**Fifth Annual Meeting of the
Bulgarian Section of SIAM
BGSIAM'10**

SCIENTIFIC PROGRAM

The event is hosted by the Institute of Mathematics and Informatics.

Monday, December 20

09:00 – 09:30 Registration and Coffee Break

09:30 – 11:30 **SESSION 1**

Chairman   S. Margenov
09:30 – 10:10 Invited Plenary Talk
               P. Popivanov, PDE Arising in Fluid Mechanics: Singularities, Creation and Propagation
10:10 – 10:50 Invited Plenary Talk
               Z. Zlatev, Richardson Extrapolation: Accuracy, Stepsize Control and Stability
10:50 – 11:10 V. Veliov, Distributed Dynamic Optimization on a Controllable Domain
11:10 – 11:30 V. Gerdjikov, Riemann-Hilbert Problems and Hamiltonian Structures

11:30 – 13:30 Lunch Break

13:30 – 14:00 Organization Meeting of BGSIAM

14:00 – 15:40 **SESSION 2**

Chairman   Z. Zlatev
14:00 – 14:40 Invited Plenary Talk
               L. Zikatanov, Energy Minimizing Coarse Spaces with Functional Constraints
14:40 – 15:00 K. Georgiev, Z. Zlatev, Some Notes on the Implementation of Sparse Matrix Techniques
               in an Advection-Diffusion Module
15:00 – 15:20 M. Racheva, G. Tsanev, A Nonconforming FE Applied to Second Order Elliptic Problems
15:20 – 15:40 I. Georgiev, J. Kraus, M. Lymbery, S. Margenov, On Two-level Splittings for Quadratic FEM
               Anisotropic Elliptic Problems

15:40 – 16:10 Coffee Break

16:10 – 18:10 **SESSION 3**

Chairman   L. Zikatanov
16:10 – 16:30 G. Nikolov, Quadrature Formulae Based on Interpolation by Parabolic Spline
16:30 – 16:50 C. Christov, N. Kolkovska, D. Vasileva, Numerical Investigation of Unsteady
               Solutions for the 2D Boussinesq Paradigm Equation
16:50 – 17:10 I. Hristov, Fluxon States in Linear Josephson Stacks
17:10 – 17:30 I. Dimov, R. Georgieva, Monte Carlo Approaches for Model Sensitivity Studies
17:30 – 17:50 E. Atanassov, A. Karaivanova, S. Ivanovska, M. Durchova, Two Algorithms for
               Modified Owen Scrambling on GPU
17:50 – 18:10 A. Tsokova, Vibrational Recursive Geometry

18:30   RECEPTION

Tuesday, December 21

09:30 – 10:30 **SESSION 4**

Chairman G. Popov

09:30 – 09:50 R. Anguelov, Monotone Dynamical Systems: Application to population models

09:50 – 10:10 S. Markov, On the Computation with Approximate Numbers

10:10 – 10:30 S. Fidanova, P. Marinov, Ant Colony Optimization Start Strategies: Two Case Studies

10:30 – 11:00 Coffee Break

11:00 – 13:00 **SESSION 5**

Chairman A. Slavova

11:00 – 11:40 Invited Plenary Talk

G. Popov, Effective Stability of Hamiltonian Systems

11:40 – 12:00 T. Rangelov, Y. Stoynov, P. Dineva, Dynamic Crack Problems in Functionally Graded Magnetoelectroelastic Solids

12:00 – 12:20 A. Slavova, M. Markova, Wave Propagation of Cellular Neural Network Model

of Tsunamis

12:20 – 12:40 A. Slavova, V. Rashkova, A Novel PDE Based Image Model for Image Denoising

12:40 – 13:00 G. Grahovski, V. Gerdjikov, R. Ivanov, On the (Non)-Integrability of KdV Hierarchy

with Self-consistent Sources

CLOSING

BGSIAM
S. Margenov, Chair
S. Dimova, Vice Chair
A. Slavova, Secretary