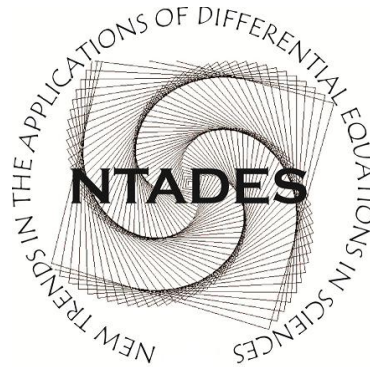




**New Trends in the Applications of Differential Equations in
Sciences (NTADES2026)**

**1-4 September, 2026, Sozopol,
Bulgaria**



**Dedicated to the 80th Anniversary of Academician Petar
Popivanov**

Financially supported by KP-06-MNF/1

Tuesday September 1st

09:00–09:30 ***Registration and opening***

09:30-10:30 **SESSION 1**

Chair: Angela Slavova

09:30 – 10:30 *Invited Plenary Talk*
Nikolay K. Vitanov, *Mathematical Social Dynamics*

10:30 – 11:00 ***Coffee Break***

11:00- 12:30 **SESSION 2: Applications in Mathematical Physics**

Chair: Nikolay K. Vitanov

11:00 – 11:30 Dian Palagachev, *Global Strong Solvability of the Parabolic Poincaré Problem with Emergent Type Vector Field*

11:30 – 12:00 Gergana N. Nikolova, Elena V. Nikolova, Tsvetomir Ch. Pavlov, *A Note on a Hyperbolic Advection–Reaction–Diffusion Forest Fire Model: Part 1. Analytical–Numerical Comparison of Travelling-Wave Solutions*

12:00 - 12:30 Lubomira Softova, *Quasilinear Parabolic Equations with Perturbed Coefficients*

12:30 – 14:00 ***Lunch Break***

14:00-15:30 **SESSION 3: Applications in Mathematical Physics**

Chair: Dian Palagachev

14:00 – 15:00 *Invited Plenary Talk*
Petar Popivanov, Angela Slavova, *Goursat, Goursat-Darboux and Goursat-Darboux Oblique Derivative Problem for the String Equation*

15:00 - 15:30 Zlatinka Dimitrova, *On a Mathematical Model of Popularity Waves*

15:30 – 16:00 ***Coffee Break***

16:00- 19:00 **SESSION 4: Applications in Mathematical Physics**

Chair: Elena Nikolova

16:00 – 16:30 Daniel Dantchev, Vassil Vassilev, *XY Model in a Slab Geometry: A Theoretical Study Based on the Properties of the Weierstrass Elliptic Functions*

16:30 – 17:00 Pia Salerno, *Interior a Priori Estimate for Higher Order Elliptic Systems in Orlicz Spaces*

17:00 – 17:30 Kaloyan Vitanov, *On Sequence of Model Equations for Nonlinear Waves in Microtubules*

17:30- 18:00 Farah Alissa Binti Mislal, *Anisotropic Operators in Vanishing Morrey-Type Function Spaces*

18:00 – 18:30 Ivan P. Jordanov, *Exact Traveling-Wave Solutions of Swift-Hohenberg Type Equations via the Modified Method of the Simplest Equation*

18:30 – 19:00 Kaloyan Vitanov, *On a Mathematical Model of Popularity Waves in the Presence of the Possibility for a Change in Opinion*

19:30 ***Welcome party***

Wednesday, September 2nd

9:30-10:30 **SESSION 5**

Chair: Petar Popivanov

9:30 – 10:30 *Invited Plenary Talk*
Vladimir Georgiev, *On Completeness of Modified Wave Operators for Defocusing NLS*

10:30 – 11:00 **Coffee Break**

11:00-12:30 **SESSION 6: Applications in Mathematical Physics**

Chair: Ivan Jordanov

11:00 – 11:30 Nikolay K. Vitanov, *On Possible Solutions to a Model Equation for Nonlinear Waves in Microtubules*

