

List of publications

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Publications in scientific journals and proceedings

1. Analytical Methods for a singular perturbation problem. The quarterplane, Mathematical Centre Report TW 125, 1971.
2. Analytical methods for a singular perturbation problem in a sector, *SIAM J. Math. Anal.*, 5, 876–877, 1974.
3. Numerical evaluation of functions arising from transformations of formal series, *J. Math. Anal. Appl.*, 51, 678–694, 1975.
4. Uniform asymptotic expansions of the incomplete gamma functions and the incomplete beta function, *Math. Comp.*, 29, 1109–1114, 1975.
5. On the numerical evaluation of the modified Bessel function of the third kind, *J. Comput. Phys.*, 19, 324–337, 1975.
6. On the numerical evaluation of the ordinary Bessel function of the second kind, *J. Comput. Phys.*, 21, 343–350, 1976.
7. Remarks on a paper of A. Erdélyi, *SIAM J. Math. Anal.*, 7, 767–770, 1976.
8. The numerical computation of special functions by use of quadrature rules for saddle point integrals. I. Trapezoidal integration rules, Mathematical Centre Report TW 164, 1977.
9. Uniform asymptotic expansions of confluent hypergeometric functions, *J. Inst. Maths. Applies.*, 22, 215–223, 1978.
10. On the properties and calculation of certain integrals from the statistical theory of residual currents in tidal areas, Mathematical Centre Report TN 90, 1978.
11. A second report on functions from the statistical theory of residual currents in tidal areas, Mathematical Centre Report TN 92, 1978.
12. The numerical computation of special functions by use of quadrature rules for saddle point integrals. II. Gamma functions, modified Bessel functions and parabolic cylinder functions, Mathematical Centre Report TW 183, 1978.

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13. The asymptotic expansion of the incomplete gamma functions, *SIAM J. Math. Anal.*, 10, pp. 757–766, 1979.
14. An algorithm with ALGOL 60 program for the computation of the zeros of ordinary Bessel functions and those of their derivatives, *J. Comput. Phys.*, 32, 270–279, 1979.
15. A note on two integrals related with Bessel functions, Mathematical Centre Report TW 199, 1980.
16. Some problems in connection with the incomplete gamma functions, Mathematical Centre Report TW 205, 1980.
17. Quadruple integral equations for the charged disc and coplanar annulus (with R. de Bruin), Mathematical Centre Report TW 216, 1981.
18. On the expansion of confluent hypergeometric functions in terms of Bessel functions, *J. Comput. Appl. Math.*, 7, 27–32, 1981.
19. Fourier integrals of series of Bessel functions arising in the theory of residual currents in tidal areas, Mathematical Centre Report TW 223, 1982.
20. A functional equation for a series related to theta functions (with B. Harsoyo), Mathematical Centre Report TN 102, 1982.
21. Log-convex trapezoidal approximation of an elementary integral (with J. v.d. Lune), Mathematical Centre Report ZW 183, 1982.
22. The uniform asymptotic expansion of a class of integrals related to cumulative distribution functions, *SIAM J. Math. Anal.*, 13, 239–253, 1982.
23. The numerical computation of the confluent hypergeometric function $U(a, b, z)$, *Numer. Math.*, 41, 63–82, 1983.
24. Uniform asymptotic expansions of Laplace integrals, *Analysis*, 3, 221–249, 1983.
25. Sum rule for products of Bessel functions: Comments on a paper by Newberger, *J. Math. Phys.*, 25, 1266–1267, 1984 (with M. Bakker).
26. On the theory of topographic vorticity production by tidal currents (with J.T.F. Zimmerman), CWI Report AM-R8506, 1985.
27. Laplace type integrals: transformation to standard form and uniform asymptotic expansions, *Quart. Appl. Math.*, XLIII, 103–123, 1985.
28. A convolution integral equation solved by Laplace transformation, *J. Comput. Appl. Math.*, 12 & 13, 609–613, 1985.
29. Special functions as approximants in uniform asymptotic expansions of integrals; a survey, in: *Special Functions: Theory and Computation*, Rendiconti del Seminario Matematico, Torino, 1985.
30. Traces to Tricomi in recent work on special functions and asymptotics of integrals, in: *Teubner Texte zur Mathematik*, Band 79, Mathematical Analysis (J. M. Rassias, ed.), 1985.
31. A class of polynomials related of those of Laguerre; in: *Polynomes Orthogonaux et Applications*, Proceedings, Bar-le-Duc, October 15–18, 1984 (C. Brezinski et. al., eds.) LNM 1171, 459–464, Springer Verlag, 1985.
32. Uniform asymptotic expansion for a class of polynomials biorthogonal on the unit circle, *Constr. Approx.*, 2, 369–376, 1986.
33. A double integral containing the modified Bessel function: asymptotics and computation, *Math. Comp.*, 47, 683–691, 1986.

