Numerical Methods for Scientific Computations and Advanced Applications

Conference in honor of the 60th anniversary of Svetozar Margenov

Scientific program

May 19 – 22, 2014, Bansko, Bulgaria

SUNDAY, MAY 18	
19:00 – 22:30	Welcome Party
MONDAY, MAY 19	
08:30 – 09:30	**Registration**
09:30 – 10:30	Opening ceremony

<div align="center"><u>Chairperson</u>: O. Iliev</div>

10:30 – 11:10	R. Lazarov, *Finite element method for fractional-order differential equations*
11:10 – 11:30	***Coffee break***
11:30 – 12:10	O. Axelsson, *A Newton method for non-differentiable mappings*
12:10 – 12:50	P. Vassilevski, *Multilevel solvers for unstructured mixed finite element problems*
12:50 – 14:00	***Lunch time***

<div align="center"><u>Chairperson</u>: I. Dimov</div>

14:00 – 14:20	R. Sviercoski, *A multiscale multilevel algorithm using homogenized coarse operator applied to bone tissue modeling*
14:20 – 14:40	Kab Seok Kang, *Scalable implementation of parallel multigrid method on massively parallel computer*
14:40 – 15:00	Y. Vutov, *Computer simulation of a saline enhanced radiofrequency hepatic ablation process*
15:00 – 15:20	A. Kaya, *Finite element based finite difference method for multidimensional convection-diffusion-reaction equations*
15:20 – 15:40	M. Ishteva, *Factorization approach to structured low-rank approximation*
15:40 – 16:10	***Coffee break***

<div align="center"><u>Chairperson</u>: P. Minev</div>

16:10 – 16:30	I. Dimov, *Monte Carlo sensitivity analysis for large-scale model outputs*
16:30 – 16:50	Z. Zlatev, *Non-linear systems of PDEs arising in large-scale environmental models: some basic ideas and challenges*
16:50 – 17:10	V. Aleksandrov, *On hybrid parallel Monte Carlo methods for linear algebra*
17:10 – 17:30	A. Karaivanova, *Energy aware performance study for a class of Monte Carlo algorithms*
17:30 – 17:50	Dalah Mohamed, *Monte Carlo methods for solving black-scholes problem: Codes in Matlab*
17:50 – 18:10	T. Gurov, Statistical Estimation of Brown Bears Population in Rhodope Mountains

<div align="center"><u>Chairperson</u>: R. Lazarov</div>

09:00 – 09:40	P. Minev, *A fast parallel algorithm for direct simulation of particulate flows using conforming grids*
09:40 – 10:20	O. Iliev, *Upscaling based preconditioners for composite materials*
10:20 – 10:40	**Coffee break**
10:40 – 11:20	L. Zikatanov, *Divergence, gradient and compatible coarsening on graphs.*
11:20 – 12:00	H. Neunzert, *Industrtail mathematics. The task ahead*
12:00 – 12:20	J. Adler, *Multigrid smoothers for magnetohydrodynamics*
12:20 – 12:40	J. Brannick, *Recent progress in algebraic multigrid methods*
12:40 – 14:00	**Lunch time**

<div align="center"><u>Chairperson</u>: R. Blaheta</div>

14:00 – 14:20	E. Manoach, *Large amplitude vibrations of heated Timoshenko beams with delamination*
14:20 – 14:40	H. Yildiz, *Control of a robot arm by using magnetic forces*
14:40 – 15:00	A. Mutlu, *Fuzzy logic nonlinear control of an inverted pendulum on a chart*
15:00 – 15:20	S. Stoykov, *The influence of geometrical nonlinearity on the dynamics of elastic structures*
15:30 – 18:30	**Guided tour in Bansko**

<div align="center"><u>Chairperson</u>: L. Zikatanov</div>

09:00 – 09:40	R. Blaheta, *Preconditioners for linear and nonlinear poroelasticity problems*
09:40 – 10:20	J. Kraus, *Robust preconditioning of Darcy problem for highly heterogeneous media*
10:20 – 10:40	**Coffee break**
10:40 – 11:20	P. Arbenz, *Bone structure analysis with multiple GPGPUs*
11:20 – 11:40	M. Lymbery, *Robust balanced semi-coarsening multilevel preconditioning for bicubic FEM discretizations*
11:40 – 12:00	K. Shterev, *Acceleration of iterative algorithm for calculation of unsteady, viscous, compressible and heat-conductive gas flows on GPU*
12:00 – 12:20	G. Dimitriu, *Reduced order POD-DEIM application of a Haptotaxis model describing a process of tumor invasion*
12:20 – 12:40	S. Anita, *The control of a reaction-diffusion system in biology*
13:00 – 14:00	**Lunch time**

14:00 – 14:20 Chumin Wang, *Renormalization plus convolution method applied to the analysis of AC resonant states in aperiodic nanowires*

14:20 – 14:40 V. Sanchez, *Electronic transport in generalized Fibonacci lattices: A real-space renormalization approach to the Kubo-Greenwood formula*

14:40 – 15:00 N. Ilieva, *Structure analysis of HLA complexes in the presence of co-receptors*

15:00 – 15:20 D. Grancharov, *Libraries for treatment of electrostatic interactions for Intel Xeon Phi*

15:20 – 15:40 I. Markovsky, *Low-rank approximation with applications*

15:40 – 16:00 **Coffee break**

Chairperson: Z. Zlatev

16:00 – 16:20 D. Syrakov, *Estimation of WRF-CMAQ modeling system performance using AQMEII infrastructure*

16:20 – 16:40 K. Ganev, *Computer simulations of the atmospheric composition climate of Bulgaria - some basic results*

16:40 – 17:00 I. Georgieva, *Air quality index evaluations for Bulgaria*

17:00 – 17:20 Tz. Ostromski, *Data-efficient MPI parallel implementation of a large air polution model*

17:20 – 17:40 S. Fidanova, *Wind model in a wild fire spread*

17:40 – 18:00 N. Dobrinkova, *Methods for flood hazard mapping on the test area of Svilengrad*

19:30 – 23:00 **Official diner**

THURSDAY, MAY 22

Chairperson: J. Kraus

09:00 – 09:40 V. Veliov, *Path following for dynamic variational inequalities*

09:40 – 10:00 K. Liolios, *A computational approach for the seismic damage response of adjacent RC structures strengthened by cables*

10:00 – 10:20 S. Petrova, *Efficient preconditioners in PDE-constrained optimization*

10:20 – 10:40 I. Lirkov, *Multicriteria analysis of ontologically represented information*

10:40 – 11:00 T. Tashev, *A numerical procedure for computation of the upper bound of the throughput of a crossbar switch node.*

11:00 – 11:15 Closing

12:00 – 12:45 **Lunch time**

13:00 (sharp) **DEPARTURE**