11:30 – 12:00 Kaloyan Vitanov, *Further Studies on a Mathematical Model of Popularity Waves in the Presence of the Possibility for a Change in Opinion*

12:00 – 12:30 Gergana N. Nikolova, Elena V. Nikolova, Tsvetomir Ch. Pavlov, *A Note on a Hyperbolic Advection–Reaction–Diffusion Forest Fire Model: Part 2. Numerical Investigation of Spatio-Temporal Dynamics*

12:30 – 14:00 **Lunch Break**

14:00-15:30 **SESSION 7: Applications in Numerical Methods**

Chair: Slavi Georgiev

14:00 – 14:30 Miglena N. Koleva, Lubin G. Vulkov, *Numerical Approach for Determination of a Time-wise Source in a Heat Conduction with Nonlocal Boundary Conditions*

14:30 – 15:00 Venelin Todorov, *Unbiased Monte Carlo Frameworks for Multidimensional Fredholm and Volterra Integral Equations*

15:00 – 15:30 P. Atanasova, V. Georgiev, E. Dieva, *Derivation of Third-Order Exponential Adams Method and Comparison with Adams–Bashforth*

15:30 – 16:00	<i>Coffee Break</i>
16:00-19:00	SESSION 8: Applications in Financial Mathematics <i>Chair: Venelin Todorov</i>
16:00 – 16:30	Rossella Agliardi, <i>Explicit Solutions to Multidimensional Optimal Stopping Problems</i>
16:30 – 17:00	Vilislav Boutchaktchiev, Ivan Jordanov, <i>Application of the Inferred Rate of Default in Models for Stress Testing of Environmental Risk</i>
17:00 – 17:30	Vesela Mihova, Kaloyan Sabev, Velizar Pavlov, <i>An Econometric Analysis of the Relationship between Man-hours Worked and Gross Value Added in Bulgaria by Sector</i>
17:30- 18:00	Marina Gospodinova, Elitsa Raeva, Velizar Pavlov, <i>Thomas Mack Model for Analyzing the Standard Deviation of IBNR Claims for Different Lines of Insurance Business</i>
18:00 – 18:30	Plamena Angelova, Vesela Mihova, Velizar Pavlov, <i>A Study on Credit Decision-Making Process</i>
18:30 – 19:00	Teodora Klimenko, Velizar Pavlov, <i>Stochastic Premium Valuation of Multidimensional American Options</i>

Thursday, September 3rd

9:30-10:30 **SESSION 9**

Chair: Angela Slavova

9:30 – 10:30 *Invited Plenary Talk*

Christos Volos, *Beyond Equations: Artificial Intelligence for Symbolic Discovery and Dynamical Synthesis in Nonlinear Science*

10:30 – 11:00 ***Coffee Break***

11:00-12:30 **SESSION 10: Applications in Mathematical Biology and Mechanics**

Chair: Daniel Dantchev

11:00 – 11:30 Slavi Georgiev, *Inverse Epidemic Modelling of COVID-19: A Case Study of Bulgaria*

11:30 – 12:00 Daniele Barbera, *Strong Solutions for the Q-Tensor Model for Nematic Liquid Crystals on R^N and R^N_+*

12:00 – 12:30 V. K. Kotev, G. S. Nikolova, D. M. Dantchev, G. K. Stanchev, *Mathematical Model of the Human Body: Movement of the Centre of Mass During Walking*

12:30 – 14:00 ***Lunch Break***

14:00 – 15:30 **SESSION 11: Applications in Fractional Analysis**

Chair: Miglena Koleva

14:00 – 14:30 Snezhana Hristova, *Exponential Stability for Switched Differential Equations with Random Switching times Erlang distributed*

14:30 – 15:00 Tzanko Donchev, Boyana Garkova, Nikolay Kitanov, *Evolution Inclusion with Conformable Derivatives*

