture)  
*A.V. Bogdanov, A.V. Boukhanovsky*

Ontology-Based Partitioning of Data Stream for Web Mining: a Case Study of Web Logs  
*J.J. Jung*

Single Trial Discrimination between Right and Left Hand Movement-related EEG Activity  
*S. Cho, J.A. Kim, D.U. Hwang, S.K. Han*

WINGS: a Parallel Indexer for Web Contents  
*F. Silvestri, S. Orlando, R. Perego*

A Database Server for Predicting Protein-Protein Interactions  
*K. Han, B. Park*

**D-10/B WS20 - Dynamic Data Driven Application System - Chair: Frederica Darema**

Samas: Scalable Architecture for Multi-Resolution Agent-Based Simulation  
*A. Chaturvedi, J. Chi, S. Mehta, D. Dolk*

Simulation Coercion Applied to Multiagent DDDAS  
*Y. Loitière, D. Brogan, P. Reynolds*

O'SOAP - A Web Services Framework for DDDAS Applications  
*K. Pingali, P. Stodghill*

Application of Grid-Enabled Technologies for Solving Optimization Problems in Data Driven Reservoir Studies  
*M. Parashar, H. Klie, U. Catalyurek, T. Kurc, V. Matossian, J. Saltz, M.F. Wheeler*

Image-Based Stress Recognition Using a Model-Based Dynamic Face Tracking System  
*D. Metaxas, S. Venkataraman, C. Vogler*

**D-11/104 WS37 - Next Generation Computing - Chair: Byong Lee**

An Implementation of Budget-Based Resource Reservation for Real-Time Linux  
*C.S. Liu, N.C. Perng, T.W. Kuo*

Similarity Retrieval Based on SOM-Based R\*-Tree  
*K.H. Choi, M.H. Shin, S.H. Bae, C.H. Kwon, I.H. Ra*

Extending the Power of Server Based Computing  
*H.L. Yu, W.M. Zhen, M.M. Shen*

Specifying Policies for Service Negotiations of Response Time  
*T.K. Kim, O.H. Byeon, K.J. Chun, T.M. Chung*

**D-10/18 WS13 - Modeling and Simulation in Supercomputing and Telecommunications Chair: Youngsong Mun**

Parallelism for Nested Loops with Non-Uniform and Flow Dependences  
*S. Jeong*

Comparison Based Diagnostics as a Probabilistic Deduction Problem  
*B. Polgár*

Dynamic Threshold for Monitor Systems on Grid Service Environments  
*E.N. Huh*

Multiuser CDMA Parameters Estimation by Particle Filter with Resampling Schemes  
*J.S. Kim, D.R. Shin, W.G. Chung*

**D-11/18 WS33 - New Numerical Methods for DEs: Applications to Linear Algebra, Control and Engineering - Chair: Tiziano Politi**

Higher Order Quadrature on Sparse Grids  
*H.-J. Bungartz, S. Dirnstorfer*

Application of Extrapolation Methods to Numerical Solution of Fredholm Integral Equations related to Boundary Value Problems  
*A. Sidi*

Extrapolation Techniques for Computing Accurate Solutions of Elliptic Problems with Singular Solutions  
*H. Köstler, U. Rüde*

Vandermonde-Type Matrices in Two Step Collocation Methods for Special Second Order Ordinary Differential Equations  
*S. Martucci, B. Paternoster*

Direct Optimization Using Gaussian Quadrature and Continuous Runge-Kutta Methods: Application to an Innovation Diffusion Model  
*F. Diele, C. Marangi, S. Ragni*

**D-10/A T9 - Applications - Chair: Tom Dhaene**

Effective Algorithm for Detection of a Collision between Spherical Particles  
*J.S. Leszczynski, M. Ciesielski*

Vorticity Particle Method for Simulation of 3D Flow  
*H. Kudela, P. Regucki*

Crack Analysis in Single Plate Stressing of Particle Compounds  
*M. Khanal, W. Schubert, J. Tomas*

A Uniform and Reduced Mathematical Model for Sucker Rod Pumping  
*L. Liu, C. Tong, J. Wang, R. Liu*

Distributed Computation of Optical Flow  
*A.G. Dopico, M.V. Correia, J.A. Santos, L.M. Nunes*

**D-10/304 WS6 - Computer Graphics and Geometric Modelling (CGGM 2004) Chair: Andres Iglesias**

Declarative Modelling in Computer Graphics: Current Results and Future Issues (workshop keynote lecture)  
*P.F. Bonnefoi, D. Plemenos, W. Ruchaud*

Geometric Snapping for 3D Meshes  
*K.H. Yoo, J.S. Ha*



Multiresolution Approximations of Generalized Voronoi Diagrams  
*I. Boada, N. Coll, J.A. Sellarès*

LodStrips: Level of Detail Strips  
*J.F. Ramos, M. Chover*

Declarative Specification of Ambiance in VRML Landscapes  
*V. Jolivet, D. Plemenos, P. Poulingeas*

**D-10/123 WS28 - Modelling and Simulation of Multi-Physics Multi-Scale Systems**  
**Chair: Bastien Chopard**

Molecular Dynamics and Monte Carlo Simulations for Heat Transfer in Micro and Nano-channels  
*A.J.H. Frijns, S.V. Nedeia, A.J. Markvoort, A.A. van Steenhoven, P.A.J. Hilbers*

