9th International Conference on "Large-Scale Scientific Computations"

June 3 – 7, 2013, Sozopol

June 3, Monday

10:00 – 11:45 Plenary Session:

10:00 - 10:15 **Opening**

Chairman: M. Mascagni

10:15 - 11:00 P. Bochev, *Optimization-Based Modeling - a New Strategy for Predictive Simulations of Multiscale, Multiphysics Problems*

11:00 - 11:45 M. Falcone, *Recent Advances in the Approximation of Optimal Control Problems via Dynamic Programming*

Lunch Break

14:00 - 16:05 Parallel Sessions

Lecture Hall A
Contributed Talks
Chairperson: S. Dimova

14:00 – 14:25 L. Dechevsky, P. Zanaty, *Piecewise Rational Smooth Resolution of Unity on Triangulations Using Beta-function B-splines*

14:25 – 14:50 M. Lymbery, *Robust Balanced Semi-Coarsening Multilevel Preconditioning of Bicubic FEM Systems*

14:50 – 15:15 C. Hofreiter, W. Zulehner, *Some Results on Multigrid Methods for Isogeometric Analysis*

15:15 – 15:40 *G. Bencheva, I. Lirkov, On the High-Performance Computer Modelling of Patient Specific Cerebral Aneurysm Hemodynamics*

Lecture Hall B
Special Session "Control and Uncertain Systems"
Chairperson: A. Ioffe

14:00 – 14:25 N. Bonneuil, *Maximum Under Continuous-Discrete-Time Dynamic with Target and Viability Constraints*

14:25 – 14:50 M. Gusev, *On Penalty Function Method in Reachability Analysis of Control Systems with State Constraints*

14:50 – 15:15 O. Carja*, Regularity of the State Constrained Minimal time Function*

15:15 – 15:40 A. Marigonda, *BV Regularity and Differentiability Properties of a Class of Upper Semicontinuous Functions*

15:40 – 16:05 M. Rosestolato, *Directional Regularization Property of the Semigroup Associated to SDEs with Delay via Viscosity Solution Theory*

Lecture Hall C
Special Session "Cloud and Grid Computing for Resources-Intensive Scientific Applications"
Chairperson: T. Gurov

14:00 – 14:25 D. Petcu, *On the Management of Cloud Services in Multi-Clouds for Scientific Applications*

14:25 – 14:50 P. Budai, B. Goldschmidt, *Performance Analysis of Cloud-Based Applications*

14:50 – 15:15 I. Hartung, B. Goldschmidt, Performance analysis of Windows Azure data storage options

15:15 – 15:40 S. Guba, M. Ory, I. Szeberenyi, *Harnessing Wasted Computing Power for Scientific*

Computing

15:40 – 16:05 B. Stoyanov, K. Kordov, *Pseudorandom Bit Generator with Parallel Implementation*

Coffee Break

16:25 - 18:55 Parallel Sessions

Lecture Hall A

Special Session "Recent Advances in High-Dimensional Approximation for PDEs with Random Input Data"

Chairperson: C. Webster

16:25 – 16:50 M. Stoyanov, C. Webster, *Gradient Based Dimension Reduction Approach for Stochastic Partial Differential Equations*

16:50 – 17:15 G. Zhang, C. Webster, A Hyper-Spherical Sparse-Grid Method for High-Dimensional Stochastic PDEs with Jump Discontinuity

17:15 – 17:40 D. Kouri, *A Multilevel Stochastic Collocation Algorithm for Optimization of PDEs with Uncertain Coefficients*

17:40 – 18:05 R. Archibald, *Adaptive Algorithms for Simulations on Extreme Scales*

18:05 – 18:30 M. Gunzburger, C. Webster, G. Zhang, *An Adaptive Wavelet Collocation Approach for Discontinuous Solutions of Stochastic Partial Differential Equations*

Lecture Hall B

Special Session "Control and Uncertain Systems"

Chairperson: F. Gozzi

16:25 – 16:50 A. Bacciotti, *Stability and Stabilization of Switched Systems: an Introduction*

16:50 – 17:15 S. Anita, *Stabilization of Some Parabolic Equations with state Constraints*

17:15 – 17:40 S. Faggian, R. Pesenti, *A Linear Quadratic Control Problem with Fixed Costs*

17:40 – 18:05 U. Felgenhauer, *Local Quadratic Growth and Inverse Stability in Bang-Bang Optimal Control*