34. Uniform asymptotic expansions of integrals; in *Proceedings of the CWI–Symposium*, November 1983 (J. W. de Bakker et. al., eds.), North Holland, CWI–monograph 1, 335–351, 1986.
35. Charge transfer in atom surface collisions; on the validity of the semi-classical approximation, *Surface Science*, 172, 257–268, 1986 (with J.J.C. Geerlings, J. Los, J.P. Gauyacq).
36. On the exact shape of the horizontal profile of a topographically rectified tidal flow, *Geophysical and Astrophysical Fluid Dynamics*, 38, 105–129, 1987 (with L. R. M. Maas and J. T. F. Zimmerman).
37. On the computation of the incomplete gamma functions for large values of the parameters; in *Algorithms for approximation*, Proceedings of the IMA–Conference, Shrivenham July 15–19, 1985 (J. C. Mason & M. G. Cox, eds.) Oxford: Clarendon, 479–489, 1987.
38. Recent problems in uniform asymptotic expansions of integrals; in *Proceedings of the First International Conference on Industrial and Applied Mathematics* (ICIAM), Contributions from the Netherlands, Paris–La Villette, June 29 – July 3, 1987 (A. H. P. van der Burgh & R. M. M. Mattheij, eds.).
39. Incomplete Laplace integrals: uniform asymptotic expansions with application to the incomplete beta function, *SIAM J. Math. Anal.*, 18, 1638–1663, 1987.
40. The Radon transform: First steps, *CWI Newsletter*, 15, 41–46, 1987.
41. Asymptotic expansion of a special integral, *CWI Quarterly*, 2, 67–72, 1989.
42. On the computation of special functions by using asymptotic expansions, in *Imacs Annals of Computing and Applied Mathematics*: Imacs Transactions on Scientific Computing, 12th Imacs World Congress., Paris, Vol. 1: Numerical and Applied Mathematics, W.F. Ames and C. Brezinski, eds., 1989.
43. Asymptotic estimates for Laguerre polynomials, *ZAMP*, 41, 114–126, 1990.
44. On a biorthogonal system associated with uniform asymptotic expansions (with K. Soni), *IMA J. Appl. Math.*, 44, 1–25, 1990.
45. Uniform asymptotic expansion of a class of integrals in terms of modified Bessel functions, with application to confluent hypergeometric functions, *SIAM J. Math. Anal.*, 21, 241–261, 1990.
46. Polynomial asymptotic estimates of Gegenbauer, Laguerre, and Jacobi polynomials, in *Asymptotic and Computational Analysis*, Conference in honor of Frank W.J. Olver’s 65th birthday, R. Wong, ed., Marcel Dekker, Lecture notes in pure and applied mathematics 124, 455–476, 1990.
47. Uniform asymptotic approximation of Fermi–Dirac integrals (with A.B. Olde Daalhuis), *J. Comput. Appl. Math.*, 31, 383–387, 1990.
48. Relativistic effects on parallel whistler–mode propagation and instability (with S.S. Sazhin), *Astrophysics and Space Science*, 166, 301–313, 1990.
49. The threshold of parallel whistler–mode instability (with S.S. Sazhin), *Annales Geophysicae*, 9, 30–31, 1991.
50. Marginal stability of parallel whistler–mode waves (asymptotic analysis) (with S.S. Sazhin), *Annales Geophysicae*, 9, 304–308, 1991.
51. Asymptotic inversion of incomplete gamma functions, *Math. Comp.*, 58, 755–764, 1992.

52. Asymptotic inversion of the incomplete beta function, *J. Comp. Appl. Math.*, **41**, 145–157, 1992.
53. A relativistic theory of the R wave cutt-of (with S.S. Sazhin), *Planet. Space Sci.*, **40**, 433–437, 1992
54. Relativistic and nonrelativistic analysis of whistler-mode waves in a hot anisotropic plasma (with S.S. Sazhin & A.E. Sumner), *J. Plasma Physics*, **47**, 163–174, 1992.
55. Analytic and numerical analysis of the generalized Shkarofsky function (with S.S. Sazhin & A.E. Sumner), *Astr. Space Sci.*, **194**, 173–196, 1992.
56. R wave propagation near the cut-off frequency b (with S.S. Sazhin), 591–596 in *Physics of space plasmas*, SPI Conference Proceeding and Reprint Series, 12, T. Chang and J.R. Jasperse (eds.), 1992.
57. An approximate solution of the parallel whistler-mode dispersion equation in a weakly relativistic plasma (with S.S. Sazhin, A.E. Sumner & F. Gugic), *Plasma Phys. Control Fusion*, **35**, 117–126, 1993.
58. Asymptotic and Numerical Aspects of the Noncentral Chi-Square Distribution, *Computers Math. Applic.*, **25**, 55–63, 1993.
59. Asymptotic estimates of Stirling numbers, *Stud. Appl. Math.*, **89**, 233–243, 1993.
60. Wavelets: first steps, pp. 1–12 in T.H. Koornwinder (ed.), *Wavelets: an elementary treatment of theory and applications*, World Scientific (1993).