Improved semi-Lagrangian Stabilizing Corrections Scheme for Shallow Water Equations  
*A. Burchtein, L. Burchtein*

Bose-Einstein Condensation Studied by the Real-time Monte Carlo Simulation in the Frame of Java Applet  
*M. Gall, R. Kutner, A. Majerowski, D. Żebrowski*

**D-10/224 WS24 - Computational Methods in Finance and Insurance**  
**Chair: Aleksander Janicki**

On the Efficiency of Simplified Weak Taylor Schemes for Monte Carlo Simulation in Finance  
*N. Bruti Liberati, E. Platen*

Time-Scale Transformations: Effect on VaR Models  
*F. Lamantia, S. Ortobelli, S. Rachev*

Environment and Financial Markets  
*W. Szatcschneider, M. Jeanblanc, T. Kwiatkowska*

Pricing of Some Exotic Options with NIG-Lévy Input  
*S. Rasmus, S. Asmussen, M. Wiktorsson*

Construction of Quasi Optimal Portfolio for Stochastic Models of Financial Market  
*A. Janicki, J. Zwiery*

**D-10/226 WS10 - Gene, Genome and Population Evolution - Chair: Dietrich Stauffer**

Life History Traits and Genome Structure: Aerobiosis and G+C Content in Bacteria  
*J.R. Lobry*

Differential Gene Survival under Asymmetric Directional Mutational Pressure  
*P. Mackiewicz, M. Dudkiewicz, M. Kowalczyk, D. Mackiewicz, J. Banaszak, N. Polak, K. Smolarczyk, A. Nowicka, M.R. Dudek, S. Cebrat*

How Gene Survival Depends on their Length  
*N. Polak, J. Banaszak, P. Mackiewicz, M. Dudkiewicz, M. Kowalczyk, D. Mackiewicz, K. Smolarczyk, A. Nowicka, M.R. Dudek, S. Cebrat*

Super-Tree Approach for Studying the Phylogeny of Prokaryotes: New Results on Completely Sequenced Genomes  
*A. Calteau, V. Daubin, G. Perrière*

12.30 - 14.30 lunch

**14.30 - 16.10 PARALLEL SESSIONS:**

**C-2/224 WS16 - Programming Grids and Metasystems - Chair: Vaidy Sunderam**

Design of Departmental Metacomputing ML  
*F. Gava*

Grid-Enabled Scene Rendering Application  
*M. Caballer, V. Hernández, J.E. Román*

Rule-Based Visualization in a Computational Steering Collaboratory  
*L. Jiang, H. Liu, M. Parashar, D. Silver*

Placement of File Replicas in Data Grid Environments  
*J.H. Abawajy*

Generating Reliable Conformance Test Suites for Parallel and Distributed Languages, Libraries and APIs  
*Ł. Garstecki*

A Concept of Replicated Remote Method Invocation  
*J. Brzeziński, C. Sobaniec*

**C-2/429 WS25 - Information Technologies Enhancing Health Care Delivery  
Chair: Mariusz Duplaga**

An Attributable Role-Based Access Control for Healthcare  
*D. Schwartzmann*

Aspects of a Massively Distributed Stable Component Space  
*K. Schmaranz, D. Schwartzmann*

Demonstrating Wireless IPv6 Access to a Federated Health Record Server  
*D. Kalra, D. Ingram, A. Austin, V. Griffith, D. Lloyd, D. Patterson, P. Kirstein, P. Conversin, W. Fritsche*

Collaborative Teleradiology  
*K. Zieliński, J. Cała, Ł. Czekierda, S. Zieliński*

**D-10/108 T4 - Data Mining and Data Bases - Chair: Jacek Kitowski**

PairAnalyzer: Extracting and Visualizing RNA Structure Elements Formed by Base Pairing  
*D. Lim, K. Han*

A Parallel Crawling Schema Using Dynamic Partition  
*S. Dong, X. Lu, L. Zhang*

Hybrid Collaborative Filtering and Content-Based Filtering for Improved Recommender System  
*K.Y. Jung, D.H. Park, J.H. Lee*

Object-Oriented Database Mining: Use of Object Oriented Concepts for Improving Data Classification Technique  
*K. Waiyamai, C. Songsiri, T. Rakthanmanon*

Data-Mining Based Skin-Color Modeling Using the ECL Skin-Color Images  
*M. Hammami, D. Tsishkou, L. Chen*

**D-10/B WS20 - Dynamic Data Driven Application System - Chair: Frederica Darema**

Developing a Data Driven System for Computational Neuroscience  
*R. Snider, Y. Zhu*

Karhunen-Loeve Representation of Periodic Second-Order Autoregressive  
*D. Lucor, C.H. Su, G.E. Karniadakis*

**D-11/104 WS37 - Next Generation Computing - Chair: Byong Lee**

Determination and Combination of Quantitative Weight Value from Multiple Preference Information  
*J.H. Yoo, B.G. Lee, H.S. Han*

