

CONTEMPORARY MATHEMATICS

509

Differential Algebra, Complex Analysis and Orthogonal Polynomials

Jairo Charris Seminar 2007–2008
Escuela de Matemáticas
Universidad Sergio Arboleda
Bogotá, Colombia

Primitivo B. Acosta-Humánez
Francisco Marcellán
Editors



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In memory of Jairo Antonio Charris Castañeda, 1939-2003.

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Preface

This volume contains articles by nine invited speakers in the Jairo Charris Seminar in Algebra and Analysis held at the Universidad Sergio Arboleda from August 1 to August 3, 2007 and from July 31 to August 2, 2008 to honor Professor Jairo Charris Castañeda, who died in 2003 as a consequence of a serious illness.

Professor Charris was one of the most relevant Colombian mathematicians in the last third of the past century. He was born in Ciénaga, Department of Magdalena, Colombia, in 1939. He obtained a Master's degree in Chemical Engineering in 1962 and in Mathematics in 1967, both from Universidad Nacional de Colombia. In 1969, he received a Master's degree in Mathematics from the University of Chicago under the advisoring of Professor R. Narasimhan. From 1981, and under the direction of Professor M. E. H. Ismail, he worked in the Department of Mathematics at Arizona State University in the field of Pollaczek orthogonal polynomials. There, in 1984 he defended his PhD Thesis. He came back to Colombia to continue his scientific career as a professor at Universidad Nacional at Bogotá until his retirement in 1998. After retiring, he collaborated with Universidad Nacional and Universidad Sergio Arboleda both in teaching and research activities.

The scientific fields where Professor Charris focused his activity were the theory of orthogonal polynomials (in particular, his contributions on sieved polynomials had a strong impact in the mathematical community interested in the subject), Complex Analysis, Compactification Theory, and Group Algebra. He authored 32 publications and three monographs. His scientific leadership is very remarkable, with 20 graduate and postgraduate students who defended Master's and PhD Theses under his direction from 1976 to 2001.

The articles contained in this volume cover a wide range of topics in the theory of Integrable Dynamical Systems based on different approaches such as Differential Galois Theory and Lie Groups, as well as some recent developments in the theory of multivariable and q -orthogonal polynomials, Weak Hilbert's 16th Problem, Singularity Theory, Tournaments in flag manifolds, and spaces of bounded analytic functions on the unit circle. The contributors are celebrated researchers in these domains.

New results and methods are presented in these contributions in order to foster research in these areas in coming years. The reader will find survey presentations, an account of recent development, and the exposition of new trends in such areas from theoretical and applied perspectives.

As co-organizers of the workshop and editors of this volume it is our happy task to thank those individuals and institutions whose efforts made it possible. First, we acknowledge Universidad Sergio Arboleda for the financial and infrastructural support. Second, it is a pleasure to thank all the members of the local organization

Committee of the Universidad Sergio Arboleda for the excellent organization of this meeting. Last, but certainly not least, we express our gratitude to the participants of the seminar who made it a memorable event, to the contributors to this volume, and to Christine Thivierge of the AMS staff for her efficient support in the publication of these proceedings.

Primitivo B. Acosta-Humánez, IMA - Universidad Sergio Arboleda
Francisco Marcellán, Universidad Carlos III de Madrid
Editors

This volume represents the 2007–2008 Jairo Charris Seminar in Algebra and Analysis on Differential Algebra, Complex Analysis and Orthogonal Polynomials, which was held at the Universidad Sergio Arboleda in Bogotá, Colombia.

It provides the state of the art in the theory of Integrable Dynamical Systems based on such approaches as Differential Galois Theory and Lie Groups as well as some recent developments in the theory of multivariable and q -orthogonal polynomials, weak Hilbert's 16th Problem, Singularity Theory, Tournaments in flag manifolds, and spaces of bounded analytic functions on the unit circle.

The reader will also find survey presentations, an account of recent developments, and the exposition of new trends in the areas of Differential Galois Theory, Integrable Dynamical Systems, Orthogonal Polynomials and Special Functions, and Bloch–Bergman classes of analytic functions from a theoretical and an applied perspective.

The contributions present new results and methods, as well as applications and open problems, to foster interest in research in these areas.

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