61. Wavelets: Mathematical preliminaries (with P.W. Hemker and T.H. Koornwinder), pp. 13–26 in: T.H. Koornwinder (ed.), *Wavelets: an elementary treatment of theory and applications*, World Scientific (1993).
62. A set of algorithms for the incomplete gamma functions. *Probability in the Engineering and Informational Sciences*, **8**, 291–307, 1994.
63. Numerical aspects of uniform Airy-type asymptotic expansions, 395–398 in *Mathematics of Computation 1933–1993: a half century of computational mathematics*, W. Gautschi (ed.), Proceedings of Symposia in Applied Mathematics, 48, AMS, 1994.
64. Steepest descent paths for integrals defining the modified Bessel functions of imaginary order, *Methods and Applications in Analysis*, **1**, 14–24, 1994.
65. Uniform Airy-type expansions of integrals (with A. Olde Daalhuis), *SIAM J. Math. Anal.*, **25**, 304–321, 1994.
66. Bernoulli polynomials old and new: Problems in complex analysis and asymptotics, 559–576 in *From Universal Morphisms to Megabytes – A Baayen Space Odyssey*, K.R. Apt, A. Schrijver, and N.M. Temme (eds.), CWI, Amsterdam, 1994.
67. Computational aspects of incomplete gamma functions with large complex parameters, 551–562 in *Approximation and Computation, A Festschrift in Honor of Walter Gautschi*, R.V.M. Zahar (ed.), ISNM 119, Birkhäuser, 1994.
68. Contour integrals and uniform expansions, Isaac Newton Institute, Cambridge UK, Lecture notes for the course Introductory lectures on Asymptotics, Exponential Asymptotics, 16–27 January, 1995.
69. Asymptotics of a Time Correlation Function in Multiple Recurrent Scattering of Scalar Waves, (with F. Vitalis, B.A. van Tiggelen and A. Lagendijk), *ZAMP*, **46**, 61–69, 1995.

70. Asymptotics of zeros of incomplete gamma functions, *Annals of Numerical Mathematics*, 2, Special Functions, G. Allasia (ed.), 415–423, 1995.
71. Bernoulli polynomials old and new: Generalizations and asymptotics, *CWI Quarterly*, **8**, 47 - 66, 1995.
72. Uniform Asymptotic Expansions of Integrals: A Selection of Problems, Paper presented at the Conference in honour of Thomas Jan Stieltjes Jr. (1856–1894) October 31 – November 4, 1994, Delft University of Technology, The Netherlands; *J. Comput. Appl. Math.*, **65**, 395–417, 1995.
73. Are relativistic effects significant for the analysis of whistler-mode waves in the earth's magnetosphere (with S.S. Sazhin & A.E. Sumner), 139–142 in *Space plasmas: Coupling between small and medium scale processes*, Maha Ashour-Abdalla, Tom Chang and Paul Dusenbery (eds.), Geophysical monograph 86, American Geophysical Union, 1995.
74. Asymptotics and Closed Form of a Generalized Incomplete Gamma Function (with M.A. Chaudhry and E.J.M. Veling); *J. Comput. Appl. Math.*, **67**, 371–379, 1996.
75. Uniform Asymptotics for the Incomplete Gamma Functions, Starting From Negative Values of the Parameters. *Methods and Applications in Analysis*, **3** (3), 335 – 344, 1996. arXiv:math/9603218 .
76. Asymptotics and Numerics of Zeros of Polynomials That Are Related to Daubechies Wavelets. *Appl. Comput. Harmon. Anal.* **4**, 414 - 428, 1997. arXiv:math/9610225.
77. Numerical Algorithms for Uniform Airy-type Asymptotic Expansions, *Numerical Algorithms* **15**, 207 – 225, 1997.
78. Asymptotics and zero distribution of Padé polynomials associated with the exponential function (with Kathy A. Driver), *J. Comp. Appl. Math.*, **89**, 97–114, 1997.
79. On polynomials related with Hermite–Padé approximations to the exponential function (with Kathy A. Driver), *Journal of Approximation Theory* **95**, 101–122, 1998.
80. Analytical methods for a selection of elliptic singular perturbation problems. 131–148 in Proceedings "Recent Advances in Differential Equations" Pitman Research Notes in Mathematics **386**, H.-H. Dai and P.L. Sachdev (Eds.), Addison Wesley Longman, 1998.
81. Recent Problems from Uniform Asymptotic Analysis of Integrals In Particular In Connection with Tricomi's Ψ -Function. Proceedings of the Conference *Tricomi's Ideas and Contemporary Applied Mathematics* to celebrate the 100th anniversary of the birth of Francesco G. Tricomi. (Rome, November 28-29, 1997, Turin, December 1-2, 1997.) 1998.
82. Uniform approximations of Bernoulli and Euler polynomials in terms of hyperbolic functions. (with J.L. López). *Stud. in Appl. Math.* **103**, 241–258, 1999.