Forwarding Based Data Parallel Handoff for Real-Time QoS in Mobile IPv6  
*H.Y. Jeong, J. Lim, J.D. Park, H. Choo*

Mobile Agent-Based Load Monitoring System for the Safety Web Server Environment  
*H.J. Park, K.J. Jyung, S.S. Kim*

A Study on TCP Buffer Management Algorithm for Improvement of Network Performance in Grid Environment  
*Y. Jeong, M. Noh, H.K. Lee, Y. Mun*

**D-10/18 T5 - Networking - Chair: Krzysztof Zieliński**

Mobility Management Scheme for Reducing Location Traffic Cost in Mobile Networks  
*B.M. Min, J.G. Jee, H.S. Oh*

Performance Analysis of Active Queue Management Schemes for IP Network  
*J. Koo, S. Ahn, J. Chung*

A Real-time Total Order Multicast Protocol  
*K. Erciyes, A. Şahan*

A Rule-Based Intrusion Alert Correlation System for Integrated Security Management  
*S.H. Lee, H.H. Lee, B.N. Noh*

Stable Neighbor Based Adaptive Replica Allocation in Mobile Ad Hoc Networks  
*Z. Jing, S. Jinshu, Y. Kan, W. Yijie*

**D-11/18 WS33 - New Numerical Methods for DEs: Applications to Linear Algebra, Control and Engineering - Chair: Tiziano Politi**

The ReLPM Exponential Integrator for FE Discretizations of Advection-Diffusion Equations  
*L. Bergamaschi, M. Caliori, M. Vianello*

Function Fitting Two-Step BDF Algorithms for ODEs  
*L.G. Ixaru, B. Paternoster*

Pseudospectral Iterated Method for Differential Equations with Delay Terms  
*J. Mead, B. Zubik-Kowal*

A Hybrid Numerical Technique for the Solution of a Class of Implicit Matrix Differential Equation  
*N. Del Buono, L. Lopez*

A Continuous Approach for the Computation of the Hyperbolic Singular Value Decomposition  
*T. Politi*

**D-10/A T9 - Applications - Chair: Alistair Rendell**

Analytical Test on Effectiveness of MCDF Operations  
*J. Kong, B. Zhang, W. Guo*

An Efficient Perspective Projection Using VolumePro™  
*S. Lim, B.S. Shin*

Reconstruction of 3D Curvilinear Wireframe Model from 2D Orthographic Views  
*A. Zhang, Y. Xue, X. Sun, Y. Hu, Y. Luo, Y. Wang, S. Zhong, J. Wang, J. Tang, G. Cai*

Surface Curvature Estimation for Edge Spinning Algorithm  
*M. Cermak, V. Skala*

Visualization of Very Large Oceanography Time-Varying Volume Datasets  
*S. Park, C. Bajaj, I. Ihm*

**D-10/304 WS6 - Computer Graphics and Geometric Modelling (CGGM 2004)  
Chair: Andres Iglesias**

Using Constraints in Delaunay and Greedy Triangulation for Contour Lines Improvement (workshop keynote lecture)  
*I. Kolingerová, V. Strych, V. Čada*

An Effective Modeling of Single Cores Prostheses Using Geometric Techniques  
*K.H. Yoo, J.S. Ha*

GA and CHC. Two Evolutionary Algorithms to Solve the Root Identification Problem in Geometric Constraint Solving  
*M.V. Luzón, E. Barreiro, E. Yeguas, R. Joan-Arinyo*

Manifold Extraction in Surface Reconstruction  
*M. Varnuška, I. Kolingerová*

Expression of a Set of Points' Structure Within a Specific Geometrical Model  
*J-L. Mari, J. Sequeira*

**D-10/123 WS27 - Interactive Visualisation and Interaction Technologies  
Chair: Elena Zudilova**

Do Colors Affect Our Recognition Memory for Haptic Rough Surfaces?  
*Z. Luo, A. Imamiya*

Enhancing Human Computer Interaction in Networked Hapto-Acoustic Virtual Reality Environments on the CeNTIE Network  
*T. Adriaansen, A. Krumm-Heller, C. Gunn*

Collaborative Integration of Speech and 3D Gesture for Map-Based Applications  
*A. Corradini*

Mobile Augmented Reality Support for Architects Based on Feature Tracking Techniques  
*M. Nielsen, G. Kramp, K. Grønbaek*

User Interface Design for a Navigation and Communication System in the Automotive World

O. Preissner

**D-10/224 WS24 - Computational Methods in Finance and Insurance**  
**Chair: Aleksander Janicki**

Euler Scheme for One-dimensional SDEs with Time Dependent Reflecting  
*L. Słomiński, T. Wojciechowski*

On Approximation of Average Expectation Prices for Path Dependent Options in Fractional Models  
*B. Ziemkiewicz*

Confidence Intervals for the Autocorrelations of the Squares of GARCH  
*P. Kokoszka, G. Teyssière, A. Zhang*

Performance Measures in an Evolutionary Stock Trading Expert System  
*P. Lipinski, J.J. Korczak*

**D-10/226 WS10 - Gene, Genome and Population Evolution**  
**Chair: Andrzej Maksymowicz**

Genetic Paralog Analysis and Simulations  
*S. Cebrat, J.P. Radomski, D. Stauffer*

