

Monday, August 31

08:30 – 09:00 **Registration**

09:00 – 09:30 **Opening:**

In Memoriam: Honoring the Life and Legacy of Prof. Raytcho Lazarov

Chairperson: Ludmil Zikatanov

09:30 – 10:10 **Popivanov N** (Plenary lecture). Pohozaev Identities and Applications

10:10 – 10:50 **Vabishchevich P. N.** (Plenary lecture): Computational Homogenization of Flows in Porous Media with Memory

10:50 – 11:10 **Coffee Break**

Chairperson: Nedyu Popivanov

11:10 – 11:30 **Benkhaldoun F., A. Bradji:** On a New Gradient Scheme for a Distributed Order Diffusion Wave equation (ONLINE)

11:30 – 11:50 **Li X., B. Liu, C. Yan:** A Multilevel Finite-Basis Physics-Informed Neural Network Method for Two-Dimensional Time-Dependent Single-Temperature Radiation Diffusion Equations (ONLINE)

11:50 – 12:10 **Kurganov A.:** Adaptive Schemes for Hyperbolic Systems of Conservation Laws

12:10 – 12:30 **Margenov S., S. Harizanov:** Maximum Principles for Parabolic Spectral Fractional Diffusion – Reaction Problems

12:30 – 13:20 **Lunch**

Chairperson: Roumen Iankov

13:20 – 13:40 **Harizanov S., D. Slavchev, N. Kosturski:** The Product BURA Method for Super-Diffusion

13:40 – 14:00 **Kosturski N., S. Margenov, Y. Vutov:** GPU accelerated non-overlapping BURA domain decomposition preconditioning

14:00 – 14:20 **Slavchev D., S. Margenov:** On the application implicit Euler scheme with adaptive time stepping for a Fractional-in-space diffusion model of RFA ablation

14:20 – 14:40 **Chervenkov H., K. Slavov:** Post-processing and Evaluation of NEX-GDDP-CMIP6 Precipitation Data for Hydrological Modelling in Bulgaria

11th International Conference on Numerical Methods and Applications, NM&A'26 -
SCIENTIFIC PROGRAM

14:40 – 15:00 **Koleva M., L. G. Vulkov:** Computational Identification of Several Sources in a Time-Fractional Diffusion Equation (ONLINE)

15:00 – 15:20 **Coffee Break**

Chairperson: **Stefka Fidanova**

15:20 – 15:40 **Tomanovic J.:** Gauss-type Quadrature Rules with Fixed Weights Associated with Prescribed Nodes

15:40 – 16:00 **Moravski A.:** A Second Order Operator Splitting Scheme for the Navier-Stokes Equations:

16:00 – 16:20 **Ivanov V., V. Tonchev:** Complex Surface Patterning During Heteroepitaxial Nitride Growth: A Continuum Approach to Modelling Vicinal Instabilities

16:20 – 16:40 **Zarcheva M., K. Kostova, T. Ivanov:** Semi-Implicit Finite Difference Schemes for Nonlinear Advection-Adsorption PDEs: Robustness Analysis Across Diverse Isotherm Models and Operating Conditions

16:40 – 17:00 **Genoff J.:** Extreme Computer Arithmetic with Reals - The Exact and The Permissibly Approximate: a Research of the Extreme

Welcome Cocktail Reception

Tuesday, September 1

Chairperson: **Svetozar Margenov**

09:00 – 09:40 **Iliev O.** (Plenary lecture): On Modeling and Simulation of Some Heat and Mass Transfer Phase Changes Problems

09:40 – 10:20 **Wohlmuth B.** (Plenary lecture): Hybrid PDE Models for Bio-Medical Applications

10:20 – 10:40 **Coffee Break**

Special Session “Numerical and Simulation-Based Methods for Decision Making under Uncertainty”

Chairperson: **Emanouil Atanassov**

10:40 – 11:00 **Petkov P., L. Litov, E. Lilkova, N. Ilieva:** SCAnet: Structure-Based Prediction of Protein–Protein Binding Free Energies with a 3D Convolutional Neural Network

11:00 – 11:20 **Gurova S.-M., T. Gurov, A. Kirilov:** Monte Carlo Search for Robust Global Portfolios: A Sharpe-CVaR Comparison

