

Preface

This volume of the SEMA/SIMAI Springer Series arose from the 23rd Congress on Differential Equations and Applications (CEDYA)/13th Congress of Applied Mathematics (CMA). The conference took place at the Universitat Jaume I in Castelló (Spain) on 9–13 September 2013 and was sponsored by Generalitat Valenciana, the Institut de Matemàtiques i Aplicacions de Castelló (IMAC) and the Departament de Matemàtiques of the Universitat Jaume I. It was attended by more than 200 participants, mainly from Spain but also from a further nine countries.

CEDYA has a long tradition in the Spanish applied mathematics community. It was first held in 1978 in El Escorial (Madrid), serving as a meeting point for mathematicians working in different research areas such as differential equations (both ordinary and partial), numerical analysis, control and optimization, and industrial mathematics. Nowadays, CEDYA is renowned as the congress of the Spanish Society of Applied Mathematics (SEMA) and constitutes the main forum and meeting point for applied mathematicians in Spain.

The organizers of the 23rd CEDYA/13th CMA are especially grateful to all members of the Scientific Committee, plenary speakers, organizers of the Special Sessions, and participants for their stimulating contributions, both verbal and written and for providing a lively scientific atmosphere during the conference.

The congress took place at the premises of the Fundació Universitat Empresa (FUE), Universitat Jaume I. The editors wish to acknowledge all the institutions involved in its organization. They are particularly grateful for the assistance and constant support received from the FUE personnel, with a special mention of Begõna Andr s for her outstanding contribution in making the conference the success that (we believe) it was.

The collection of papers in this volume is based on the contributions presented at the conference. The papers were selected after a thorough refereeing process and provide a good summary of the recent activity of the different groups working mainly in Spain on applications of mathematics to various fields of science and technology.

The refereeing and editorial procedures have had to conform to a very specific timetable, and so the editors would like to take this opportunity to thank all the authors and referees for their understanding when coping with such an expedited procedure. Special mention goes to Francesca Bonadei from Springer for her enthusiastic support and encouragement during the different phases of the editorial process.

The papers included in this volume fall into a number of distinct subject areas covered by the conference and thus are arranged in accordance with this subdivision.

The first section is devoted to theoretical aspects of partial differential equations and contains six papers. The second section deals with different aspects relating to ordinary differential equations and dynamical systems, both from a qualitative point of view and also in terms of the design of new numerical techniques for their treatment.

The third section is entitled “Applications and Modeling” and covers topics such as multiresolution, time series, controllability, and models of traffic flow and fire propagation.

Finally, the fourth section, entitled “Numerical Analysis”, contains papers presenting new numerical techniques designed to solve specific problems arising in ordinary and partial differential equations as well as numerical linear algebra.

We hope that this volume will appeal to both researchers and practitioners in analytical and numerical aspects of differential equations and numerical analysis as a whole as well as some of their applications but also to the non-experts who wish to gain a taste of the new developments in these areas of current interest.

Castelló, Spain
July 2014

Fernando Casas
Vicente Martínez

Advances in Differential Equations and Applications

Casas, F.; Martínez, V. (Eds.)

2014, IX, 287 p. 40 illus., 35 illus. in color., Hardcover

ISBN: 978-3-319-06952-4