83. Zero and pole distribution of diagonal Padé approximants to the exponential function (with Kathy A. Driver). *Questiones Mathematicae*. **22**, 7–17, 1999.
84. Hermite polynomials in asymptotic representations of generalized Bernoulli, Euler, Bessel, and Buchholz polynomials (with José L. López). *J. Math. Anal. Appl.* **239**, 457–477, 1999.
85. Approximations of orthogonal polynomials in terms of Hermite polynomials (with José L. López). *Methods and Applications of Analysis*, **6**, 131–146, 1999.

86. The role of Hermite polynomials in asymptotic analysis (with José L. López). Pages 339 - 350 in *Special Functions*, 2000. Ch. Dunkl, M. Ismail, R. Wong (eds.). Proceedings of an International Workshop, Hong Kong, June 21 - 25, 1999.
87. Asymptotic estimates for generalized Stirling numbers (with R. Chelluri and L.B. Richmond). *Analysis*, **20**, 1–13, 2000.
88. Numerical and asymptotic aspects of parabolic cylinder functions. *J. Comp. Appl. Math.*, **121**, 221–246, 2000. arXiv:math/0109188.
89. Computing toroidal functions for wide ranges of the parameters (with Amparo Gil and Javier Segura) *J. Comput. Phys.*, **161**, 204–217, 2000.
90. On non-oscillating integrals for computing inhomogeneous Airy functions (with Amparo Gil and Javier Segura). *Math. Comput.* **70**, 1183–1194, 2001. arXiv:math/0109187.
91. The Askey scheme for hypergeometric orthogonal polynomials viewed from asymptotic analysis (with José L. López). *J. Comp. Appl. Math.*, **133**, 623–633, 2001. arXiv:math/0109185.
92. Critical conditions for phytoplankton blooms (with Ute Ebert, Manuel Arrayás, Ben Sommeijer and Jef Huisman). *Bull. Math. Biol.*, **63**, 1095–1124, 2001.
93. Two-point Taylor expansions of analytic functions (with J.L. Lopez). *Stud. in Appl. Math.* **109**, 297–311, 2002. arXiv:math/0205064 .
94. Evaluation of the modified Bessel function of the third kind of imaginary orders (with Amparo Gil and Javier Segura). *J. Comput. Phys.*, **175**, 398–411, 2002.
95. Computing complex Airy functions by numerical quadrature (with Amparo Gil and Javier Segura). *Numer. Algorithms* **30**, 11–23, 2002.
96. Symbolic evaluation of coefficients in Airy-type asymptotic expansions (with Raimundas Vidunas). *J. Math. Anal. Appl.* **269**, 317–331, 2002. arXiv:math/0103184 .
97. Algorithm 819: AIZ, BIZ: Two Fortran 77 routines for the computation of complex Airy functions (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.* **28**, 325–336, 2002.
98. Algorithm 822: GIZ, HIZ: Two Fortran 77 routines for the computation of complex Scorer functions (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.* **28**, 436–447, 2002.
99. Computing special functions by using quadrature rules (with Amparo Gil and Javier Segura). *Numerical Algorithms*, **33**, 265–275, 2003.
100. Computation of the modified Bessel function of the third kind of imaginary orders: Uniform Airy-type asymptotic expansion (with Amparo Gil and Javier Segura). *J. Comp. Appl. Math.*, **153**, 225–234, 2003.
101. Large parameter cases of the Gauss hypergeometric function. *J. Comp. Appl. Math.*, **153**, 441–462, 2003. arXiv:math/0205065.
102. On the zeros of the Scorer functions (with Amparo Gil and Javier Segura). *J. Approx. Theory*, **120**, 253–266, 2003.
103. Parabolic cylinder functions: Examples of error bounds for asymptotic expansions (with Raimundas Vidunas). *Analysis and Applications*, **1**, 265–288, 2003. arXiv:math/0205045
104. Expansions of the exponential integral in incomplete gamma functions (with W. Gautschi and F.E. Harris). *Appl. Math. Lett.*, **16**, 1095–1099, 2003.

105. Convergent asymptotic expansions of Charlier, Laguerre and Jacobi polynomials. (with J.L. Lopez). *Proc. Roy. Soc. Edinburgh Sect. A*, **134A**, 537–555, 2004. arXiv:math/0410439.
106. Computing solutions of the modified Bessel differential equation for imaginary orders and positive arguments (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.* **30**, 145–158, 2004. arXiv:math/0401128.
107. Algorithm 831: Modified Bessel functions of imaginary order and positive argument (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.* **30**, 159–164, 2004. arXiv:cs/0401008.
108. Multi-point Taylor expansions of analytic functions (with J.L. Lopez). *Trans. Amer. Math. Soc.* **356**, 4323–4342, 2004. arXiv:math/0410436.
109. Integral representations for computing real parabolic cylinder functions (with Amparo Gil and Javier Segura). *Numer. Math.* **98**, 105–134, 2004. arXiv:math/0401131.
