

PUBLICATION LIST

1 Computational Mathematics

1. **Efficient algorithms for the inversion of the cumulative central beta distribution.** A. Gil, J. Segura, N.M. Temme. Submitted.
2. **Computation of the incomplete gamma function for negative values of the argument.** A. Gil, D. Ruiz-Antolín, J. Segura, N.M. Temme. Submitted.
3. **Special functions: Computation.** Entry of the “*Encyclopedia of Applied and Computational Mathematics*”, edited by Björn Engquist. A. Gil, J. Segura, N.M. Temme. To appear.
4. **Computing the Kummer function $U(a, b, z)$ for small values of the arguments.** A. Gil, J. Segura, N.M. Temme. Accepted for publication in *Applied Mathematics and Computation*.
5. **GammaCHI: a Fortran 90 package for the inversion and computation of gamma and chi-square cumulative distribution functions (central and noncentral).** A. Gil, J. Segura, N.M. Temme. *Computer Physics Communications* 191(2015)132-139.
6. **Computation of a numerically satisfactory pair of solutions of the differential equation for conical functions of non-negative integer orders.** T.M. Dunster, A. Gil, J. Segura, N.M. Temme. *Numerical Algorithms* 68(2015)457-509.
7. **The asymptotic and numerical inversion of the Marcum-Q function.** A. Gil, J. Segura, N.M. Temme. *Studies in Applied Mathematics* 133(2) (2014) 257-278.
8. **On the complex zeros of Airy and Bessel functions and those of their derivatives.** A. Gil, J. Segura. *Analysis and Applications* 12, 537 (2014) 537-561. Special Issue in honour of Frank Olver.

9. **Special volume on Numerical Software: Design, Analysis and Verification.** Eds. A. Gil, JM. Muller, J. Segura. *Science of Computer Programming* 90 (2014).
10. **Recent software developments for special functions in the Santander-Amsterdam project.** A. Gil, J. Segura, N.M. Temme. *Science of Computer Programming* 90(2014) 42-54.
11. **Algorithm 939: Computation of the Marcum-Q function.** A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 40(3) (2014) 20 pages.
12. **Funciones Especiales en la Era Digital.** A. Gil, J. Segura, N.M. Temme. *Gaceta de la Real Sociedad Matemática Española* 17(1) (2014).
13. **On the computation of the moments of the partial chi-square distribution function.** A. Gil, J. Segura, N.M. Temme. Proceedings of the International Conference "Applications of Mathematics 2013" (2013). 98-103. ISBN 978-80-85823-61-5
14. **Efficient and accurate algorithms for the computation and inversion of the incomplete gamma function ratios.** A. Gil, J. Segura, N.M. Temme. *SIAM Journal on Scientific Computing* 34(6) (2012) A2965-A2981.
15. **Computing the zeros of Bessel functions and of the mixed derivatives $x\mathcal{C}'_\nu(x) + \gamma\mathcal{C}_\nu(x)$.** A. Gil, J. Segura. *Computers and Mathematics with Applications* 64(1) (2012) 11-21.
16. **An improved algorithm and a Fortran 90 module for computing the conical function $P_{-1/2+i\tau}^m(x)$.** A. Gil, J. Segura, N.M. Temme. *Computer Physics Communications* 183(3) (2012) 794-799.
17. **Parabolic Cylinder Function $W(a, x)$ and its derivative (algorithm).** A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 38(1) (2011) Article 6.
18. **Fast and Accurate Computation of the Weber Parabolic Cylinder Function $W(a, x)$.** A. Gil, J. Segura, N.M. Temme. *IMA Journal of Numerical Analysis* 31(3) (2011) 1194-1216.

19. **A New Fortran 90 Program to Compute Regular and Irregular Associated Legendre Functions.** B.I. Schneider, J. Segura, A. Gil, X. Guan, K. Bartschat. *Computer Physics Communications* 181(12) (2010) 2091-2097.
20. **Basic Methods for Computing Special Functions.** A. Gil, J. Segura, N.M. Temme. *Recent Advances in Computational and Applied Mathematics* (2010) Ed. T.E. Simos. Springer. ISBN: 978-90-481-9980-8
21. **The Asymptotic Inversion of Certain Cumulative Distribution Functions.** A. Gil, J. Segura, N.M. Temme. *Progress in Industrial Mathematics at ECMI 2008* (2010) Springer series in Mathematics in Industry. ISBN: 978-3-642-12109-8
22. **Computing the conical function $P_{-1/2+i\tau}^m(x)$.** A. Gil, J. Segura, N.M. Temme. *SIAM Journal on Scientific Computing* 31 (3) (2009) 1716-1741.
23. **Numerical Methods for Special Functions.** A. Gil, J. Segura, N.M. Temme. *SIAM* (2007) 415 pp. ISBN 978-0-898716-34-4
24. **Proceedings of the Conference in Honour of Dr. Nico Temme on the Occasion of his 65th birthday.** Eds. A. Gil, J.L. López, J. Segura. *Journal of Computational and Applied Mathematics* 207 (2007).
25. **Numerically satisfactory solutions of hypergeometric recursions.** A. Gil, J. Segura, N.M. Temme. *Mathematics of Computation* 76 (2007) 1449-1468.
26. **Computation of the real zeros of the Kummer function $M(\mathbf{a};\mathbf{c};\mathbf{x})$.** A. Deaño, A. Gil, J. Segura. *Lecture Notes in Computer Science* 4151 (2006) 296-307.
27. **Computing the Real Parabolic Cylinder Functions $U(a, x)$, $V(a, x)$.** A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 32(1) (2006) 70-101.

