Preface

Special Issue for SCPDE08:
Numerical Methods and Analysis for PDEs
and
Inverse Problems

The Third International Conference on Scientific Computing and Partial Differential Equations (SCPDE) was held from December 8 to December 12, 2008 at Hong Kong Baptist University. It was a sequel to similar conferences held in Hong Kong (2002 and 2005). The conference aims to promote research interests in scientific computation. In SCPDE 2008, there were 118 participants from seventeen countries and regions participated in the conference. The Programme included seventeen plenary addresses, thirty invited talks, twenty five contributed talks and seven poster presentations. Two workshops on numerical partial differential equations and inverse problems were organized to review recent scientific developments and explore exciting new directions in mathematical modeling and computational methods in these two areas. (`http://www.math.hkbu.edu.hk/SCPDE08/`).

This special issue contains 10 papers from invited speakers and contributed speakers of the two workshops. The contributions cover several recent mathematical modeling and computational methods in the research field of numerical PDEs and inverse problems. These papers include: Inverse Eigenvalue Problems for exploring the Dynamics of Systems Biology by Lu, Efficient Reconstruction Methods for Nonlinear Elliptic Cauchy Problems with Piecewise Constant Solutions by Egger et al., A Revisit on the Derivation of the Particular Solution for the Differential Operator $\Delta^2 \pm \lambda^2$ by Yao et al., Collocation Methods for Hyperbolic Partial Differential Equations with Singular Sources by Jung et al., A Spectral Time-Domain Method for Computational Electrodynamics by Lambers, Investigation of Taylor-Gortler-like Vortices Using the Parallel Consistent Splitting Scheme by Kuo et al., Some Improvements of the GMRES Methods for Linear Discrete Ill-posed Problems by Kuroiwa et al., Analysis of Two-grid Methods for Nonlinear Parabolic Equations by Expanded Mixed Finite Element Methods by Chen et al., Fourth Order Compact Boundary Value Method for Option Pricing with Jumps by Lee et al., Improved Local Projection for the Generalized Stokes Problem by Nafa.

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