110. On the Temporal Order of First-Passage Times in One-Dimensional Lattice Random Walks. (with J.B. Sanders). *J. Comp. Appl. Math.* **182**, 134–149, 2005. arXiv:math/0610197.
111. Impact of information and coordination on transport procurement (with Xavier Brusset). Pages 239 – 261 in *Supply Chain Management – European Perspectives*, René de Koster and Werner Delfmann (eds.). Copenhagen Business School Press, Denmark. ISBN 87-630-0148-9.
112. Asymptotic approximations of integrals: an introduction, with recent developments and applications to orthogonal polynomials. (with Chelo Ferreira, José López, and Esmeralda Mainar). ETNA, Electron. Trans. Numer. Anal. **19**, 58–83, 2005.
113. Evanescence in coined quantum walks (with Hilary A. Carteret and Bruce Richmond). *J. Phys. A: Math. Gen.*, **38**, 8641–8665, 2005.
114. The ABC of hyper recursions. (with Amparo Gil and Javier Segura). *J. Comp. Appl. Math.* **190**, No. 1–2, 270–286, 2006. arXiv:math/0410057.
115. First Order Approximation of an Elliptic 3D Singular Perturbation Problem (with José L. López and Ester Pérez Sinusía). *Stud. Appl. Math.*, **116**, 303–319, 2006.
116. Computing The Real Parabolic Cylinder Functions $U(a, x)$, $V(a, x)$ (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.* **32**, 70–101, 2006.
117. Algorithm 850: Real Parabolic Cylinder Functions $U(a, x)$, $V(a, x)$ (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.* **32**, 102–112, 2006.
118. Optimizing an objective function under a bivariate probability model (with Xavier Brusset). *European J. Oper. Res.*, **179**, 444–458, 2007.
119. Asymptotics of a ${}_3F_2$ polynomial associated with the Catalan-Larcombe-French sequence. *Analysis and Applications* **4**, 335–344, 2006. arXiv:math/0610191.
120. Asymptotic behaviour of three-dimensional singularly perturbed convection-diffusion problems with discontinuous data (with José L. López and Ester Pérez Sinusía). *J. Math. Anal. Appl.*, **328**, 931–945, 2007.
121. Numerical aspects of special functions. *Acta Numerica* 2007, 379–478.
122. Numerically satisfactory solutions of hypergeometric recursions (with Amparo Gil and Javier Segura). *Mathematics of Computation*, **76**, 1449–1468, 2007.

123. Analytical methods for an elliptic singular perturbation problem in a circle. Proceeding of the Conference in honour of Dr. Nico Temme on the occasion of his 65th birthday. *J. Comp. Appl. Math.*, **207**, 301–322, 2007.
124. Identifying minimal and dominant solutions for Kummer recursions (with Alfredo Deaño and Javier Segura). *Mathematics of Computation*, **77**, no. 264, 2277–2293, 2008.
125. Asymptotic expansions for fractional derivatives of Airy functions and their products (with Vladimir Varlamov). Proceedings Fractional Differentiation and its Applications, Ankara, Turkey, 5 – 7 November, 2008.
126. Numerically satisfactory solutions of Kummer recurrence relations (with Javier Segura). *Numerische Mathematik*, **111**, no. 1, 109–119, 2008.
127. Computing the conical function $P_{-1/2+ir}^\mu(x)$ (with Amparo Gil and Javier Segura). *SIAM J. Sci. Comput.*, **31**, no. 3, 1716–1741, 2009.
128. Asymptotic inversion of the Erlang B formula (with J.S.H. van Leeuwaarden). *SIAM J. Appl. Mat.*, **70**, no. 1, 1–23, 2009.
129. Asymptotic expansions for Riesz fractional derivatives of Airy functions and applications (with Vladimir Varlamov). *J. Comp. Appl. Math.* **232**, no. 2, 201–215, 2009.
130. The leaky aquifer function revisited. *Int. J. of Quantum Chem.*, **109**, no. 13, 2826–2830, 2009.
131. Multi-point Taylor approximations in one-dimensional linear boundary value problems (with José L. López and Ester Pérez Sinusía). *Appl. Math. Comput.* **207**, no. 2, 519–527, 2009.
132. On modified asymptotic series involving confluent hypergeometric functions (with Alfredo Deaño). *ETNA, Electron. Trans. Numer. Anal.* **35**, 88–103, 2009.
133. Asymptotic expansions for Riesz potentials of Airy functions and their products (with Vladimir Varlamov). *Physica Scripta*, T136, 014005, October 2009.
134. Computational properties of three-term recurrence relations for Kummer functions (with Alfredo Deaño and Javier Segura). *J. Comp. Appl. Math.* **233**, no. 6, 1505–1510, 2010.
135. Large degree asymptotics of generalized Bernoulli and Euler polynomials (with José López). *J. Math. Anal. Appl.* **363**, no. 1, 197–208, 2010. arXiv:0909.3184.
