

Special Volume on Orthogonal Polynomials and Mathematical Physics

This special volume of ETNA contains twelve selected papers presented at the Sixth International Workshop on Orthogonal Polynomials, held at Universidad Carlos III de Madrid in July 5–8, 2004. The workshop was organized by Francisco Marcellán, Jorge Arvesú (Universidad Carlos III de Madrid), and Renato Alvarez-Nodarse (Universidad de Sevilla), who also served as guest editors for this special volume. One hundred mathematicians from twenty countries attended the workshop, and they contributed to its success with their presentations and the very lively discussions. Seven invited two-hour lectures were given on recent trends in orthogonal polynomials and their applications in Mathematical Physics.

- N. Atakishiyev (Instituto de Física y Matemáticas, UNAM, Cuernavaca, México)): Duality of q -polynomials, orthogonal on an infinite set of discrete points.
- P. A. Clarkson (Institute of Mathematics, Statistics and Actuarial Science, University of Kent, UK): Painlevé equations: Rational solutions and associated special polynomials.
- J. S. Dehesa (Departamento de Física Moderna, Universidad de Granada, Spain): Information theory of special functions and quantum mechanical applications.
- A. Fokas (Department of Applied Mathematics and Theoretical Physics, University of Cambridge, UK): From Tschebycheff and Hermite polynomials to functional brain imaging and quantum gravity: A Riemann-Hilbert and \bar{D} bar approach.
- A. F. Grunbaum (Department of Mathematics, University of California, Berkeley, USA): Orthogonal polynomials in medical imaging: a two way street.
- J. A. Tirao (Centro de Investigación y Estudios de Matemática, Universidad Nacional de Córdoba, Argentina): Spherical functions, hypergeometric equation and orthogonal polynomials. Scalar and matrix valued versions.
- A. Zhedanov (Donetsk Institute for Physics and Technology, Ukraine): Explicit schemes of the multipoint Padé interpolation and special functions.

In addition, eighteen half-hour lectures and thirteen posters illustrated the breadth, relevance, and liveliness of these important fields of Applied Mathematics. The broad range of topics in these talks is also reflected by the papers in this special volume. All the papers were peer-refereed. We would like to express our sincere gratitude to all referees for their excellent work. Moreover, we gratefully acknowledge financial support for the workshop from Universidad Carlos III de Madrid (Programa Propio Vicerrectorado de Investigación). Finally, the Real Sociedad Española de Matemáticas (RSME) and Sociedad Española de Matemática Aplicada (SEMA) contributed with grants for young postgraduate students attending the workshop. On behalf of the Organizing Committee, we also want to thank the other members of the Department of Mathematics, Universidad Carlos III de Madrid who have collaborated with us in the organization of the meeting: Guillermo López Lagomasino, María Isabel Bueno, María Antonia Delgado, Angeles Garrido, Carmen Rodríguez, Alfredo Deaño, Jorge Sánchez, Javier Hernández, Roberto Costas, and Ulises Hidalgo.

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Special Volume Editors