18:05 – 18:30 M. Krastanov, M. Quincampoix, *On the Controllability of a Class of Hybrid Control Systems*

Lecture Hall C

Contributed Talks

Chairperson: L. Dechevski

16:25 – 16:50 J. Bratlie, R. Dalmo, Fitting of Discrete Data with GERBS

16:50 – 17:15 R. Dalmo, J. Bratlie, *Discrete Wavelet Compression of ERBS*

17:15 – 17:40 A. Laksa, *Surfaces from Curves on Triangular Surfaces in Barycentric Coordinates*

17:40 – 18:05 T. Tashev, V. Monov*, Large-Scale Simulation of Non-Uniform Load Traffic in Studying the Throughput of a Crossbar Packet Switch*

18:05 – 18:30 P. Boyanova, M. Neytcheva, *Efficient Numerical Solution of Discrete Multicomponent Cahn-Hilliard Systems*

20:00 RECEPTION

June 4, Tuesday

09:00 - 10:15 Parallel Sessions

Lecture Hall A
Special Session "Theoretical and Algorithmic Advances in Transport Problems"
Chairperson: P. Bochev

09:00 – 09:25 B. Popov, *Maximum Principle and Entropy Consistency for Numerical Approximations of Nonlinear Hyperbolic Conservation Laws*
09:25 – 09:50 D. Ridzal,P. Bochev, K. Peterson, *Fast Algorithms for Optimization-Based Remap and Transport with Feature Preservation*
09:50 – 10:15 K. Peterson, P. Bochev, D. Ridzal, *Optimization-Based Conservative Transport on the Cubed-Sphere Grid*

Lecture Hall B
Special Session "Large-Scale Models: Numerical Methods, Parallel Computations and Applications"
Chairperson: A. Ebel

09:00 – 09:25 Z. Zlatev, K. Georgiev, I. Dimov, *Absolute Stability Properties of the Richardson Extrapolation Combined with Explicit Runge-Kutta Methods*
09:25 – 09:50 K. Georgiev, N. Kosturski, Y. Vutov: *On the Adaptive Time-Stepping in Radio-Frequency Liver Ablation Simulation: Some Preliminary Results*

Lecture Hall C
Special Session "Monte Carlo Methods: Theory, Applications and Distributed Computing"
Chairperson: I. Dimov

09:00 – 09:25 K. Sabelfeld, *Stochastic Collocation Methods for PDEs and Some Applications*
09:25 – 09:50 I. Dimov, R. Georgieva, P. Marinov, Tz. Ostromsky, Z. Zlatev, *Sensitivity Studies of a Large-Scale Air Pollution Model: Approximation Techniques and Monte Carlo Algorithms*
09:50 – 10:15 J. Knight, F. Liang, I. Ivanov, E.R. Dougherty, *Bayesian Model Averaging Framework For Big Data and Systems Biology*

Coffee Break

10:35 - 12:15 Parallel Sessions

Lecture Hall A
Special Session "Theoretical and Algorithmic Advances in Transport Problems"
Chairperson: D. Ridzal

10:35 – 11:00 M. Bittl, D. Kuzmin, *Algebraic Flux Correction and hp-adaptivity for Hyperbolic Conservation Laws*
11:00 – 11:25 R. Anderson, V. Dobrev, Tz. Kolev, R. Rieben, *High-Order Curvilinear ALE Hydrodynamics*

Lecture Hall B
Special Session "Large-Scale Models: Numerical Methods, Parallel Computations and Applications"
Chairperson: K. Georgiev

10:35 – 11:00 G. Dimitriu, I.M. Navon, R. Stefanescu, *Application of POD-DEIM Approach on Dimension Reduction of a Diffusive Predator-Prey System with Allee effect*
11:00 – 11:25 M. Mangouglu, *New Parallel Algorithms for Solving Large Sparse Linear Systems*
11:25 – 11:50 S. Stoykov, S. Margenov, *Nonlinear Forced Vibration Analysis of Elastic Structures by Using Parallel Solvers for Large Scale Systems*
11:50 – 12:15 T. Li, Y.- C. Kuo, E.K. Chu, W.- W. Lin, *Large-Scale Discrete-Time Algebraic Riccati Equations – Numerically Low-Ranked Solutions, SDA and Error Analysis*

Lecture Hall C
Special Session “Applications of Metaheuristics to Large-Scale Problems”
Chairperson: S. Fidanova