136. The asymptotic inversion of certain cumulative distribution functions (with Amparo Gil and Javier Segura). In Alistair D. Fitt, John Norbury, Hilary Ockendon and Eddie Wilson (Eds.), *Progress in Industrial Mathematics at ECMI 2008* (Mathematics in Industry, Vol. 15, pp. 117–122, 2010. Berlin: Springer.
DOI: 10.1007/978-3-642-12110-4
137. The error function in the study of singularly perturbed convection-diffusion problems with discontinuous boundary data (with (with José L. López and Ester Pérez Sinusía). In Alistair D. Fitt, John Norbury, Hilary Ockendon and Eddie Wilson (Eds.), *Progress in Industrial Mathematics at ECMI 2008* (Mathematics in Industry, Vol. 15, pp. 105–110, 2010. Berlin: Springer.
DOI: 10.1007/978-3-642-12110-4
138. Chapter 3, Numerical Methods, In *NIST Handbook of Mathematical Functions*, F.W.J. Olver and D.W. Lozier and R.F. Boisvert and Ch.W. Clark (eds.), Cambridge University Press, 2010, ISBN-13:9780521192255, <http://dlmf.nist.gov/3>

139. Chapter 6, Exponential Integral, Logarithmic Integral, Sine and Cosine Integrals, In *NIST Handbook of Mathematical Functions*, F.W.J. Olver and D.W. Lozier and R.F. Boisvert and Ch.W. Clark (eds.), Cambridge University Press, 2010, ISBN-13:9780521192255, <http://dlmf.nist.gov/6>
140. Chapter 7, Error Functions, Dawson's and Fresnel Integrals, In *NIST Handbook of Mathematical Functions*, F.W.J. Olver and D.W. Lozier and R.F. Boisvert and Ch.W. Clark (eds.), Cambridge University Press, 2010, ISBN-13:9780521192255, <http://dlmf.nist.gov/7>
141. Chapter 12, Parabolic Cylinder Functions, In *NIST Handbook of Mathematical Functions*, F.W.J. Olver and D.W. Lozier and R.F. Boisvert and Ch.W. Clark (eds.), Cambridge University Press, 2010, ISBN-13:9780521192255, <http://dlmf.nist.gov/12>
142. Computing generalizations of the complementary error function (with Alfredo Deaño). *Applied Math. and Computations.* **216**, no. 12, 1, 3680–3693, 2010. <http://dx.doi.org/10.1016/j.amc.2010.05.025>
143. Solving one-dimensional linear boundary value problems by multi-point Taylor polynomials. Applications to special functions. (with José L. López and Ester Pérez Sinusía). Proceedings of the Tenth International Conference Zaragoza-Pau on Applied Mathematics and Statistics, Juan José Torrens et al. (eds.), Monografías Matemáticas *García de Galdeano*, 35, 181–188, 2010.
144. Asymptotics and numerics of polynomials used in Tricomi and Buchholz expansions of Kummer functions (with José López). *Numerische Mathematik* **116**, no. 2, 269–289, 2010.
145. Fast and accurate computation of the Weber parabolic cylinder function $W(a, x)$ (with Amparo Gil and Javier Segura). *IMA J Numer Anal* **31**, no. 3, 1194–1216, 2011. Published online on July 7, 2010. doi: 10.1093/imanum/drq012
146. Basic methods for computing special functions (with Amparo Gil and Javier Segura). In *Recent advances in computational and applied mathematics*, Theodore E. Simos, (ed.), pp. 67–121, 2011. Dordrecht: Springer. doi: 10.1007/978-90-481-9981-5.
147. Large degree asymptotics of generalized Bessel polynomials (with José López). *J. Math. Anal. Appl.*, **377** (1), 30–42, 2011. doi: 10.1016/j.jmaa.2010.10.030, arXiv:1101.4894.
148. A sampling theory for dispersal-limited, niche-structured communities (with Andrew E. Noble, William F. Fagan, and Timothy H. Keitt). *Journal of Theoretical Biology* **273** (1), 1–14, 2011. <http://arxiv.org/abs/1010.2829>
149. A three-point Taylor algorithm for three-point boundary value problems (with José L. López and Ester Pérez Sinusía). *J. Diff. Equations* **251**, 26–44, 2011. doi:10.1016/j.jde.2011.03.022
150. Algorithm 914: Parabolic cylinder function $W(a, x)$ and its derivative (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.* **38** (1), 70–101, 2011.
151. The tail of the maximum of Brownian motion minus a parabola (with P. Groeneboom). *Elect. Comm. in Probab.* **16**, 458–466, 2011. arXiv:1011.3972.
152. A uniform asymptotic expansion for weighted sums of exponentials (with J.S.H. van Leeuwaarden). *Statistics & Probability Letters*, **81**, 11, 1571–1579, 2011.