Evolutionary Perspectives on Protein Thermodynamics  
*R.A. Goldstein*

The Partition Function Variant of Sankoff's Algorithm  
*I.L. Hofacker, P.F. Stadler*

Simulation of Molecular Evolution Using Population Dynamics Modelling  
*S.V. Semovski*

16.10 - 16.40 coffee

**16.40 - 18.20 PARALLEL SESSIONS:**

**C-1/406 TUT5 - Cooperative Resource Sharing with H2O and Harness - Dawid Kurzyniec, Tomasz Wrzosek, Tomasz Ampula, Vaidy Sunderam, Emory**

**C-2/224 WS38 - Active and Programmable Grids Architectures and Components**  
**Chair: Krzysztof Zieliński**

Discovery of Web Services with a P2P Network  
*F. Forster, H. De Meer*

Achieving Load Balancing in Structured Peer-to-Peer Grids  
*C. Pairot, P. García, A.F.G. Skarmeta, R. Mondéjar*

A Conceptual Model for Grid-Adaptivity of HPC Applications and its Logical Implementation with Components Technology  
*A. Machi, S. Lombardo*

Global Discovery Service for JMX Architecture  
*J. Midura, K. Balos, K. Zieliński*

Towards a Grid Applicable Parallel Architecture Machine  
*K. Skala, Z. Sojat*

An XKMS-Based Security Framework for Mobile Grid into the XML Web Services  
*N. Park, K. Moon, J. Jang, S. Sohn*

**C-2/429 WS22 - Practical Aspects of High-Level Parallel Programming (PAPP 2004)**

**Chair: Frederic Loulergue**

Evaluating the Performance of Skeleton-Based High Level Parallel Programs

*A. Benoit, M. Cole, S. Gilmore, J. Hillston*

Towards a Generalised Runtime Environment for Parallel Haskell

*J. Berthold*

Extending Camelot with Mutable State and Concurrency

*S. Gilmore*

E.V.E., An Object Oriented SIMD Library

*J. Falcou, J. Sérot*

Petri Nets as Executable Specifications of High-Level Timed Parallel Systems

*F. Pommereau*

Parallel I/O in Bulk Synchronous Parallel ML

*F. Gava*

**D-10/108 T4 - Data Mining and Data Bases - Chair: Richard Ramaroson**

Maximum Likelihood Based Quantum Set Separation

*S. Imre, F. Balázs*

Chunking-Coordinated-Synthetic Approaches to Large-Scale Kernel Machines

*F.J. González-Castaño, R.R. Meyer*

Computational Identification of -1 Frameshift Signals

*S. Moon, Y. Byun, K. Han*

Dispatching Mechanism of an Agent-Based Distributed Event System

*O.K. Sahingoz, N. Erdogan*

An Adaptive Communication Mechanism for Highly Mobile Agents

*J. Ahn*

**D-10/B WS20 - Dynamic Data Driven Application System - Chair: Frederica Darema  
Birds-of-feather Session**

**D-11/104 WS19 - OpenMP for Large Scale Applications - Chair: Barbara Chapman**

Performance Comparison Between OpenMP and MPI on IA64 Architecture

*L. Qi, M. Shen, Y. Chen, J. Li*

Defining Synthesizable OpenMP Directives and Clauses

*P. Dziurzynski, V. Beletsky*

Efficient Translation of OpenMP to Distributed Memory

*L. Huang, B. Chapman, Z. Liu, R. Kendall*

ORC-OpenMP: An OpenMP Compiler Based on ORC

*C. Yongjian, L. Jianjiang, W. Shengyuan, W. Dingxing*

**D-10/18 T5 - Networking - Chair: Roman Wyrzykowski**

Mobile-based Synchronization Model for Presentation of Multimedia Objects

*K.W. Lee, H.S. Cho, K.H. Lee*

Synchronization Scheme of Multimedia Streams in Mobile Handoff Control  
*G.S. Lee*

**D-11/18 T7 - Finite Element Method - Chair: Hai Jin**

A Numerical Adaptive Algorithm for the Obstacle Problem  
*F.A. Pérez, J.M. Cascón, L. Ferragut*

Finite Element Model of Fracture Formation on Growing Surfaces  
*P. Federl, P. Prusinkiewicz*

An Adaptive, 3-Dimensional, Hexahedral Finite Element Implementation for Distributed Memory  
*J. Hippold, A. Meyer, G. Rünger*

A Modular Design for Parallel Adaptive Finite Element Computational Kernels  
*K. Banaś*

Load Balancing Issues for a Multiple Front Method  
*C. Denis, J.P. Boufflet, P. Breitkopf, M. Vayssade, B. Glut*

Multiresolutional Techniques in Finite Element Method Solution of Eigenvalue Problem  
*M. Kamiński*

**D-10/A T9 - Applications - Chair: Jemal H. Abawajy**

Sphere-Spin-Image: A Viewpoint-invariant Surface Representation for 3D Face Recognition  
*Y. Wang, G. Pan, Z. Wu, S. Han*

Design and Implementation of Integrated Assembly Object Model for Intelligent Virtual Assembly Planning  
*J. Fan, Y. Ye, J.M. Cai*

