

17th Annual Meeting of the Bulgarian Section of SIAM

BGSIAM'22

SCIENTIFIC PROGRAM

Tuesday, December 20

09:00 – 09:20 **Registration**

09:20 – 09:30 **Opening**

Chairperson: *H. Kostadinov*

09:30 – 09:50 D. Bakardzhiev, N. K. Vitanov, KEDE (Knowledge Discovery Efficiency): a measure for quantification of the productivity of knowledge workers

09:50 – 10:10 V. Boutchaktchiev, Some Properties of the Interest Rate Spread for Expected Risk of Consumer Loans

10:10 – 10:30 D. Dimov, S. Ivanovska, K. Alexiev, A. Hristov, Anastylis of Frescos an optimized performance on Avitohol HPC

10:30 – 11:00 **Break**

Chairperson: *N. K. Vitanov*

11:00 – 11:20 E. Lilkova, P. Petkov, N. Ilieva, L. Litov, Concentration-dependant behaviour of AMPs in solution

11:20 – 11:40 Ts. Nedeva, M. Rangelov, N. Hristova, E. Lilkova, P. Petkov, N. Ilieva and L. Litov, Modeling the interaction of SARS-COV-2 NSP13 with human TBK1

11:40 – 12:00 S.-M. Gurova, E. Atanassov, A. Karaivanova, Power Monte Carlo method using randomized low discrepancy sequences

12:00 – 14:00 **Break**

Chairperson: *R. Iankov*

14:00 – 14:20 T. Ostromsky, On the performance and scalability of the supercomputer implementation of the Danish Eulerian Model on the petascale

14:20 – 14:40 A. Kirilov, Design of a System for Bioinformatics Processing of Metagenomic Data

14:40 – 15:00 S. Yordanov, Accounting service for southeast Europe infrastructure: new developments

15:00 – 15:20 **Break**

Chairperson: *E. Lilkova*

15:20 – 15:40 I. Bazhlekov, E. Bazhlekova, A Predictor-Corrector Approach for the Numerical Solution of General Fractional Differential Equations

15:40 – 16:00 E. Bazhlekova, M. Datcheva, S. Pshenichnov, Wave propagation in viscoelastic media of Zener type

Wednesday, December 21

Chairperson: St. Harizanov

09:30 – 10:10 D. Prodanov, Computation of the Wright function from its integral representation

10:10 – 10:30 E. Nikolova, Several solitary wave solutions of the Kdv - type equation via Simple Equations Method (SEsM)

10:30 – 11:00 **Break**

Chairperson: M. Datcheva

11:00 – 11:20 A. Atanasov, S. Georgiev, L. Vulkov, Population Dynamics Identification by Lagrange Multipliers Optimization

11:20 – 11:40 J. D. Kandilarov, L. G. Vulkov, Loaded Equation Method for Computational Identification of Time-dependent Convection Coefficient and Source in a Magnetohydrodynamic

11:40 – 12:00 G. Mateeva, D. Parvanov, T. Balabanov, Searching Optimal Solutions for Multidimensional Nonlinear Functions in LibreOffice

12:00 – 14:00 **Break**

Chairperson: P. Marinov

14:00 – 14:20 R. Ivanov, S. Pshenichnov, M. Datcheva, Wave propagation through a viscoelastic layer with uniformly-distributed elastic inclusions

14:20 – 14:40 J. Jeliakov, H. Kostadinov, Generation of secure public-verifiable random numbers

14:40 – 15:00 S. Tafkov, Z. Minchev, Analytical Modelling & Experimental Testing of Advanced Ransomware

15:00 – 15:30 **Break**

Chairperson: Z. Minchev

15:20 – 15:40 K. Vlachkova, K. Radev, Edge Convex Smooth Interpolation Curve Networks with Minimum L^∞ -norm of the Second Derivative

15:40 – 16:00 I. Nikolova, P. Marinov, Sum of powers. Bernoulli numbers in terms of Stirling numbers

16:00 – 16:20 A. Slavova, R. Tetzlaff, CNN Computing of Double Sine-Gordon Equation with Memristor Synapses

16:20 – 18:00 **Poster session and Reception**

Thursday, December 22

Chairperson: I. Georgiev

09:30 – 10:10 N. Kasabov, Challenging Problems in Biomedical Data Science and New Opportunities for Applied Mathematics

10:10 – 10:30 P. Koprinkova-Hristova, N. Bocheva, Reverse engineering of human brain using EEG recordings

10:30 – 10:50

10:50 – 11:00 **Closing**

List of Posters

1. I. P. Jordanov, Application of the Simplest Equations Method to Logarithmic Schroedinger Equation
2. M. Staneva, M. Iliev, An investigation of voluntary saccadic eye movements during the presentation of visual images in different parts of the visual field
3. G. Vasilev, H. Klecherova, G. Evtimov, M. Raykovska, V. Petrova, Interdisciplinary studies of "Kazlacha" circular ditches complex: photogrammetry, laser scanning and 360-degree photography for creating a digital archive in CLaDA-BG
4. R. Iankov, I. Georgiev, M. Raykovska, G. Chalakova, M. Datcheva, Effective Material Properties Evaluation via Numerical Homogenization and Microstructure Testing Data
5. M. Raykovska, The application of Region Growing as a segmentation method in Micro CT studies in endodontics
6. Hr. Klecherova, Virtual Tours for museum environment. Interactive presentation of cultural and historical heritage
7. G. Evtimov, D. Dimitrov, Custom markers for industrial 3D laser scanning

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: 17th Annual Meeting of the Bulgarian Section of SIAM

Join Zoom Meeting

<https://us02web.zoom.us/j/89733592589?pwd=bER5Z3Q1dkMzVU13SIZLcTQ3M1VTdz09>

Meeting ID: 897 3359 2589

Passcode: bgsiam2022