11th International Conference on Numerical Methods and Applications, NM&A'26 -
SCIENTIFIC PROGRAM

11:20 – 11:40 **Gurova S.-M., T. Gurov, A. Karaivanova:** Adaptive Portfolio Optimizations Based on Systematic Risk Assessment Using Stochastic Numerical Methods

11:40 – 12:00 **Tomov D. N., A. Atanasov:** Effects of Macroeconomic Data on Cash Flow Prediction in Consumer Credit Lending

12:00 – 12:20 **Boudjaoui Z.-E.:** Simulation-Based Reinforcement Learning for Decision Making Under Uncertainty in Urban Traffic Signal Control

12:20 – 13:10 **Lunch**

Special Session “Numerical and Simulation-Based Methods for Decision Making under Uncertainty”

Chairperson: [Petia Koprinkova](#)

13:10 – 13:30 **Fidanova S., J. Stanchov:** Intuitionistic Fuzzy Pheromone ACO for Knitwear Production Scheduling

13:30 – 13:50 **Traneva V., S. Tranev, P. Petrov, V. Todorov:** An Explainable AI Platform for Solving Circular Intuitionistic Fuzzy Transportation Problems Using the Zero Point Method

13:50 – 14:10 **Traneva V., S. Tranev:** An Indexed-Matrix Elliptic Intuitionistic Fuzzy Hungarian Algorithm for Assignment Problems under Uncertainty

14:10 – 14:30 **Traneva V., S. Ribagin, S. Tranev:** A Temporal Circular Intuitionistic Fuzzy Framework for Robust Robot Capacity Planning in Healthcare Systems

14:30 – 14:50 **Traneva V., S. Tranev, V. Todorov:** Monte Carlo Stability Analysis for Multi-Agent Decision Making with Intuitionistic Fuzzy Evaluations

14:40 – 15:10 **Coffee Break**

Special Session “Numerical and Simulation-Based Methods for Decision Making under Uncertainty”

Chairperson: [Dimitar Slavchev](#)

15:10 – 15:30 **Fidanova S., N. Bozakova, V. Ivanov:** Generalized Net for Evacuation of People with Mental Problems After Earthquake

15:30 – 15:50 **Mikhov R., V. Myasnichenko, L. Kirilov, N. Sdobnyakov, S. Fidanova:** Software System for Optimization of Metallic Nanostructures

15:50 – 16:10 **Vassilev A.:** Migration Patterns in Populations of Myopic Agents under Distance-Dependent Wage Uncertainty

Special Session “Numerical Methods for Engineering Innovation: From Digital Twins to Advanced Materials”

Chairperson: Silvi-Maria Gurova

16:10 – 16:30 **Georgiev G., D. Zafirov:** UAV Rapid Prototyping Methodology

16:30 – 16:50 **Georgiev P., G. Evtimov, D. Mihaylova, I. Georgiev:** 3D Documentation of Architectural Plans: A Multimodal Approach for the ”All Saints” Church in Ochusha, Bulgaria

16:50 – 17:10 **Dilmi Mourad:** Asymptotic Behavior of Electrorheological Fluid Flow in Thin Domains with Tresca Friction

Wednesday, September 2

Excursion & Conference Dinner

Thursday, September 3

Chairperson: Oleg Iliev

09:00 – 09:40 **Efendiev Y.** (Plenary lecture): Multiscale and Multicontinuum Methods

09:40 – 10:20 **Zikatanov L.T., S. Wu** (Plenary lecture): On Discretizations Using Quasi-Polynomial Spaces of Differential Forms

10:20 – 10:40 **Coffee Break**

Special Session “Approximation Theory”

Chairperson: Stanislav Harizanov

10:40 – 11:00 **Konstantinova B., G. Nikolov:** On the Regularity Of Certain Three-Row Almost Hermitian Incidence Matrices

11:00 – 11:20 **Naidenov N.:** Analysis of an Algorithm for High Precision Calculation of the Zeta Function

11:20 – 11:40 **Nikolov G.:** Quadrature and cubature formulae: monotonicity, definiteness and a posteriori error estimates

