

PREFACE

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This issue of *Kybernetika* journal contains a selection of plenary and contributed lectures presented at ALGORITMY 2009, Conference on Scientific Computing, held in High Tatra Mountains, Podbanské, Slovakia, in March 15–20, 2009.

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ALGORITMY (Algorithms) represents the oldest Central-European series of international scientific meetings devoted to applied mathematics and numerical methods in computational sciences and engineering. It has been traditionally organized in the High Tatra Mountains, Slovakia (see the conference web-page: <http://www.math.sk/alg2009>) by the Slovak University of Technology in Bratislava in cooperation with Comenius University in Bratislava and Slovak and Czech Academy of Sciences.

Following this old tradition, the 18th ALGORITMY conference was devoted to computational methods, their analysis, algorithmic realization and application to real-world problems arising from, but not restricted to, natural sciences, engineering, technology, medicine and finance.

The main topics of the ALGORITMY 2009 conference were:

- computational fluid dynamics, heat transfer and porous media flow
- nonlinear conservations laws
- free boundary problems
- inverse problems
- image processing and computer vision
- computer graphics and computational geometry
- computational finance
- computational biology and medicine
- computational geosciences
- high-scale and parallel computing
- direct and iterative methods for large linear algebraic systems
- preconditioning techniques
- optimization and nonlinear algebraic problems
- scientific visualization
- software for scientific computations.

In solving the above mentioned real-world problems, the main attention was given to a new development and advanced applications of modern numerical methods as finite element, finite volume and level set methods, applied on structured and unstructured adaptive grids and accompanied by a fast and stable solution of arising systems of equations.

We would like to thank to everyone who contributed to the success of ALGORITMY 2009 conference. First of all to the authors and all other participants for their excellent contributions, the referees for the review work, members of the scientific and organizing committees, and to the management of *Kybernetika* journal. Last but not least, we thank to staff in Hotel Permon, Podbanské for creating excellent conditions for the scientific and social programme of the conference.

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