Adaptive Model Based Parameter Estimation Based on Sparse Data and Frequency Derivatives  
*D. Deschrijver, T. Dhaene, J. Broeckhove*

Towards Efficient Parallel Image Processing on Cluster Grids Using GIMP  
*P. Czarnul, A. Cierieszko, M. Frączak*

Benchmarking Parallel Three Dimensional FFT Kernels with ZENTURIO  
*R. Prodan, A. Bonelli, A. Adelmann, T. Fahringer, C. Überhuber*

**D-10/304 WS6 - Computer Graphics and Geometric Modelling (CGGM 2004)  
Chair: Andres Iglesias**

Effective Use of Procedural Shaders in Animated Scenes  
*P. Kondratieva, V. Havran, H-P. Seidel*

Real-Time Tree Rendering  
*I. Remolar, C. Rebollo, M. Chover, J. Ribelles*

A Brush Stroke Generation using Magnetic Field Model for Painterly Rendering  
*L.S. Yeon, Y.H. Soon, Y.K. Hyun*

Reuse of Paths in Final Gathering Step with Moving Light Sources  
*M. Sbert, F. Castro*

Real Time Tree Sketching

*C. Campos, R. Quirós, J. Huerta, E. Camahort, R. Vivó, J. Lluch*

**D-10/123 WS27 - Interactive Visualisation and Interaction Technologies**  
**Chair: Tony Adriaansen**

Target Selection in Augmented Reality Worlds  
*J. Sands, S.W. Lawson, D. Benyon*

*Towards Believable Behaviour Generation for Embodied Conversational Agents*  
*A. Corradini, M. Fredriksson, M. Mehta, J. Königsmann, N.O. Bernsen, L. Johannesson*

*A Performance Analysis of Movement Patterns*  
*C. Sas, G. O'Hare, R. Reilly*

On the Motivation and Attractiveness Scope of the Virtual Reality User Interface of an Educational Game  
*M. Virvou, G. Katsionis, K. Manos*

*A Client-Server Engine for Parallel Computation of High-Resolution Planes*  
*D.P. Gavidia, E.V. Zudilova, P.M.A. Sloot*

**D-10/224 WS24 - Computational Methods in Finance and Insurance**  
**Chair: Aleksander Janicki**

Stocks' Trading System Based on the Particle Swarm Optimization Algorithm  
*J. Nenortaite, R. Simutis*

Parisian Options - The Implied Barrier Concept  
*J. Anderluh, H. van der Weide*

Modeling Electricity Prices with Regime Switching Models  
*M. Bierbrauer, S. Trück, R. Weron*

Modeling the Risk Process in the XploRe Computing Environment  
*K. Burnecki, R. Weron*

**D-10/226 WS10 - Gene, Genome and Population Evolution - Chair: Stanisław Cebrať**

Lotka-Volterra Model of Macro-Evolution on Dynamical Networks  
*F. Coppex, M. Droz, A. Lipowski*

Simulation of a Horizontal and Vertical Disease Spread in Population  
*M. Magdoń-Maksymowicz*

Evolution of Population with Interaction Between Neighbours  
*M. Magdoń-Maksymowicz, A.Z. Maksymowicz*

The Role of Dominant Mutations in the Population Expansion  
*S. Cebrať, A. Pękałski*

**18.45 - departure for the Folk Party**



## 9 June, WEDNESDAY

**D-10/1** 08.00 - 17.00 Registration

**D-10/A, transmission to: D-10/B, D-10/108, C-2/224**

**08.30 - 10.20 Plenary Session III - Chair: Dick van Albada**

**08.30 - 09.10 Keynote Lecture:**

K4 - Computational Multi-Field Visualization

*Chris Johnson, University of Utah, USA*

**09.10 - 09.50 Keynote Lecture:**

K5 - On the Pathology of High Performance Computing

*John G. Michopoulos, U.S. Naval Research Laboratory*

**09.50 - 10.20 Invited Lecture:**

I4 - Processors, Servers, Clusters and Grids. Status and Trends

*Frank Baetke, HPTCD Richardson*

10.20 - 10.50 coffee

**10.50 - 12.30 PARALLEL SESSIONS:**

**D-10/108 I5 - IBM's Grid Computing Strategy**

*Michel Teyssedre, ISG - IBM EMEA*

**C-1/406 TUT3 - CrossGrid Project Tutorial**

**C-2/224 WS38 - Active and Programmable Grids Architectures and Components**

**Chair: Karolj Skala**

A Proposal of Policy-Based System Architecture for Grid Services Management

*E. Magaña, E. Salamanca, J. Serrat*

Self-Management GRID Services - A Programmable Network Approach

*L. Cheng, A. Galis, A. Savanović, B.J. Blažič, J. Bešter*

Application-Specific Hints in Reconfigurable Grid Scheduling Algorithms

*B. Volckaert, B. Thysebaert, F.D. Turck, B. Dhoedt, P. Demeester*

Self-Configuration of Grid Nodes Using a Policy-Based Management Architecture

*F.J. García, Ó. Cánovas, G. Martínez, A.F.G. Skarmeta*

Context-Aware GRID Services: Issues and Approaches

*K. Jean, A. Galis, A. Tan*

Security Issues in Virtual Grid Environments

*J.L. Muñoz, J. Pegueroles, J. Forné, O. Esparza, M. Soriano*

**C-2/429 WS4 - Tools for Program Development and Analysis in Computational**

**Science Chair: Dieter Kranzlmüller**

Teuta: Tool Support for Performance Modeling of Distributed and Parallel Applications