15:00 - 15:30 Fernando Olivar Romero, *Fractional Driven Damped Oscillator: Solution and Forced Response Analysis*

15:30 – 16:00 ***Coffee Break***

16:00- 19:00 **SESSION 12: Applications Numerical Methods**

Chair: Zlatinka Dimitrova

- 16:00 – 16:30 Miglena N. Koleva, Lubin G. Vulkov, *A Source Inverse Problem for Coupled Heat Transfer Equations*
- 16:30 – 17:00 Venelin Todorov, Ivan Dimov, *Monte Carlo-Based Solution of Linear Integral Equation Systems*
- 17:00 – 17:30 Lyubomir Lyubenov, Byulent Idirizov, *Applicability of the Growing Perpetuity Model in Bulgarian Agricultural Land Valuation*
- 17:30 – 18:00 Galina Koteva, Rumen Andreev, Vladimir Kotev, S. Dobrev, *AI-Enhanced Mathematics Education: A Dynamic Model of Learning and Engagement*
- 18:00 – 18:30 Venelin Todorov, Slavi Georgiev, Yuri Dimitrov, Fatima Sapundzhi, *Advanced Simulation-Based Methods for Valuation of Multidimensional European Options*
- 18:30 – 19:00 Atanas Z. Atanasov, Miglena N. Koleva, Lubin G. Vulkov, *Direct and Inverse Problems Analysis of Water Infiltration into Unsaturated Soils*
- 20:00 ***Official Dinner***

Friday, September 4th

9:30-10:30 **SESSION 13: Applications in Mechanics**

Chair: Vladimir Kotev

- 9:30 – 10:00 Saba Ifticar, Tzanko Donchev, Boyana Garkova, Nikolay Kitanov, Dimitar Kolev, *Difference Between Continuous and Impulsive Models*
- 10:00 – 10:30 Yoshihiro Motchimarū, *Nonlinear Analysis for Fixed Points, Nonlinear Mechanics*

10:30 – 11:00 ***Coffee Break***

11:00-12:30 **SESSION 14: Applications in Mathematical Physics**

Chair: Kaloyan Vitanov

- 11:00 – 11:30 Zlatinka Dimitrova, *Numerical Study of a Model of Competition of Two Politicians for the Trust of the People*
- 11:30 – 12:00 Saba Ifticar, Tzanko Donchev, Boyana Garkova, Nikolay Kitanov, Dimitar Kolev, *Existence and Stability for a Parabolic Initial and Boundary Value Problem*
- 12:00 – 12:30 – Venelin Todorov, Slavi Georgiev, Stoyan Apostolov, Metodi Popstoilov, Fatima Sapundzhi, Velichka Traneva, *Enhanced Monte Carlo Solvers for Large Sparse Linear Algebraic Systems*

12:30 – 14:00 ***Lunch Break***

14:00-16:30 **SESSION 15: Applications in Numerical Methods**

Chair: Tzanko Donchev

- 14:00 – 14:30 Venelin Todorov, Ivan Dimov, Tzvetan Ostromsky, Petar Zhivkov, Stefka Fidanova, *Advanced Stochastic Sampling Schemes for Global Sensitivity Analysis in Large-Scale Air Pollution Models*
- 14:30 – 15:00 Stanislava Stoilova, Nikolay Kitanov, Tzanko Donchev, *Method of Averaging for Optimal Control Problems with Impulses*

- 15:00 -15:30 Venelin Todorov, *Advanced Monte Carlo Frameworks for Multidimensional Integration in Real-Process Modelling*
- 15:30 – 16:00 Abdul Wahab, *A numerical Study of the Cahn-Hilliard Equation with High-Order Polynomial Potentials and Benchmark Computations*
- 16:00 – 16:30 Ana Katsarova, Vesselin Koutev, *Synergistic Effects of Zeolite, Diatomaceous Earth and Compost on Soil Fertility: A Review and Integrated Analysis*
- 16:30 ***Closing Ceremony***