

# CONTEMPORARY MATHEMATICS

578

## Recent Advances in Orthogonal Polynomials, Special Functions, and Their Applications

11th International Symposium  
August 29–September 2, 2011  
Universidad Carlos III de Madrid  
Leganés, Spain

J. Arvesú  
G. López Lagomasino  
Editors



American Mathematical Society

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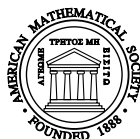
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2000 *Mathematics Subject Classification*. Primary 30E05, 30E10, 30E15, 33-XX, 42C05, 42C10, 41A20, 41A21, 41A25, 41A30.

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### Library of Congress Cataloging-in-Publication Data

International Symposium on Orthogonal Polynomials, Special Functions and Applications (11th : 2011 : Universidad Carlos III de Madrid)

Recent advances in orthogonal polynomials, special functions, and their applications : 11th International Symposium on Orthogonal Polynomials, Special Functions, and Their Applications, August 29–September 2, 2011, Universidad Carlos III de Madrid, Leganes, Spain / J. Arvesú, G. López Lagomasino, editors.

p. cm. — (Contemporary Mathematics ; v. 578)

Includes bibliographical references.

ISBN 978-0-8218-6896-6 (alk. paper)

I. Functions of complex variables—Congresses.      I. Arvesú, Jorge, 1968–      II. López Lagomasino, Guillermo, 1948–      III. Title.

QA331.7.I596      2011

515'.9—dc23

2012017031

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Dedicated to Francisco (Paco) Marcellán on the occasion of his 60th birthday



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## Preface

This volume contains a selection of papers presented at the 11th International Symposium on Orthogonal Polynomials, Special Functions and their Applications (OPSFA'11), held from August 29 to September 3, 2011, at Universidad Carlos III de Madrid, Leganés, Spain. Most of them reflect the contents of the talks delivered by the plenary speakers. The conference, as well as this volume, was dedicated to celebrate the 60th birthday of Professor Francisco Marcellán Español who is a distinguished member of the Spanish mathematical community and has done a tremendous job in placing Spain at the head of research in the areas covered by the conference.

OPSFA'11 is the eleventh edition of a series of conferences which started at Bar-le-Duc, France, in 1984. See <http://matematicas.uc3m.es/index.php/opsfa-history> for a complete list of these conferences and their history. They have played a major role throughout these years in keeping the subject alive and producing major results. On this occasion, for the first time the Szegő Prize was awarded. This prize, instituted by the SIAM Activity Group on Orthogonal Polynomials and Special Functions (SIAG/OPSF), is intended for early career researchers with relevant contributions in the area. The recipient was Tom Claeys of the Catholic University of Louvain and this volume contains a contribution of his.

The conference had 213 participants, which is a record for the series, from over 35 countries. There were 15 plenary speakers. Two of these talks were dedicated to outlining Francisco Marcellán's contributions in the field and are included in the opening paper of the book. Additionally, 100 contributed talks were given and 40 posters were exhibited.

The papers presented here contain new results and methods, recent developments, and new trends as well as a selection of open problems which will foster interest in research in Orthogonal Polynomials, Special Functions, and their Applications in the coming years from both theoretical and applied perspectives.

As co-organizers of OPSFA'11 and editors of this volume it is our duty to thank those individuals and institutions whose efforts made it possible. Most of all, we acknowledge Ministerio de Ciencia e Innovación of Spain (grant MTM2010-12283-E), Proyecto Ingenio Mathematica (grant SARE-C6-0426), Universidad Carlos III de Madrid (grant 2011/00342/001), Universidad Politécnica de Madrid (grant VORG-08/10), Instituto de Ciencias Matemáticas (grant 200450E564), Real Sociedad Matemática Española, Sociedad Española de Matemática Aplicada, and the Society for Industrial and Applied Mathematics (SIAM) for their financial support. Second, it is a pleasure to thank all the members of the Organizing Committee for the excellent organization of this meeting as well as the members of the Scientific Committee who helped us to make an excellent selection of invited speakers and

chaired the plenary talks. Last but not least, we express our gratitude to the participants of the workshop who made this a memorable event, to the contributors of this volume, and to Christine Thivierge of the AMS staff for her efficient support in the production of these proceedings.

Jorge Arvesú, Universidad Carlos III de Madrid

Guillermo López Lagomasino, Universidad Carlos III de Madrid.

This volume contains the proceedings of the 11th International Symposium on Orthogonal Polynomials, Special Functions, and their Applications, held August 29–September 2, 2011, at the Universidad Carlos III de Madrid in Leganés, Spain.

The papers cover asymptotic properties of polynomials on curves of the complex plane, universality behavior of sequences of orthogonal polynomials for large classes of measures and its application in random matrix theory, the Riemann–Hilbert approach in the study of Padé approximation and asymptotics of orthogonal polynomials, quantum walks and CMV matrices, spectral modifications of linear functionals and their effect on the associated orthogonal polynomials, bivariate orthogonal polynomials, and optimal Riesz and logarithmic energy distribution of points. The methods used include potential theory, boundary values of analytic functions, Riemann–Hilbert analysis, and the steepest descent method.

ISBN 978-0-8218-6896-6



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