*T. Fahringer, S. Pillana, J. Testori*

Accurate Cache and TLB Characterization Using Hardware Counters

*J. Dongarra, S. Moore, P. Mucci, K. Seymour, H. You*

A Tool Suite for Simulation Based Analysis of Memory Access Behavior

*J. Weidendorfer, M. Kowarschik, C. Trinitis*

Platform-Independent Cache Optimization by Pinpointing Low-Locality Reuse  
*K. Beyls, E.H. D'Hollander*

**D-10/B WS26 - GeoComputation - Chair: Yong Xue**

A Cache Mechanism for Component-based WebGIS  
*Y. Luo, X. Wang, Z. Xu*

A Data Structure for Efficient Transmission of Generalised Vector Maps  
*M. Zhou, M. Bertolotto*

Feasibility Study of Geo-Spatial Analysis Using Grid Computing  
*Y. Hu, Y. Xue, J. Wang, X. Sun, G. Cai, J. Tang, Y. Luo, S. Zhong, Y. Wang, A. Zhang*

An Optimum Vehicular Path Solution with Multi-Heuristics  
*F. Lu, Y. Guan*

**D-11/104 WS29 - QoS Routing - Chair: Hyunseung Choo**

Routing, Wavelength Assignment in Optical Networks Using an Efficient and Fair EDP Algorithm  
*P. Manohar, V. Sridhar*

Route Optimization Technique to Support Multicast in Mobile Networks  
*K. Park, S. Han, B. Joo, K. Kim, J. Hong*

PRED: Prediction-Enabled RED  
*M. Chung, E.N. Huh*

An Efficient Aggregation and Routing Algorithm Using Multi-hop Clustering in Sensor Networks  
*B.H. Lee, H.W. Yoon, T.J. Lee, M.Y. Chung*

**D-11/18 WS39 - Computational Modeling and Simulation on Biomechanical Engineering - Chair: Yoon Hyuk Kim**

Inter-finger Connection Matrices  
*V.M. Zatsiorsky, M.L. Latash, F. Danion, F. Gao, Z.M. Li, R.W. Gregory, S. Li*

Biomechanics of Bone Cement Augmentation with Compression Hip Screw System for the Treatment of Intertrochanteric Fractures  
*S.J. Lee, B.J. Kim, S.Y. Kwon, G.R. Tack*

Comparison of Knee Cruciate Ligaments Models Using Kinematics from a Living Subject during Chair Rising-Sitting  
*R. Stagni, S. Fantozzi, M. Davinelli, M. Lannocca*

Computer and Robotic Model of External Fixation System for Fracture Treatment  
*Y.H. Kim, S.-G. Lee*

**D-10/A T9 - Applications - Chair: Gunther Stuer**

The Proof and Illustration of the Central Limit Theorem by Brownian Numerical Experiments in Real Time within the Java Applet  
*M. Gall, R. Kutner, W. Wesela*

An Extended Coherence Protocol for Recoverable DSM Systems with Causal Consistency

*J. Brzeziński, M. Szychowiak*

2D and 3D Representations of Solution Spaces for CO Problems  
*E. Nowicki, C. Smutnicki*

Effective Detector Set Generation and Evolution for Artificial Immune System  
*C. Kim, W. Kim, M. Hong*

Artificial Immune System against Viral Attack  
*H. Lee, W. Kim, M. Hong*

**D-10/304 WS6 - Computer Graphics and Geometric Modelling (CGGM 2004)**

**Chair: Andres Iglesias**

Facial Expression Recognition Based on Dimension Model using Sparse Coding  
*Y. Shin*

An Application to the Treatment of Geophysical Images through Orthogonal Projections  
*S. Romero, F. Moreno*

A Derivative-Free Tracking Algorithm for Implicit Curves with Singularities  
*J.F.M. Morgado, A.J.P. Gomes*

Framework for Simulating the Human Behavior for Intelligent Virtual Agents. Part I: Framework Architecture  
*F. Luengo, A. Iglesias*

Framework for Simulating the Human Behavior for Intelligent Virtual Agents. Part II: Behavioral System  
*F. Luengo, A. Iglesias*

**D-10/123 WS27 - Interactive Visualisation and Interaction Technologies**

**Chair: Elena Zudilova**

A Framework for 3D Polysensometric Comparative Visualization  
*J. Khan, X. Xu, Y. Ma*

An Incremental Editor for Dynamic Hierarchical Drawing of Trees  
*D. Workman, M. Bernard, S. Pothoven*

Using Indexed-Sequential Geometric Glyphs to Explore Visual Patterns  
*J. Morey, K. Sedig*

**D-10/123 Workshop Poster/Demo Session - Chair: Tony Adriaansen**

Studying The Acceptance or Rejection of Newcomers in Virtual Environments  
*P. Herrero, A. de Antonio, J. Segovia*