10:35 – 11:00 R. Lara-Cabrera, C. Cotta, Antonio J. Fernandez-Leiva, *Using Self-Adaptive Evolutionary Algorithms to Evolve Dynamism-Oriented Maps for a Real Time Strategy Game*
11:00 – 11:25 K. Penev, *Free Search in Multidimensional Space*
11:25 – 11:50 M. Olguin-Carbajal, J.C. Herrera-Lozada, J. Arellano-Verdejo, R. Barron-Fernandez, H. Taud, *Micro Differential Evolution Performance Empirical Study for High Dimensional Optimization Problems*
11:50 – 12:15 K.S. Georgieva, A.P. Engelbrecht*, Dynamic Differential Evolution Algorithm for Clustering Temporal Data*

Lunch Break

14:00 - 16:05 Parallel Sessions

Lecture Hall A
Special Session “Modeling and Numerical Simulation of Processes in Highly Heterogeneous Media”
Chairperson: O. Iliev

14:00 – 14:25 N. Spillane, *How to Automatically Ensure that a Domain Decomposition Method will Converge?*
14:25 – 14:50 Y. Efendiev, J. Galvis, R. Lazarov, S. Weisser, *Mixed Formulation of BEM-based FEM on Polygonal Meshes*
14:50 – 15:15 Y. Efendiev, R. Lazarov, K. Shi*, Numerical Upscaling of Second Order Elliptic Equations Based on HDG*
15:15 – 15:40 J. Kraus, *Auxiliary Space Multigrid Method for High-Contrast Multiscale Problems*
15:40 – 16:05 J. Kraus, J. Willems, *Multilevel Preconditioners for a Locking Free Discretization of Linear Elasticity*

Lecture Hall B
Special Session “Control and Uncertain Systems”
Chairperson: A. Bacciotti

14:00 – 14:25 A. Ioffe, *On Trajectories of Descent*
14:25 – 14:50 S. Adly, *A New Method for Solving Pareto Eigenvalue Complementarity Problems*
14:50 – 15:15 V.N. Ushakov, A.R. Matviychuk, S.A. Brykalov, *Invariance Property in Approaching Problem on a Finite Time Interval*
15:15 – 15:40 N. Ribarska, *A Sweeping Process with Definable Sets*
15:40 – 16:05 O. Matviychuk*, Internal Ellipsoidal Estimates of Reachable Set of Impulsive Control Systems Under Ellipsoidal State Bounds and with Cone Constraint on the Control*

Lecture Hall C
Special Session “Applications of Metaheuristics to Large-Scale Problems”
Chairperson: C. Cotta

14:00 – 14:25 S. Fidanova, P. Marinov, M. Paprzycki, *Influence of the Number of Ants on Multy-Objective Ant Colony Optimization Algorithm for Wireless Sensor Network Layout*
14:25 – 14:50 O. Roeva, S. Fidanova, V. Atanassova, *Hybrid ACO-GA for Parameter Identification of an E. coli Cultivation Process Model*
14:50 – 15:15 M. Angelova, T. Pencheva, *Genetic Operators Significance Assessment in Simple Genetic Algorithm*
15:15 – 15:40 L. Moatar-Moleriu, V. Negru, D. Zaharie*, Evolutionary Estimation of Parameters in Computational Models of Thymocyte Dynamics*
15:40 – 16:05 P. Koprinkova-Hristova, *Adaptive Critic Design and Heuristic Search for Optimization*

Coffee Break

16:25 - 18:55 Parallel Sessions

Lecture Hall A
Special Session "Numerical Modeling of Fluids and Structures"
Chairperson: J. Brannick

16:25 – 16:50 J. Adler, P.S. Vassilevski, *Improving Conservation for First-Order System Least Squares Finite-Element*
16:50 – 17:15 Y. Ma, *Numerical Simulation of Solar Cells*
17:15 – 17:40 T. Benson, *Multigrid Smoothers for Magnetohydrodynamics*
17:40 – 18:05 J. Brannick, *A Bootstrap Multigrid Method for the Dirac System of Quantum Chromodynamics*
18:05 – 18:30 V. Calo, D. Iliev, O. Iliev, R. Kirsch, A. Mikelic, *On Modeling and Simulation of Fluid Interaction with Deformable Thin Porous Media with Application to Filtration*
18:30 – 18:55 Q. Hong, J. Kraus, J. Xu, L. Zikatanov, *A Multigrid Method for Discontinuous Galerkin discretizations of Stokes Equations*

