

## Program of the conference

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## PROGRAM OF THE CONFERENCE

### Wednesday, May 2

- 13.00 – 14.00 Registration
- 14.00 – 14.30 Opening. Pavel Krejčí, Director of the Institute of Mathematics  
Presentation of Bolzano Medal to Michal Křížek  
František Katrnoška, violin: Ave Mathematica
- 14.30 – 15.00 PEKKA NEITTAANMÄKI
- 15.00 – 15.30 Coffee Break
- 15.30 – 16.00 JAN BRANDTS  
From binary cube triangulations to acute binary simplices
- 16.00 – 16.30 SHUHUA ZHANG  
Numerical methods for the valuation of American options with  
regime switching and the calibration of the extended CIR model
- 16.30 – 17.00 ZHIMIN ZHANG  
Superconvergence in spectral collocation methods
- 18.00 – 22.00 Welcome Party, Blue Hall

### Thursday, May 3

- 9.00 – 9.30 MARTIN STYNES  
A curious property of oscillatory FEM solutions of one-  
dimensional convection-diffusion problems
- 9.30 – 10.00 HANS-GÖRG ROOS  
Error estimates for finite element methods in balanced norms for  
singular perturbation problems
- 10.00 – 10.30 AIHUI ZHOU  
Adaptive finite element analysis based on perturbation argu-  
ments
- 10.30 – 11.00 Coffee Break
- 11.00 – 11.30 SERGEY KOROTOV  
Discrete maximum principles in the finite element analysis
- 11.30 – 12.00 JOHN WHITEMAN  
Computational methods for problems of viscoelastic solid de-  
formation with application to the diagnosis of coronary heart  
disease

- 12.00 – 14.00 Lunch Break
- 14.00 – 14.20 VÍT DOLEJŠÍ  
An adaptive  $hp$ -discontinuous Galerkin approach for nonlinear convection-diffusion problems
- 14.20 – 14.40 TORSTEN LINSS  
A posteriori error estimates for high-order FEM applied to 1D reaction-diffusion equations
- 14.40 – 15.00 ANTTI HANNUKAINEN  
Preconditioners for the Helmholtz equation
- 15.00 – 15.30 Coffee Break
- 15.30 – 15.50 PAVEL BURDA  
Analytical solution of Stokes flow near corners and applications to numerical solution of Navier-Stokes equations with high precision
- 15.50 – 16.10 ŠÁRKA NEČASOVÁ  
Weak solution for the motion of a self-propelled deformable structure in a viscous incompressible fluid
- 16.10 – 16.30 RADKA KESLEROVÁ  
Steady and unsteady 2D numerical solution of generalized Newtonian fluids flow
- 18.00 – 23.00 Conference Dinner, U Seminaristy Restaurant, Spálená St. 45

### Friday, May 4

- 9.00 – 9.30 MILOSLAV FEISTAUER  
Analysis and applications of space-time discontinuous Galerkin method
- 9.30 – 10.00 BELOSLAV RIEČAN  
Probability on algebraic systems
- 10.00 – 10.30 HEHU XIE  
A type of multigrid method for eigenvalue problems
- 10.30 – 11.00 Coffee Break
- 11.00 – 11.30 LAWRENCE SOMER  
My twelve years of collaboration with Michal Křížek on number theory
- 11.30 – 12.00 TOMÁŠ VEJCHODSKÝ  
Computing upper bounds on Friedrichs' constant

- 12.00 – 14.00 Lunch Break
- 14.00 – 14.20 JAN VONDRÁK  
New model of precession, valid in time interval of 400 thousand years
- 14.20 – 14.40 ALENA PRAVDOVÁ  
Algebraic classification of the Weyl tensor: various approaches
- 14.40 – 15.00 VOJTĚCH PRAVDA  
Algebraic classification of the Weyl tensor: applications
- 15.00 – 15.20 ĽUBOMÍRA BALKOVÁ  
Combinatorics on words and its applications
- 15.20 – 15.40 Coffee Break
- 15.40 – 16.00 HOSSEIN AZARI  
A mesh free numerical method for the solution of an inverse heat problem
- 16.00 – 16.20 MARTA ČERTÍKOVÁ  
Numerical comparison of different choices of interface weights in the BDDC method
- 16.20 – 16.40 JAKUB ŠÍSTEK  
Parallel adaptive BDDC method
- 16.40 – 17.10 ALENA ŠOLCOVÁ  
Bernard Bolzano and other mathematicians in Prague

### Saturday, May 5

- 9.00 – 12.00 A walk through mathematical, physical, and astronomical Prague