Open Standard Based Visualization of Complex Internet Computing  
*S. Yang, J. Khan*

General Conception of the Virtual Laboratory  
*M. Lawenda, N. Meyer, T. Rajtar, M. Okoń, D. Stokłosa, M. Stroiński, Ł. Popena, Z. Gdaniec, R.W. Adamiak*

**D-10/224 WS12 - Agent Day 2004 - Intelligent Agents in Computing Systems**

**Chair: Robert Schaefer**

Towards Measure of Semantic Correlation between Messages in Multiagent  
*A. Pieczyńska-Kuchtiak, R. Katarzyniak*

Modelling Intelligent Virtual Agent Skills with Human-Like Senses  
*P. Herrero, A. de Antonio*

Reuse of Organisational Experience Harnessing Software Agents  
*K. Krawczyk, M. Majewska, M. Dziewierz, R. Słota, Z. Balogh, J. Kitowski, S. Lambert*

The Construction and Analysis of Agent Fault Tolerance Model Based on Π-  
*Y. Jiang, Z. Xia, Y. Zhong, S. Zhang*

REMARK - Reusable Agent-Based Experience Management and Recommended Framework  
*Z. Balogh, M. Laclavik, L. Hluchy, I. Budinska, K. Krawczyk*

Behaviour Based Detection on Unfavorable Resources  
*K. Cetnarowicz, G. Rojek*

**D-10/226 WS32 - Parallel Monte Carlo Algorithms for Diverse Applications in a Distributed Setting - Chair: Vassil Alexandrov**

Using P-GRADE for Monte Carlo Computations in a Distributed Environment  
*V.N. Alexandrov, A. Thandavan, P. Kacsuk*

Calculating Activation Energies in Diffusion Processes Using a Monte Carlo Approach in a Grid Environment  
*M. Calleja, M.T. Dove*

Using Parallel Monte Carlo Methods in Large-Scale Air Pollution Modeling  
*V.N. Alexandrov, Z. Zlatev*

Parallel Importance Separation for Multiple Integrals and Integral Equations  
*S. Ivanovska, A. Karaivanova*

12.30 - 14.30 lunch

**14.30 - 16.10 PARALLEL SESSIONS:**

**C-2/224 WS38 - Active and Programmable Grids Architectures and Components  
Chair: Alex Galis**

Implementation and Evaluation of Integrity Protection Facilities for Active Grids  
*A. Savanović, D. Gabrijelčić, B.J. Blažič, J. Bešter*

A Convergence Architecture for GRID Computing and Programmable Networks  
*C. Bachmeir, P. Tabery, D. Marinov, G. Nachev, J. Eberspächer*

Programmable Grids Framework Enabling QoS in an OGSA Context  
*J. Soldatos, L. Polymenakos, G. Kormentzas*

Active and Logistical Networking for Grid Computing: the e-Toile Architecture  
*A. Bassi, M. Beck, F. Chanussot, J.P. Gelas, R. Harakay, L. Lefčvre, T. Moore, J. Plank, P. Primet*

Distributed Resource Discovery in Wide Area Grid Environments  
*T.N. Ellahi, M.T. Kechadi*

Trusted Group Membership Service for JXTA  
*L. Kawulok, K. Zieliński, M. Jaeschke*

**C-2/429 WS4 - Tools for Program Development and Analysis in Computational Science Chair: Roland Wismueller**

Performance Analysis, Data Sharing and Tools Integration in Grids: New Approach Based on Ontology  
*H.L. Truong, T. Fahringer*

MPI Application Development Using the Analysis Tool MARMOT  
*B. Krammer, M.S. Müller, M.M. Resch*

Monitoring System for Distributed Java Applications  
*W. Funika, M. Bubak, M. Smętek*

Automatic Parallel-Discrete Event Simulation  
*M. Marín*

**D-10/B WS26 - GeoComputation - Chair: Yong Xue**

An Extended Locking Method for Geographical Database with Spatial Rules  
*C. Cheng, P. Shen, M. Zhang, F. Lu*

Preliminary Study on Unsupervised Classification of Remotely Sensed Images on the Grid  
*J. Wang, X. Sun, Y. Xue, Y. Hu, Y. Luo, Y. Wang, S. Zhong, A. Zhang, J.K. Tang, G.Y. Cai*

Experience of Remote Sensing Information Modelling with Grid Computing  
*G. Cai, Y. Xue, J. Tang, J. Wang, Y. Wang, Y. Luo, Y. Hu, S. Zhong, X. Sun*

Load Analysis and Load Control in Geo-Agents  
*Y. Luo, X. Wang, Z. Xu*

A GIS based virtual urban simulation environment  
*J. Yao, H. Tawfik, T. Fernando*

**D-11/104 WS29 - QoS Routing - Chair: Hyunseung Choo**

Explicit Routing for Traffic Engineering in Labeled Optical Burst-Switched WDM Networks  
*J. Zhang, H.J. Lee, S. Wang, X. Qiu, K. Zhu, Y. Huang, D. Datta, Y.C. Kim, B. Mukherjee*

