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Natália Bebiano  
Editor

# Applied and Computational Matrix Analysis

MAT-TRIAD, Coimbra, Portugal,  
September 2015  
Selected, Revised Contributions

 Springer

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# Preface

The MAT-TRIAD 2015, sixth in the series of international conferences on matrix analysis and its applications, was held at the Department of Mathematics, University of Coimbra, Portugal, during 7–11 September. Following the tradition of its predecessors, this meeting gathered researchers around topics in matrix theory and its role in theoretical and numerical linear algebra, numerical and functional analysis, graph theory and combinatorics, coding theory and statistical models with matrix structure. A total of 170 participants from 39 countries, from Europe, North and South America, Africa and Asia, have attended the conference in the University of Coimbra, UNESCO World Cultural Heritage since 2013. The audience was multidisciplinary allowing the participants to exchange diversified ideas and to show the wide applicability of different methods. There were two kinds of lectures: invited talks of one hour presented by distinguished experts and half an hour contributions. The winners of the Young Scientists Award of MAT-TRIAD 2013 presented invited talks. The conference included two lectures specially dedicated to young participants.

MAT-TRIAD 2015 was sponsored by the International Linear Algebra Society (ILAS), Department of Mathematics, University of Coimbra (DMUC), Center of Mathematics, University of Coimbra (CMUC), Center for R&D in Mathematics (IDMA), Center for Mathematical Analysis, Geometry and Dynamical Systems (CAMGSD), Center for Functional Analysis, Linear Structures and Applications (CEAFEL), Polytechnic Institute of Tomar (IPT), Fundação para a Ciência e Tecnologia (FCT), Programa Operacional Factores de Competitividade (COMPETE), Quadro de Referência Estratégica Regional (QREN), Fundo Europeu de Desenvolvimento Regional—União Europeia.

The Conference Scientific Committee consisted of Tomasz Szulk (Poland)—Chair, Natália Bebiano (Portugal), Ljiljana Cvetković (Serbia), Heike Faßbender (Germany) and Simo Putanen (Finland). The Organizing Committee was constituted by Natália Bebiano—Chair, Francisco Carvalho, Susana Furtado, Celeste Gouveia, Rute Lemos and Ana Nata, all from Portugal.

We would like to publicly acknowledge the financial support of the sponsors, as well as the hospitality of the Department of Mathematics of the University of

Coimbra, and the strong encouragement of its Center of Mathematics. We are also very grateful for the secretarial help of Dra. Rute Andrade.

Selected papers of MAT-TRIAD 2015 are presented in the volume *Applied and Computational Matrix Analysis* in the series Proceedings of Mathematics & Statistics published by Springer Verlag. With the publication of these proceedings, we hope that a wider mathematical audience will benefit from the conference research achievements and new contributions to the field of matrix theory and its applications.

More details of the program and the book of abstracts can be found at <http://www.matriad.ipt.pt>.

Coimbra, Portugal  
August 2016

Natália Bebiano

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It is a pleasure to thank Doctor Ana Nata for her valuable support in the preparation of this book, done with competence and with good cheer. Without her help, this project might have been postponed indefinitely.

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