Alfredo Deaño Cabrera
Curriculum vitae

Personal data

Name: Alfredo Deaño Cabrera.

Place and date of birth: Madrid (Spain), 12 July 1977.

Sex: Male.

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Education

- 1997-2001. Studies of Mathematics. Universidad Autónoma de Madrid (www.uam.es).
- 2001-2006. PhD in Mathematics. Universidad Carlos III de Madrid (www.uc3m.es).
- PhD thesis: Qualitative and numerical aspects of the hypergeometric equation. 10 November 2006.

Research interests

- Analytical and computational properties of classical special functions.
- Gauss and Kummer hypergeometric functions.
- Classical orthogonal polynomials.
- Numerical and harmonic analysis.
- Numerical integration and quadrature.
- Asymptotic analysis of special functions.

Publications

- A. Deaño, A. Gil, J. Segura. *New inequalities from classical Sturm theorems.* J. Approx. Theory 131 (2004), 208-230.
- A. Deaño, A. Gil, J. Segura. *Computation of real zeros of the Kummer function $M(a;c;x)$.* N. Takayama, A. Iglesias, J. Gutiérrez (eds), *Proceedings of IMCS 2006.* Lecture Notes in Computer Science 4151, 296-307.
- A. Deaño, J. Segura. *Transitory minimal solutions of hypergeometric recursions and pseudoconvergence of associated continued fractions.* Math. Comp. 76, 258 (2007), 879-901.
- A. Deaño, J. Segura. *Global Sturm inequalities for the real zeros of the solutions of the Gauss hypergeometric equation.* J. Approx. Theory 148, 1 (2007), 92–110.

- A. Deaño, J. Segura, N.M. Temme. *Identifying minimal and dominant solutions for Kummer recursions.* (Accepted for publication in Math. Comp.).
- A. Deaño, J. Segura, N.M. Temme. *Computational properties of three-term recurrence relations for Kummer functions.* (Submitted to J. Comp. Appl. Math.).

Contributions to international conferences

- *New inequalities from classical Sturm theorems.* (Joint work with A. Gil and J. Segura). International Workshop on Orthogonal Polynomials, Universidad Carlos III de Madrid, (Spain) 2004.
- *Recurrence relations and continued fractions for Kummer functions. Anomalous convergence revisited.* (Joint work with J. Segura). Computational Methods and Function Theory (CMFT), Joensuu (Finland), 2005.
- *On the stability of recurrence relations for hypergeometric functions.* (Joint work with J. Segura). International Conference on Numerical Analysis and Applied Mathematics, Rhodes (Greece), 2005.
- *A Maple package for the computation of the real zeros of hypergeometric functions.* (Joint work with A. Gil and J. Segura). International Congress of Mathematicians, Madrid (Spain), 2006.
- *LG transformations and global Sturm properties of the real zeros of Gauss hypergeometric functions.* (Joint work with J. Segura). New trends in Constructive Approximation Theory, Universidad Carlos III de Madrid (Spain), 2006.
- *Computation of the real zeros of the Kummer function $M(a;c;x)$.* (Joint work with A. Gil and J. Segura). International Conference on Mathematical Software ICMS'06, Castro Urdiales (Spain), 2006.
- *Methods for computing oscillatory integrals involving Bessel functions.* International Conference on Scientific Computation and Differential Equations, Saint-Malo (France), 2007.
- *Minimal and dominant solutions of confluent hypergeometric recursions.* (Joint work with J. Segura and N. M. Temme). Special Functions, Information Theory and Mathematical Physics. A conference in honor of J. S. Dehesa. Granada (Spain), 2007.

Research projects

Project MTM2006-09050. Design, analysis and verification of algorithms for the evaluation of mathematical functions. Sponsored by the Spanish Ministry of Education and Science (`www.mec.es`).

Research stays

- May 2003-June 2003. Universidad de Cantabria (Spain). Sturm-type properties of real zeros of classical hypergeometric functions.
- May 2004-June 2004. University of Antwerp (Belgium). Continued fractions and hypergeometric functions.
- November 2005-December 2005. École Normale Supérieure de Lyon (France). Numerical methods for the evaluation of elementary and special functions.
- January 2007-February 2007. Department of Applied Mathematics and Theoretical Physics. University of Cambridge. Oscillatory integrals, quadrature methods and applications.

Teaching

- Theory and problems: Differential and Integral Calculus. Department of Mathematics, Universidad Carlos III de Madrid, 2001-2007.
- Laboratory using Matlab: Linear Algebra, Calculus and Complementary Mathematics, Department of Mathematics, Universidad Carlos III de Madrid, 2001-2007.

Languages

- Spanish (mother tongue).
- English. Certificate of Proficiency in English. University of Cambridge, 2000.
- French. Levels A1-A4 of DELF (Diplôme d'Études en Langue Française).
- German (basic).

Other interests

- Professor of flute (Royal Conservatory of Madrid, 1999).
- Advanced Certificate (speciality flute, with distinction). Associated Board of the Royal Schools of Music.