11:40 – 12:00 **Pejcev A., D. Jandrlic, M. Spalevic, S. Spalevic, R. Orive, L. Mihic:** Error Estimation of Gaussian Quadrature Formulae for JacobiWeight Functions and Some of Their Modifications

12:00 – 12:20 **Tenev A., R. Uluchev:** Recent Progress on Smoothest Interpolation

12:20 – 13:10 **Lunch**

Special Session “Numerical Methods for Engineering Innovation: From Digital Twins to Advanced Materials”

Chairperson: Yavor Vutov

13:10 – 13:30 **Zhelyazov T.**: Explicit Analysis of the Interaction Between a Plane Pulse Propagating in a Viscoelastic Matrix and a Rigid Elastic Cylindrical Inclusion (not confirmed yet)

13:30 – 13:50 **Naskinova I., F. Sapundzhi, M. Lazarova, M. Kolev, S. Georgiev, V. Todorov**: Exploring Statistical and Machine Learning Approaches to Photovoltaic Energy Yield Forecasting

13:50 – 14:10 **Dimov D. T., G. Evtimov**: Once More about the Starting Point in Contour Normalization

14:10 – 14:30 **Raykovska M., N. Nikolova, A. Gusiyska, E. Koytchev, I. Georgiev, M. Datcheva, R. Iankov**: Parametric Finite Element Analysis of Tooth–Cement–Restoration Systems

14:30 – 14:50 **Stoynov M., I. Farago, S. Filipov**: Numerical Solution of a Nonlinear One-Dimensional Heat-Transfer Model for Thin Metallic Components Produced by Additive Manufacturing

14:50 – 15:10 **Coffee Break**

Chairperson: Barbara Wolmuth

15:10 – 15:30 **Busa J., V. Lisy, J. Tothova**: Deriving Formulas for Mean Angular Momentum and Kinetic Energy of the Brownian Motion of Particles

15:30 – 15:50 **Hristov I., R. Hristova**: Computing periodic orbits for the chaotic three-body problem

15:50 – 16:10 **Filipov S.M., N. Ilieva, V. Metodiev**: A Linear Method for Stereo Extrinsic Calibration via a Translation-Free Pairwise-Difference Formulation

Special Session “Monte Carlo and Quasi-Monte Carlo Methods”

Chairperson: Todor Gurov

16:10 – 16:30 **Atanasov E.**: GPU-Based Optimization of Low-Correlation Point Sequences for High-Dimensional Problems

16:30 – 16:50 **Ostromsky Tz., V. Todorov, M. Lazarova, F. Sapundzhi, V. Traneva**: Scrambled Quasi- Monte Carlo Sensitivity Analysis of the UNI-DEM Air Pollution Model

Friday, September 4

Chairperson: Maria Datcheva

09:00 – 09:20 **Ivanov V., G. Gadzhev, I. Georgieva:** Projection of Cold Thermal Sensation for RCP4.5 Scenario over Bulgaria

09:20 – 09:40 **Bazlyankov G., T. Ivanov:** Some Applications of Partial Differential Equations in Medical Image Processing

09:40 – 10:00 **Nedelcheva S., G. Rusev, P. Koprinkova-Hristova, N. Bocheva:** Digital Brain Twins Trained via EEGs

10:00 – 10:20 **Nedelcheva S., G. Rusev, P. Koprinkova-Hristova, N. Bocheva:** ERP Topography Maps for Brain Analysis

10:20 – 10:40 **Popstoilov M., F. Sapundzhi, M. Lazarova, S. Georgiev:** Computational Modeling of Nonlinear Relationships Using Polynomial and Ensemble Methods

10:40 – 11:00 **Khidirova C. M., K. K. Rakhimov, K. R. Nuritdinov:** Intelligent Multi-Criteria Decision-Support Framework for Ecological Rehabilitation of the Aralkum Desert under Uncertainty (not confirmed yet)

11:00 – 11:20 **Coffee Break**

11:20 – 12:00 **Closing / discussion**

The event will take place online via the ZOOM platform

Join Zoom Meeting [LINK](#)

<https://us02web.zoom.us/j/83497452885?pwd=yt4xxbioJb59bEp6kONj3dnhZJbN7H.1>

Meeting chat link:

<https://us02web.zoom.us/jc/83497452885>

Meeting ID: 834 9745 2885

Passcode: 137881