28. **Algorithm 850: Real Parabolic Cylinder Functions** $U(a, x)$, $V(a, x)$. A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 32(1) (2006).
29. **The ABC of Hyper-Recursions.** A. Gil, J. Segura, N.M. Temme. *Journal of Computational and Applied Mathematics* 190 (2006) 270-286.
30. **New Inequalities from Classical Sturm Theorems.** A. Deaño, A. Gil, J. Segura. *Journal of Approximation Theory* 131 (2004) 208-230.
31. **Integral representations for computing real parabolic cylinder functions.** A. Gil, J. Segura, N.M. Temme. *Numerische Mathematik* 98(1) (2004) 105-134.
32. **Numerical algorithms for the real zeros of hypergeometric functions.** A. Gil, W. Koepf, J. Segura. *Numerical Algorithms* 36(2) (2004) 113-134.
33. **Computing solutions of the modified Bessel differential equation for imaginary orders and positive arguments.** A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 30(2) (2004) 145-158.
34. **Algorithm 831: Modified Bessel functions of imaginary order and positive argument.** A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 30(2) (2004) 159-164.
35. **Computing special functions by using quadrature rules.** A. Gil, J. Segura, N.M. Temme. *Numerical Algorithms* 33 (2003) 265-275.
36. **Computing zeros and turning points of solutions of second order homogeneous linear ODEs.** A. Gil, J. Segura. *SIAM Journal on Numerical Analysis* 41(3) (2003) 827-855.
37. **On the zeros of the Scorer functions.** A. Gil, J. Segura, N.M. Temme. *Journal of Approximation Theory* 120 (2003) 253-266.
38. **A combined symbolic and numerical algorithm for the computation of zeros of orthogonal polynomial and special functions.**

- A. Gil, J. Segura. *Journal of Symbolic Computation* 35(5) (2003) 465-485.
39. **Computation of the modified Bessel function of the third kind of imaginary orders: uniform Airy-type asymptotic expansion.** A. Gil, J. Segura, N.M. Temme. *Journal of Computational and Applied Mathematics* 153 (2003) 225-234.
 40. **GIZ, HIZ: routines for the computation of complex Scorer functions.** A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 28(4) (2002) 436-447.
 41. **Algorithm 819: routines for the computation of complex Airy functions.** A. Gil, J. Segura, N.M. Temme. *ACM Transactions on Mathematical Software* 28(3) (2002) 325-336.
 42. **Computing Airy functions by Numerical Quadrature.** A. Gil, J. Segura, N.M. Temme. *Numerical Algorithms* 30(1) (2002) 11-23.
 43. **Evaluation of the modified Bessel function of the third kind for imaginary orders.** A. Gil, J. Segura, N.M. Temme. *Journal of Computational Physics* 175 (2002) 398-411.
 44. **On non-oscillating integrals for computing inhomogeneous Airy functions.** A. Gil, J. Segura, N.M. Temme. *Mathematics of Computation* 70, 235 (2001) 1183-1194.
 45. **A new version of a computer program for the evaluation of toroidal harmonics.** A. Gil, J. Segura. *Computer Physics Communications* 139(2001)186
 46. **Computing toroidal functions for wide ranges of the parameters.** A. Gil, J. Segura, N.M. Temme. *Journal of Computational Physics* 161 (1) (2000) 204-217
 47. **Evaluation of Toroidal Harmonics.** J. Segura, A. Gil. *Computer Physics Communications* 124 (2000) 104-122.
 48. **ELF and GNOME: two tiny codes to evaluate the real zeros of the Bessel functions of the first kind for real orders.** J. Segura, A. Gil. *Computer Physics Communications* 117 (1999) 250-262.

49. **Evaluation of Legendre functions of argument greater than one.** A. Gil, J. Segura. *Computer Physics Communications* 105 (1997) 273-283.
50. **A code to evaluate prolate and oblate spheroidal harmonics.** A. Gil, J. Segura. *Computer Physics Communications* 108 (1998) 267-278.
51. **Parabolic Cylinder Functions of integer and half-integer orders for non-negative arguments.** J. Segura, A. Gil. *Computer Physics Communications* 115 (1998) 69-86.

In preparation:

52. **On the computation of the noncentral beta distribution function.** A. Gil, J. Segura, N.M. Temme.
53. **ZerosCylinderF: a module for computing the complex zeros of Hankel and Bessel functions** A. Gil, J. Segura.