Lecture Hall B
Special Session "Control and Uncertain Systems"
Chairperson: M. Falcone

16:25 – 16:50 A.L. Dontchev, *An Euler-Newton Continuation Method for Tracking Solution Trajectories of Parametric Variational Inequalities*
16:50 – 17:15 J. Coletsos, B. Kokkinis, *Optimal Control Problems for Nonlinear Elliptic PDEs – Theory and Optimization Methods*
17:15 – 17:40 E. Farkhi, R. Baier, *Set Differences, Regularity of Set-Valued Maps and Selections*
17:40 – 18:05 R. Baier, *Set-Valued Numerical Methods for Reachable Sets of Control Problems*
18:05 – 18:30 Tz. Donchev, *Runge-Kutta Approximation of Impulsive Systems*

Lecture Hall C
Special Session "Monte Carlo Methods: Theory, Applications and Distributed Computing "
Chairperson: M. Nedjalkov

16:25 – 16:50 A. Asenov, S. Amoroso, L. Gerrer, *Simulation of Statistical Reliability in Nano CMOS Transistors*
16:50 – 17:15 J.M. Sellier, M. Nedjalkov, I. Dimov, S. Selberherr, *The Role of Annihilation in a Wigner Monte Carlo Approach*
17:15 – 17:40 P. Schwaha, M. Nedjalkov, S. Selberherr, I. Dimov, R. Georgieva ,*Stochastic Alternative to Newton's Acceleration*
17:40 – 18:05 M. Magdics, L. Szirmay-Kalos, B. Tóth, A. Penzov, *Analysis and Control of the Accuracy and Convergence of the ML-EM Iteration*
18:05 – 18:30 O. Muscato, V. Di Stefano, *Investigation of Self-Heating Effects in Submicrometer Semiconductor Devices Using Electrothermal Monte Carlo Simulations*
18:30 – 18:55 G. Jakab, L. Szirmay-Kalos, *Hybrid Monte Carlo CT Simulation on GPU*

June 5, Wednesday

09:00 – 11:15 Plenary Session:

Chairman: P. Bochev

09:00 - 09:45 B. Jin, R. Lazarov, J. Pasciak, *Variational Formulations of Problems Involving Fractional Order Differential Operators*
09:45 - 10:30 M. Mascagni, *Monte Carlo Methods and Partial Differential Equations: Algorithms and Implications for High-Performance Computing*
10:30 - 11:15 G. Haase, *Multiple-GPU AMG Solver Environment for Biomedical Applications*

Lunch Break

14:00 – 18:00 EXCURSION

18:30 – 19:30 **Lecture Hall A**
Discussion on Monte Carlo Methods

18:30 – 20:00 **Lecture Hall B**
Discussion Session for Numerical Modeling of Fluids and Structures

June 6, Thursday

09:00 - 10:15 Parallel Sessions

Lecture Hall A
Contributed Talks
Chairperson: N. Manev

09:00 – 09:25 J. Kandilarov, *Numerical Method for Solving Free Boundary Problem Arising from Fixed Rate Mortgages*

09:25 – 09:50 K. Al-Khaled, *Sinc-Galerkin Method for Solving Singularly Perturbed Fifth Order Boundary Value Problem*

09:50 – 10:15 M. Alquran, *Applications of Homotopy Perturbation Method for Solving Generalized Nonlinear Partial Differential Equations Arise in Natural Sciences*

Lecture Hall B
Contributed Talks
Chairperson: I. Lirkov

09:00 – 09:25 N. Pavlova, P. Vabishchevich, M. Vasilyeva, *Mathematical Modeling of Thermal Stabilization of Vertical Wells on High Performance Computing Systems*

09:25 – 09:50 M. Koleva, L. Vulkov, *A Splitting Numerical Scheme for Non-Linear Models of Mathematical Finance*

09:50 – 10:15 N. Kosturski, S. Margenov, Y. Vutov, *Calibration of Parameters for Radio-Frequency Ablation Simulation*

Lecture Hall C
Special Session “Large-Scale Models: Numerical Methods, Parallel Computations and Applications”
Chairperson: Z. Zlatev

09:00 – 09:25 D. Syrakov, M. Prodanova, I. Etropolska, K. Slavov, K. Ganev, N. Miloshev, *A Multy-Domain Operational Chemical Weather Forecast System*

