

19th Annual Meeting of the Bulgarian Section of SIAM

BGSIAM'24

TIMETABLE

11.12.2024 г.

12.12.2024 г.

13.12.2024 г.

09:00-09:30	Registration			09:00-09:30	R. Iankov
09:30-09:40	Opening				
09:40-10:40	A. Liwo	09:30-10:30	H. Djidjev	09:30-10:00	H. Kostadinov
				10:00-10:30	T. Tsokov
10:40-11:00	Coffee break	10:30-10:50	Coffee break	10:30-10:50	Coffee break
11:00-12:00	I. Todorov	10:50-11:20	N. Vitanov	10:50-11:20	V. Stoykova
		11:20-11:50	A. Slavova	11:20-11:40	T. Balabanov
		11:50-12:10	M. Borisov	11:40-12:00	T. Alexandrova
12:00-14:00	Lunch	12:10-14:00	Lunch	12:00-12:20	J. Stanchov
				12:20-12:30	Closing
14:00-14:20	V. Ivanova	14:00-14:20	E. Shumka		
14:20-14:40	P. Sirakova	14:20-14:40	M. Pashinska		
14:40-15:00	V. Traneva	14:40-15:00	A. Tsvetanova		
15:00-15:20	V. Todorov	15:00-15:20	M. Koleva		
15:20-15:40	P. Zhivkov	15:20-15:40	G. Vasilev		
15:40-16:00	Coffee break	15:40-16:00	Coffee break		
16:00-18:00	BGSIAM elections	16:00-16:30	L. Vulkov		
		16:30-17:00	M. Rashevski		
		17:00-17:30	S. Tranev		
		17:30-18:00	T. Ostromsky		
		18:00	Poster session and reception		

SCIENTIFIC PROGRAM

Wednesday, 11.12.2024

09:00 – 09:30 **Registration**

09:30 – 09:40 Opening

09:40 – 10:40 *Invited talk:* **A. Liwo**, UNRES Package for Physics-Based Coarse-Grained Simulations of Structure, Dynamics, and Thermodynamics of Protein Systems at Biological Size- and Time Scales

10:40 – 11:00 **Coffee break**

11:00 – 12:00 *Invited talk:* **I. Todorov**, On the Trail to Exascale & Knowledge Transfer: From the Atomistic to the Mesoscopic World in Preparation for Redox Flow Batteries Modelling

12:00 – 14:00 **Lunch break**

14:00 – 14:20 **V. Ivanova**, P. Petkov, E. Lilkova, L. Litov, N. Ilieva, Evaluation of the Binding Free Energy of Peptide Complexes Using Machine Learning

14:20 – 14:40 **P. Sirakova**, P. Petkov, E. Lilkova, N. Ilieva, L. Litov, Conformational Dynamics of the Cysteine Knot Motif in Native and Grafted Cyclotides from Trypsin Inhibitor Family

14:40 – 15:00 V. Todorov, S. Georgiev, **V. Traneva**, S. Tranev, M. Petrov, Advanced Monte Carlo Approaches for Extensive Sensitivity Analysis

15:00 – 15:20 **V. Todorov**, S. Georgiev, V. Traneva, S. Tranev, Monte Carlo Techniques for Valuing Two-Dimensional European Options

15:20 – 15:40 **P. Zhivkov**, Algorithmic trading: Volume Spread Analysis for Identification of Trend Reversals