153. An improved algorithm and a Fortran 90 module for computing the conical function $P_{-1/2+i\tau}^m(x)$. (with Amparo Gil and Javier Segura). *Computer Physics Communications*, **183**, 794–799, 2012. arXiv:1306.0231

154. Efficient and accurate algorithms for the computation and inversion of the incomplete gamma function ratios (with Amparo Gil and Javier Segura). *SIAM J. Sci. Comput.* **34** (6), A2965–A2981, 2012. arXiv:1306.1754
155. The role of special functions as leading term approximations in asymptotic expansions. *Proceedings of Tenth and Eleventh Annual Conferences*. The Society for Special Functions & their Applications, ICSFA 2012, Surat, India, 27–29 June 2012. SSFA, **10-11**, 67–92, 2011–12.
156. New series expansions of the Gauss hypergeometric function (with José L. López). *Advances in Computational Mathematics*, **39**, 2, 349–365, 2013. arXiv:1306.2046.
157. Asymptotiek. *Nieuw Archief voor Wiskunde*, **5/14**, 1, 30–31, 2013.
158. Uniform asymptotic methods for integrals. *Indagationes Mathematicae*, **24**, 4, 739–765, 2013. Special issue in memory of N.G. (Dick) de Bruijn (1918–2012). DOI information: 10.1016/j.indag.2013.08.001 arXiv:1308.1547
159. Special functions: Computation (with Amparo Gil and Javier Segura). Accepted for the *Encyclopedia of Applied and Computational Mathematics* [230], Springer.
160. Remarks on Slater’s asymptotic expansions of Kummer functions for large values of the a -parameter. *Advances in Dynamical Systems and Applications*, **8**, 2, 365–377, 2013. Proceedings of the International Conference on Differential Equations, Difference Equations and Special Functions, Patras, September 3–9, 2012. arXiv:1306.5328.
161. On the computation of moments of the partial non-central chi-squared distribution function (with Amparo Gil and Javier Segura). *Applications of mathematics 2013*, 98–103, Acad. Sci. Czech Repub. Inst. Math., Prague, 2013. arXiv:1306.1728
162. Recent software developments for special functions in the Santander-Amsterdam project (with Amparo Gil and Javier Segura). *Science of Computer Programming*, **90**, Part A, 42–54, 2014. DOI: 10.1016/j.scico.2013.11.004. arXiv:1403.1200.
163. Algorithm 939: Computation of the Marcum Q-function (with Amparo Gil and Javier Segura). *ACM Trans. Math. Soft.*, **40**, 3, Art. 20, 21, 2014. arXiv:1311.0681.
164. Funciones Especiales en la Era Digital (with Amparo Gil and Javier Segura). *La Gaceta de la RSME*, **17**, 1, 71–97, 2014.
165. The asymptotic and numerical inversion of the Marcum Q-function (with Amparo Gil and Javier Segura). *Studies in Applied Mathematics* **133**, 2, 257–278, 2014. arXiv:1404.0302.
166. Computation of a numerically satisfactory pair of solutions of the differential equation for conical functions of non-negative integer orders (with Mark Dunster, Amparo Gil and Javier Segura). *Numerical Algorithms*, **68**, 3, 497–509, 2015. DOI: 10.1007/s11075-014-9857-5. arXiv:1404.0302.
167. GammaCHI: a package for the inversion and computation of the gamma and chi-square cumulative distribution functions (central and noncentral) (with Amparo Gil and Javier Segura). *Comput. Phys. Comm.*, **191**, 132–139, 2015. arXiv:1501.01578.
168. Chernoff’s distribution and differential equations of parabolic and Airy type (with P. Groeneboom and S. Lalley). *Journal of Mathematical Analysis and Applications*. **423**, 2, 1804–1824, 2015. arXiv:1305.6053
169. Computing the Kummer function $U(a, b, z)$ for small values of the arguments (with Amparo Gil and Javier Segura). *Appl. Math. Comput.* **271**, 532–539, 2015. arXiv:1509.05167.

170. Chapter *Special Functions* in *The Princeton Companion to Applied Mathematics*. Princeton University Press, Princeton, NJ, 2015.
171. Algorithm 969: Computation of the incomplete gamma function for negative values of the argument (with Amparo Gil, Diego Ruiz-Antolin and Javier Segura). *ACM Trans. Math. Soft.* **43**, 3, Article 26, 9 pages, 2016. arXiv:1608.04152.
172. Efficient algorithms for the inversion of the cumulative central beta distribution (with Amparo Gil and Javier Segura). *Numer. Algorithms*. **74**, 1, 77–91, 2017. arXiv:1605.03503.
173. Efficient computation of Laguerre polynomials (with Amparo Gil and Javier Segura). *Comput. Phys. Comm.* **210**, 124–131, 2017. arXiv:1609.00829.
174. Entropic functionals of Laguerre and Gegenbauer polynomials with large parameters (with I V Toranzo and J S Dehesa). *J. Phys. A* **50**, 21, 215206, 21 pp., 2017. arXiv:1705.03627.