09:25 – 09:50 G. Gadzhev, K. Ganev, N. Miloshev, D. Syrakov, M. Prodanova, *Analyzis of the Processes which Form the Air Pollution Pattern Over Bulgaria*

09:50 – 10:15 H. Chervenkov, *Assessment of the Air Quality in Bulgaria - Short Summary Based on Recent Modelling Results*

Coffee Break

10:35 - 12:15 Parallel Sessions

Lecture Hall A
Special Session “Numerical Solvers on Many-Core Systems”
Chairperson: G. Haase

10:35 – 11:00 A. Kucher, G. Haase, *Many-Core Sustainability by Pragma Directives*

11:00 – 11:25 C. Augustin, *Strongly Scalable Numerical Solvers for the Simulation of Cardiovascular Tissues*
11:25 – 11:50 R. Wyrzykowski, K. Rojek, L. Szustak, *Towards Efficient Decomposition and Parallelization of MPDATA on Hybrid CPU-GPU Cluster*
11:50 – 12:15 B. Gmeiner, U. Ruede, *Peta-Scale Multigrid for the Stokes System with Finite Elements*

Lecture Hall B
Special Session "Control and Uncertain Systems"
Chairperson: G. Feichtinger
10:35 – 11:00 F. Gozzi, *Optimal Investment/Consumption in Illiquid Markets: Random Trading Times and Partial Observation*
11:00 – 11:25 E. Moser, D. Grass, G. Tragler, A. Prskawetz, *Optimal Control Models of Renewable Energy Production under Fluctuating Supply*
11:25 – 11:50 B.I. Ananyev, *Numerical Solution of an Optimization Problem for the Differential Inclusion with Random Initial Data*

Lecture Hall C
Special Session "Large-Scale Models: Numerical Methods, Parallel Computations and Applications"
Chairperson: G. Dimitriu
10:35 – 11:00 N. Dobrinkova, G. Dobrinkov, *Farsite and WRF-Fire Models, Pros and Cons for Bulgarian Cases*
11:00 – 11:25 Tz. Ostromsky, I. Dimov, R. Georgieva, P. Marinov, Z. Zlatev, *Sensitivity Study of a Large-Scale Air Pollution Model with Respect to Various Input Data Sets, Based on High-Performance Computations*
11:25 – 11:50 A. Tchorbadjieff, *Computational Stochastic Modeling for Real-time Environmental Applications*
11:50 – 12:15 I. Georgiev, Preconditioning of Discontinuous Galerkin Approximations of Elliptic Problems with Highly Varying Coefficients

Lunch Break

14:00 - 16:05 Parallel Sessions

Lecture Hall A
Special Session "Computational Electromagnetics"
Chairperson: U. Langer
14:00 – 14:25 D. Pauly, S. Repin*, A Posteriori Error Estimates for Static Maxwell Type Problems*
14:25 – 14:50 I. Anjam, *Functional A Posteriori Error Estimates for Maxwell Type Problems*
14:50 – 15:15 I. Yousept, Optimal Control of Nonlinear Magnetostatic Field Problems
15:15 – 15:40 A.L. Weggler, S. Rjasanov, *Multi-frequency Adaptive Cross Approximation applied to Electromagnetic Scattering*
15:40 – 16:05 J. Adler, V. Petkov, L.T. Zikatanov*, Numerical Solution of Asymptotically Disappearing Solutions to Maxwell's Equations*

Lecture Hall B
Special Session "Control and Uncertain Systems"
Chairperson: U. Felgenhauer
14:00 – 14:25 G. Feichtinger, *Optimizing Counter-Terror Operations*
14:25 – 14:50 B. Skritek, Ts. Tsachev, V. M. Veliov, *Optimality Conditions and the Hamiltonian for Optimal Control Problems on Controlled Domain*
14:50 – 15:15 W. Alt, M. Seydenschwanz, *Improved Error Estimate for an Implicit Discretization Scheme for Linear-Quadratic Control Problems with Bang-Bang Solutions*
15:15 – 15:40 J.L. Haunschmied, A. Pietrus, V.M. Veliov*, The Euler Method for Linear Control Systems* Revisited
15:40 – 16:05 E. Kostousova, *On Control Synthesis for Uncertain Differential Systems Using a*

Polyhedral Technique

Lecture Hall C
Special Session “Cloud and Grid Computing for Resources-Intensive Scientific Applications”
Chairperson: E. Atanassov

