

Editorial Preface: “Preconditioning and Iterative Methods for Algebraic Systems and Complementarity Problems”

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In the spring of 2016, two workshops about preconditioning and iterative methods for algebraic systems and complementarity problems were held in the central and the east of China. The first is the “Workshop on Preconditioning and Iterative Methods for Saddle Point Problems” at Nantong University during April 15-18, 2016, and the second is the “Workshop on Numerical Computations of Algebraic Systems and Complementarity Problems” at Henan University of Economics and Law during May 13-16, 2016. These workshops aim at bringing together Chinese researchers and scientists to report their latest results on the numerical methods and theoretical analyses for large sparse systems of algebraic equations and complementarity problems, and to exchange their ideas on the recent developments of theory, algorithms and applications in the area of numerical linear and nonlinear algebras.

These two workshops were co-organized by Zhong-Zhi Bai (Chinese Academy of Sciences, Beijing), together with Yang Cao (Nantong University, Nantong) and Li-Li Zhang (Henan University of Economics and Law, Zhengzhou), respectively, and financially supported by the National Natural Science Foundations (Nos. 11301290 and 11301141) of the latter two young scientists, as well as by the grants such as the Nantong Science and Technology Platform (No. CP12013001) and the Special Funds for Academic Conferences from their universities.

The first workshop was focused on efficient preconditioning techniques and iterative methods for solving large sparse saddle point problems arising from many areas of scientific computing and engineering applications such as the mixed finite-element discretization of the Navier-Stokes equation, the meshfree discretization of the elastic mechanic problems, the time-harmonic eddy current models, and the constrained optimization problems, etc. And the second workshop was focused on matrix splitting iteration methods and

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their convergence theories for linear and nonlinear complementarity problems, especially the modulus-based matrix splitting iteration methods and their fast implementations, etc. About 30 participants attended each of these two workshops.

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