

***“NUMERICAL METHODS FOR  
SCIENTIFIC COMPUTATIONS AND  
ADVANCED APPLICATIONS”  
(NMSCAA’18)***

***The Scientific Program***

**May 28 – May 31, 2018, Hissarya, Bulgaria**

Sunday, May 27

19:00 – 19:30 **Welcome to glass of wine**

Monday, May 28

09:00 – 10:00 **Registration**

10:00 – 10:15 **Opening ceremony**

**Chairperson: Svetozar Margenov**

10:15 – 11:00 **O. Axelsson:** *Optimality Properties of a Square Block Matrix Preconditioner with Applications*

11:00 – 11:30 **Coffee break**

11:30 – 12:15 **Z. Zlatev:** *Implementation of Three-times Repeated Richardson Extrapolation together with Explicit Runge-Kutta Methods*

12:15 – 14:00 **Lunch time**

**Chairperson: Nevena Ilieva**

14:00 – 14:30 **P. Arbenz:** *Solving Large-Scale Eigenvalue Problems in Amorphous Materials*

14:30 – 15:00 **A. Karaivanova:** *Study of Scalability and Energy Efficiency of QMC algorithms on Hybrid HPC Systems*

15:00 – 15:30 **F. Uilhoorn:** *Pareto optimal solutions of noise statistics for Kalman filtering applied to state estimation of gas dynamics*

15:30 – 16:00 **Coffee break**

16:00 – 16:30 **B. Takacs:** *A non-symmetric model of disease propagation*

16:30 – 17:00 **S.-E. Ekstrom M. Neytcheva:** *Deflation methods made possible*

17:00 – 17:30 **N. Manev:** *Implementations of number theory algorithms on multi-core systems*

**Tuesday, May 29**

**Chairperson: Zahari Zlatev**

- 09:30 – 10:15 **S. Margenov:** *Numerical Methods for Fractional-in-Space Diffusion Problems*
- 10:15 – 11:00 **R. Blaheta:** *Preconditioners for simulation of flow in rigid and deformable porous media*
- 11:00 – 11:30 **Coffee break**
- 11:30 – 12:00 **D. Slavchev:** *Scalability analysis of solvers based on hierarchical compression of dense matrices and Gaussian elimination*
- 12:00 – 12:30 **S. Harizanov:** *Edge Detection of Radiographic Images through Phantom Blur Denoising*
- 12:30 – 14:00 **Lunch time**

**Chairperson: Ivan Lirkov**

- 14:00 – 14:30 **Iliya Georgiev:** *Performance Analysis of Real-time Applications for Debugging Parametrization*
- 14:30 – 15:00 **K. Kolev:** *Artificial Neural Network Activation Function Optimization with Genetic Algorithms*
- 15:00 – 15:30 **P. Tomov:** *Artificial Neural Networks Time Series Forecasting with Android Live Wallpaper Technology*
- 15:30 – 16:00 **Coffee break**
- 16:00 – 16:30 **G. Gadzhev:** *Vertical structure of atmospheric composition fields over Bulgaria*
- 16:30 – 17:00 **I. Georgieva:** *Computer simulation of PM concentration climate for Bulgaria*
- 17:00 – 17:30 **K. Liolios:** *Monte Carlo simulation for seismic analysis of Egnatia Highway bridges in Northern Greece*
- 17:30 – 18:00 **E. Lilikova:** *Study of Human Interferon-Gamma Glycosilation by Molecular Dynamics Simulations*
- 19:30 – 23:00 **Official conference diner**

Wednesday, May 30

Chairperson: Radim Blaheta

- 09:00 – 09:45 **R. Lazarov:** *Numerical Approximation of Fractional Spectral Elliptic Operators*
- 09:45 – 10:30 **I. Farago:** *Reliable numerical models and their applications*
- 10:30 – 11:00 **Coffee break**
- 11:00 – 11:45 **O. Axelsson:** *An adaptive Newton method for solving nonlinear partial differential equations*
- 11:45 – 12:15 **N. Ilieva:** *Clustering in Structure Studies of Large Molecules*
- 12:15 – 12:45 **Y. Hou:** *Study of Non-Proline cis Peptide Planes in Different Protein Framings*
- 12:45 – 13:45 **Lunch time**
- 14:00 – 18:00 Guided tour to Starocel (by bus)**

<http://www.starocel.com/en/home>

<http://www.bulgariatravel.org/en/Article/Details/55/Thracian%20Temple%20Complex%2C%20Starocel>

Thursday, May 31

Chairperson: Ivan Georgiev

- 09:00 – 09:30 **T. Balabanov:** *Modified Metropolis Algorithm for Metal Nanoparticles Modeling*
- 09:30 – 10:00 **L. Mohamed:** *Fast Computation of Exact Solutions to the Heat and Stokes' Equations on the Half-Line Obtained by Fokas' Transform*
- 10:00 – 10:30 **A. Cesmelioglu:** *A Monolithic Scheme for a Fluid-Poroelastic Structure Interaction Problem*
- 11:00 – 12:00 Lunch time**
- 12:00 DEPARTURE**