14:00 – 14:25 G. Gadzhev, K. Ganev, N. Miloshev, D. Syrakov, M. Prodanova, *Some Basic Facts About the Atmospheric Composition in Bulgaria – Grid Computing Simulations*
14:25 – 14:50 R. Hristova, S. Ivanovska, M. Durchova, *Performance Analysis of the Regional Grid Resources for an Environmental Modeling Application*
14:50 – 15:15 E. Kohls, D. Sahpaski, A. Mishev, L. Pejov, *Solvation of Fluoroform in Liquid Krypton: A Theoretical Cryospectroscopy Approach on a HPC Environment*
15:15 – 15:40 M. Kozlovszky, H.Krisztina, G.Windisch, G. Valcz, J. Viktor, *Image Classification Optimization of High Resolution Tissue Images*

Coffee Break

16:25 - 18:30 Parallel Sessions

Lecture Hall A
Special Session “Modeling and Numerical Simulation of Processes in Highly Heterogeneous Media”
Chairperson: J. Willems

16:25 – 16:50 R. Sviercoski, Y. Efendiev, B. Mohanty, *Upscaling the Coupled Water Flow and Heat Transfer near Subsurface - Comparison between Numerical and Field Data*
16:50 – 17:15 S. Margenov, S. Stoykov, Y. Vutov, *Numerical Homogenization of Heterogeneous Anisotropic Linear Elastic Materials*
17:15 – 17:40 B. Lazarov, *Topology Optimization Using Multiscale Finite Element Method For High-Contrast Media*

Lecture Hall B
Special Session “Numerical Modeling of Fluids and Structures”
Chairperson: J. Adler

16:25 – 16:50 B. Ayuso, *Application of Sparse Grid Techniques for Discontinuous Galerkin Approximation of the Vlasov-Poisson System*
16:50 – 17:15 U. Villa, *Robust Numerical Methods for the Brinkman Problem*
17:15 – 17:40 C. Bacuta, F. Sayas, L. Shu, *Cascadic Multilevel Algorithms for Symmetric Saddle Point Systems*
17:40 – 18:05 R. Marinova, T. Marinov, *Soliton Solutions as Inverse Problem for Coefficient Identification*

Lecture Hall C
Special Session “Cloud and Grid Computing for Resources-Intensive Scientific Applications”
Chairperson: M. Kozlovszky

16:25 – 16:50 E. Atanassov, D. Georgiev, T. Gurov, A. Karaivanova, Y. Nikolova, *Distributed System for Query Processing with Grid Authentication*
16:50 – 17:15 P. Szmeja, K. Wasielewska, M. Ganzha, M. Drozdowicz, M. Paprzycki, S. Fidanova, I. Lirkov, *Reengineering and Extending the Agents in Grid Ontology*
17:15 – 17:40 K.S. Shterev, E. Atanassov, S.K. Stefanov, *GPU Calculations of Unsteady Viscous Compressible and Heat Conductive Gas Flow at Supersonic Speed*
17:40 – 18:05 B. Ilijoski, B. Jakimovski, G. Velinov, D. Sahpaski, *Framework for Genetic Algorithms using Pilot Jobs in Adaptive Grid Workflows*

19:30 CONFERENCE DINNER

June 7, Friday

09:00 - 10:15 **Lecture Hall B**
Special Session “Applications of Metaheuristics to Large-Scale Problems”
Chairperson: K. Penev

09:00 – 09:25 A. Quilliot, H. Liberalino, B. Bernay, *Large Scale Multi-Commodity Flow Handling on Dynamic Networks*

09:25 – 09:50 P. Ratuszniak, *Hybrid genetic algorithm for allocation mapping in processor array design*

09:50 – 10:15 E. Sotirova, E. Velizarova, S. Fidanova, K. Atanassov, *Modeling Forest Fire Spread through a Game Method for Modeling Based on Hexagonal Cells*

Coffee Break

10:35 - 11:50 **Lecture Hall B**
Special Session “Applications of Metaheuristics to Large-Scale Problems”
Chairperson: S. Fidanova

10:35 – 11:00 L. D'Acierno, M. Gallo, B. Montella*, Application of Metaheuristics to Large-Scale Transportation Problems*

11:00 – 11:25 A. Lingas, M. Persson, *Simple Iterative Heuristics for Correlation Clustering*

Lunch Break

13:00 **DEPARTURE**