15:40 – 16:00 **Coffee break**

16:00 – 18:00 **BGSIAM Elections**

SCIENTIFIC PROGRAM

Thursday, 12.12.2024

- 09:30 – 10:30 *Invited talk:* **H. Djidjev**, Beyond Classical Computing: Quantum Approaches to Optimization
- 10:30 – 10:50 ***Coffee break***
- 10:50 – 11:20 S. Kartalov, **N.K. Vitanov**, First Remarks on Scaling Theory of COVID-19
- 11:20 – 11:50 **A. Slavova**, V. Ignatov, Physics Informed Neural Networks for Solving Nonlinear Partial Differential Equations
- 11:50 – 12:10 **M. Borisov**, S. Harizanov, D. Toneva, S. Nikolova, Detecting Symmetries via Least-Squares Optimization Algorithms
- 12:10 – 14:00 ***Lunch break***
- 14:00 – 14:20 **E. Shumka**, P. Petkov, B. Pavlov, A. Petrov, M. Pehlivanova, Utilizing open-source toolkits for avalanche formation and space-charge effects in Resistive Cylindrical Chambers
- 14:20 – 14:40 D. Bikov, **M. Pashinska-Gadzheva**, I. Bouyukliev, Parallel Implementations of Modular m-ary Gray Cod
- 14:40 – 15:00 **A. Tsvetanova**, S. Zhelezova, Useful Configurations in STS(v) of Small Order
- 15:00 – 15:20 **M. Koleva**, L. Vulkov, High-Order Difference Schemes for Quasilinear Pseudo Parabolic Equations
- 15:20 – 15:40 **G. Vasilev**, Virtual reality as a tool for remote collaboration
- 15:40 – 16:00 ***Coffee break***
- 16:00 – 16:30 A. Atanasov, M. Koleva, **L. Vulkov**, The Identification of the Initial Honeybee Density and Fractional Order of a Levy-flight Model to Predict Transgenic Pollen Dispersal
- 16:30 – 17:00 **M. Rashevski**, M. Datcheva, S. Slavtchev, Numerical Simulation of Thermal Stratification in Underground Long-Term Hot Water Storage. Effects of the Aspect Ratio
- 17:00 – 17:30 M. Petrov, V. Traneva, **S. Tranev**, V. Todorov, S. Georgiev, The Complex Study of the Anthropogenic Influence on the State of the Atmosphere and Hydrosphere

17:30 – 18:00 **T. Ostromsky**, V. Todorov, Variance-based Sensitivity Analysis of the Unified Danish Eulerian Model with Using a Robust Monte Carlo Simulation Approach

18:00 **Poster session and reception**

List of Posters

1. **I. Georgiev**, Mig. Raykovska, N. Petkov, S. Trifonova, M. Tsvetkovkov, Project - "Blue Culture Technology Excellence Hubs in EU Widening Member States (BCTHubs)"
2. **G. Chalakova**, M. Datcheva, R. Iankov, Numerical Simulation Strategy for Nanoindentation Testing of Thin Films
3. A. Atanasov, **S. Georgiev**, L. Vulkov, Comparison of Two Positivity-Preserving Approaches for Solving Ordinary Differential Equations with Applications in Population Dynamics and Epidemiology
4. **Mig. Raykovska**, K. Petkova, Mir. Raykovska, N. Petkov, H. Kabadjova, Virtual Reconstruction of Late Hellenistic Kernos from Voditsa, Northeast Bulgaria
5. **Mir. Raykovska**, I. Georgiev, M. Mourdjeva, Proposal for Result Normalisation in the Studies of Calvarial Defect Models
6. **K. Vlachkova**, Interpolation of Convex Scattered Data in $\mathbb{R}^3$ using Edge Convex Minimum L_p -Norm Networks, $1 < p < \infty$
7. **Z. Minchev**, **S. Tafkov**, A Probabilistic AI Model Implementation with the Future Complex Cybersecurity Systems
8. **S. Nedelcheva**, A 3D-SNN Brain Model
9. **I. Georgieva**, On an Opial-type inequality based on results of G.Nikolov, R.Uluchev, 2024

SCIENTIFIC PROGRAM

Friday, 13.12.2024

- 09:00 – 09:30 Y. Madankov, **R. Iankov**, Digital Twin of Solar PV Panel Clamping
- 09:30 – 10:00 J. Jeliaskov, **H. Kostadinov**, Using EOS Blockchain for Verifiable Random Number Generation with User-Contributed Entropys
- 10:00 – 10:30 **T. Tsokov**, H. Kostadinov, Reference Pseudonymization Model for Medical Information Systems
- 10:30 – 10:50 ***Coffee break***
- 10:50 – 11:20 **V. Stoykova**, Building Machine Learning Model for Handwritten Text Recognition for Analyzing the School Book 'Elementary Arithmetic' of Sava Radulov (1843)
- 11:20 – 11:40 D. Keremedchiev, **T. Balabanov**, Minimizing the Number of Questions in Test Examinations with Genetic Algorithms Without Loss of Test Sensitivity
- 11:40 – 12:00 **T. Alexandrova**, A General Construction of Integer Codes Correcting Specific Bit Errors
- 12:00 – 12:20 **J. Stanchov**, Artificial Intelligence In Fashion Industry
- 12:20 ***Closing***

The event will be held in hybrid mode:

On-site at the Joint Innovation Centre of the Bulgarian Academy of Sciences
Sofia 1113, Acad. G. Bonchev Str. Bl. 26B

and

Online at the ZOOM platform

Topic: BGSIAM'24

Join Zoom Meeting

<https://us06web.zoom.us/j/82816962603?pwd=C3aAJZXjTIPDkaV5L5ZHg5ZiCkwy1.1>

Meeting ID: 828 1696 2603

Passcode: bgsiam24