



Applications of mathematics 2012

in honor of the 60th birthday of Michal Křížek

May 2–5, 2012

Blue Hall of the Institute of Mathematics
Academy of Sciences of the Czech Republic
Žitná 25, Prague 1

<http://www.math.cas.cz/am2012>
am2012@math.cas.cz

PROGRAM OF THE CONFERENCE

Wednesday, May 2

- 13.00 – 14.00 Registration
Chairman: K. Segeth
- 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
Reliable methods of a posteriori error control for problems in continuum mechanics
- 15.00 – 15.30 Coffee Break
Chairman: P. Neittaanmäki
- 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

Chairman: J. Whiteman

- 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 arguments
- 10.30 – 11.00 Coffee Break
Chairman: M. Stynes
- 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 deformation with application to the diagnosis of coronary heart disease
- 12.00 – 14.00 Lunch Break
Chairman: H.-G. Roos
- 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
Chairman: B. Riečan
- 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 HOSSEIN AZARI
A mesh free numerical method for the solution of an inverse heat problem
- 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

Chairman: S. Korotov

- 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

Chairman: M. Feistauer

- 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

Chairman: J. Chleboun

- 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 LUBOMÍRA BALKOVÁ
Combinatorics on words and its applications
- 15.20 – 15.40 Coffee Break

Chairman: J. Brandts

- 15.40 – 16.00 ŠÁRKA NEČASOVÁ
Weak solution for the motion of a self-propelled deformable structure in a viscous incompressible fluid
- 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