A Mutual Authentication and Route Optimization Method between MN and CN Using AAA in Mobile IPv6  
*M. Kim, H. Lee, Y. Mun*

Studies on a Class of AWG-Based Node Architectures for Optical Burst-Switched Networks  
*Y. Huang, D. Datta, X. Qiu, J. Zhang, H.K. Park, Y.C. Kim, J. Heritage, B. Mukherjee*

Self-Organizing Sensor Networks  
*D. Bein, A.K. Datta*

**D-10/18 TUT4 - Building InfiniBand\* Based High Performance Compute Clusters Using HPC Middleware Packages - Tom Lehmann, Intel Corporation**

**D-11/18 WS39 - Computational Modeling and Simulation on Biomechanical Engineering - Chair: Vladimir M. Zatsiorsky**

Robust Path Design of Biomechanical Systems Using the Concept of Allowable Load Set

*J.H. Chang, J.H. Kim, B.M. Kwak*

A New Modeling Method for Objects with Branching Problem Using Non-Uniform B-Spline

*H.S. Kim, Y.H. Kim, Y.H. Choe, S.M. Kim, T.S. Cho, J.H. Mun*

Motion Design of Two-Legged Locomotion Process of a Man

*S. Novikava, K. Miatliuk, K. Jaworek*

Adaptive Microcalcification Detection in Computer Aided Diagnosis

*H.-K. Kang, S.-M. Kim, N.N. Thanh, Y.M. Ro, W.-H. Kim*

**D-10/A T9 - Applications - Chair: Valeria Krzhizhanovskaya**

Proposal of the Programming Rules for VHDL Designs

*J. Borgosz, B. Cyganek*

A Weight Adaptation Method for Fuzzy Cognitive Maps to a Process Control Problem

*E. Papageorgiou, P. Groumpos*

A Method Based on Fuzzy Logic Technique for Smoothing in 2D

*A. Çinar*

Proportional-Integral-Derivative Controllers Tuning for Unstable and Integral Processes Using Genetic Algorithms

*M.A. Paz-Ramos, J. Torres-Jimenez, E. Quintero-Marmol-Marquez*

**D-10/304 WS6 - Computer Graphics and Geometric Modelling (CGGM 2004)**

**Chair: Andres Iglesias**

Point-Based Modeling from a Single Image

*P-P. Vázquez, J. Marco, M. Sbert*

Introducing Physical Boundaries in Virtual Environments

*P. Herrero, A. de Antonio*

Thin Client Access to a Visualization Environment

*I. Fudos, I. Kyriazis*

Interactive Visualization of Relativistic Effects with the Hardware Acceleration

*R. Mantiuk, K. Murawko-Wisniewska, D. Zdrojewska*

**D-10/123 WS27 - Special Session: "Dynamic Conceptual Representations for Cognitive Support - Chair: Jan-Maarten Luursema**

Individual Differences in Virtual Environments

*C. Sas*

Ecological Strategies and Knowledge Mapping

*J. Bidarra, A. Dias*

Need for a Prescriptive Taxonomy of Interaction for Mathematical Cognitive Tools

*K. Sedig*

How Helpful is Stereopsis for Users of Different Visuo-Spatial Abilities?

*J.-M. Luursema*

**D-10/224 WS12 - Agent Day 2004 - Intelligent Agents in Computing Systems**  
**Chair: Krzysztof Cetnarowicz**

Policy Modelling in Four Agent Economy  
*A. Woźniak*

Multi-Agent System for Irregular Parallel Genetic Computations  
*J. Momot, K. Kosacki, M. Grochowski, P. Uchurski, R. Schaefer*

Strategy Extraction for Mobile Embedded Control Systems Apply the Multi-Agent Technology  
*V. Srovnal, B. Horák, R. Bernatík, V. Snášel*

Multi-Agent Environment for Dynamic Transport Planning and Scheduling  
*J. Kozlak, J.C. Créput, V. Hilaire, A. Koukam*

Agent-Based Models and Platforms for Parallel Evolutionary Algorithms  
*M. Kisiel-Dorohinicki*

A Co-Evolutionary Multi-Agent System for Multi-Modal Function Optimization  
*R. Dreżewski*

**D-10/226 WS32 - Parallel Monte Carlo Algorithms for Diverse Applications in a Distributed Setting - Chair: Vassil Alexandrov**

Investigation of the Sensitivity of the Monte Carlo Solution for the Barker-Ferry Equation with Sequential and Parallel Pseudo-Random Number Generators  
*T.V. Gurov, P.A. Whitlock*

Design and Distributed Computer Simulation of Thin p+-i-n+ Avalanche Photodiodes Using Monte Carlo Model  
*M. Yakutovich*

Convergence Proof for a Monte Carlo Method for Combinatorial Optimization Problems  
*S. Fidanova*

Monte Carlo Algorithm for Maneuvering Target Tracking and Classification  
*D. Angelova, L. Mihaylova, T. Semerdjiev*

16.10 - 16.40 coffee

**C-2/224 16.40 - 18.20 Panel Discussion - Chair: Marian Bubak**  
**PD1 - Future Grid Systems**

**19.30 Conference Dinner (Gardens of the Cracow Archeological Museum)**