Preface

Special Issue on the Joint China and Russia Conference on Computational Mathematics

The Joint China and Russia Conference on Computational Mathematics was held from November 1 to November 3, 2010 at Hong Kong Baptist University. The purpose of the conference is to discuss recent progress in the field of computational mathematics, to promote scholarship and friendship between China and Russia. This is the first time in Hong Kong to organize a joint conference on computational mathematics between China and Russia. Many top scientists in the area of computational mathematics from China and Russia, including academicians and members of Academy of Sciences, attended the conference and presented their research results.

The special issue contains 13 papers from invited speakers of the conference. The contributions cover different aspects in the research field of computational mathematics with applications:

  (i) analyze linear/nonlinear problems arisen in different fields of science and engineering;

 (ii) develop performance of numerical method for partial differential equations;

(iii) pursue effective computation for ordinary differential equations and partial differential equations;

(iv) obtain deep understanding and appropriate application of linear algebra and multilinear algebra.

We hope that these important topics needed for future advanced computational mathematics will have a significant impact for both countries.

On behalf of the organizers of the conference, we would like to thank for the following sponsors for their generous support: Hong Kong Baptist University, Institute for Computational Mathematics, Hong Kong Baptist University and Hong Kong Pei Hua Education Foundation.

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1. A Numerical Method for the Simulation of Free Surface Flows of Viscoplastic Fluid in 3D
Kirill D. Nikitin, Maxim A. Olshanskii, Kirill M. Terekhov and Yuri V. Vassilevski
Contact: Yuri V. Vassilevski
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2. High Order Weighted Essentially Non-Oscillation Schemes for One-Dimensional Detonation Wave Simulations
Zhen Gao, Wai Sun Don and Zhiqiu Li
Contact: Wai Sun Don
Email: wsdon@dam.brown.edu

3. Multiple Temperature Gas Dynamic Equations for Non-Equilibrium Flows
Kun Xu and Zhaoli Guo
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4. A Non-Oscillatory Kinetic Scheme for Multi-Component Flows with the Equation of State for a Stiffened Gas
Yibing Chen and Song Jiang
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Email: jiang@iapcm.ac.cn

5. Extrapolation Cascadic Multigrid Method
Chuanmiao Chen, Zhongci Shi and Hong-li Hu
Contact: Zhongci Shi
Email: shi@lsec.cc.ac.cn

6. Supergeometric Convergence of Spectral Collocation Methods for Weakly Singular Volterra and Fredholm Integral Equations with Smooth Solutions
C. Huang, T. Tang and Z. Zhang
Contact: T. Tang
Email: ttang@math.hkbu.edu.hk

7. Step-Like Contrast Structure of Singularly Perturbed Optimal Control Problem
Mingkang Ni and Limeng Wu
Contact: Mingkang Ni
Email: xiaovikdo@163.com

8. Low-Rank Tensor Structure of Solutions to Elliptic Problems with Jumping Coefficients
Sergey Dolgov, Boris N. Khoromskij, Ivan Oseledets and Eugene E. Tyrtyshnikov
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Email: tee@bach.inm.ras.ru

9. Linear Convergence of the LZI Algorithm Positive Tensors
Liping Zhang, Liqun Qi and Yi Xu
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10. An Effective Initialization for Orthogonal Nonnegative Matrix Factorization
Xuansheng Wang, Xiaoyao Xie and Linzhang Lu
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Email: lzlu@xmu.edu.cn

11. Some Residual Bounds for Approximate Eigenvalues and Approximate Eigenspaces
Wen Li and Xiaoshan Chen
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Email: ma.wenli@yahoo.com.cn

12. Critical Issues in the Numerical Treatment of the Parameter Estimation Problems in Immunology
Tatyana Luzyanina and Gennady Bocharov
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13. On Algorithms for Automatic Deblurring from a Single Image
Michael Ng and Wei Wang
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