175. **Conical:** An extended module for computing a numerically satisfactory pair of solutions of the differential equation for conical functions. (with T.M. Dunster, A. Gil and J. Segura). *Computer Physics Communications* **217**, 193–197, 2017. <https://doi.org/10.1016/j.cpc.2017.04.007>. arXiv:1704.01145.
176. Entropic uncertainty measures for large dimensional hydrogenic systems. With D. Puertas-Centeno, I. V. Toranzo, and J. S. Dehesa. *J. Math. Phys.* **58**, 103302, 2017; <https://doi.org/10.1063/1.5006569>. arXiv:1709.09489.
177. Asymptotic approximations to the nodes and weights of Gauss–Hermite and Gauss–Laguerre quadratures (with Amparo Gil and Javier Segura). *Stud. Appl. Math.* **140**(3), 2018. arXiv:1709.09656.
178. Asymptotic expansions of Jacobi polynomials for large values of β and of their zeros (with Amparo Gil and Javier Segura). *SIGMA* **14** (2018), 073, 9 pages. arXiv:1804.06749
179. A generalized modified Bessel function and a higher level analogue of the theta transformation formula (Appendix: authors: Atul Dixit, Aashita Kesarwani, Victor H.Moll). *J. Math. Anal. Appl.* **459**, 385–418, 2018; <https://doi.org/10.1016/j.jmaa.2017.10.050>. arXiv:1706.05363 .
180. Non-iterative computation of Gauss–Jacobi quadrature (with Amparo Gil and Javier Segura). *SIAM J. Sci. Comput.* **41**, 1, (2019). arXiv:1804.07076.
181. Fast, reliable and unrestricted iterative computation of Gauss–Hermite and Gauss–Laguerre quadratures (with Amparo Gil and Javier Segura). *Numerische Mathematik*. <https://doi.org/10.1007/s00211-019-01066-2>. arXiv:1906.05414
182. On the computation and inversion of the cumulative noncentral beta distribution function (with Amparo Gil and Javier Segura). *Applied Mathematics and Computation* **361**, 2019, Pages 74–86. <https://doi.org/10.1016/j.amc.2019.05.014>. arXiv:1905.07206
183. Numerical evaluation of Airy-type integrals arising in uniform asymptotic analysis (with Amparo Gil and Javier Segura). *J. Comp. Appl. Math.* **371**, 2020. <https://doi.org/10.1016/j.cam.2020.112717>. arXiv:2001.02097
184. Asymptotic inversion of the binomial and negative binomial cumulative distribution functions (with Amparo Gil and Javier Segura). *ETNA, Electron. Trans. Numer. Anal.* **52**, 270–280, 2020. arXiv:2001.03953

185. Asymptotic computation of classical orthogonal polynomials (with Amparo Gil and Javier Segura). Accepted for the 7th EIBPOA en Serie SEMA/SIMAI (Springer). arXiv:2004.05038
186. Dick Askey's sabbatical jaar in Amsterdam, 1969–1970 (in Dutch). Nieuw Archief voor Wiskunde 5/21 **1**, March 2020. <http://www.nieuwarchief.nl/serie5/pdf/naw5-2020-21-1-047.pdf>
187. A faster and more accurate algorithm for calculating population genetics statistics requiring sums of Stirling numbers of the first kind (with Swaine L. Chen). *G3: Genes, Genomes, Genetics*, 2020. <https://doi.org/10.1534/g3.120.401575>. arXiv:2003.05228.
188. Fast and reliable high accuracy computation of Gauss-Jacobi quadrature. (with Amparo Gil and Javier Segura). *Numerical Algorithms*. DOI <https://doi.org/10.1007/s11075-020-01012-6>. arXiv:2008.08641.
189. Asymptotic expansions of the nodes and weights of Gauss-Jacobi quadrature for large degree and parameters in terms of elementary functions. (with Amparo Gil and Javier Segura). *J. Math. Anal. Appl.* **494**, 2, 2021. <https://doi.org/10.1016/j.jmaa.2020.124642>. arXiv:2007.10748.
190. A distribution function from population genetics statistics using Stirling numbers of the first kind: Asymptotics, inversion and numerical evaluation. *Math. Comp.* (with Swaine L. Chen). 2021. <https://doi.org/10.1090/mcom/3711>. arXiv:2111.11221.
191. Asymptotic expansions of Kummer hypergeometric functions for large values of the parameters. *Integral Transforms and Special Functions*. 2021. <https://doi.org/10.1080/10652469.2021.1886094>. arXiv:2008.01601.
192. A new asymptotic representation and inversion method for the Student's t distribution. (with Amparo Gil and Javier Segura). *Integral Transforms and Special Functions*, 2021. <https://doi.org/10.1080/10652469.2021.2007906>. arXiv:2012.09789.
193. Complete asymptotic expansions for the relativistic Fermi-Dirac integral. (with Amparo Gil and Javier Segura). *Appl. Math. Comput.* **412**, 2022. arXiv:2108.11210.
194. Asymptotic expansions of Kummer hypergeometric functions with three asymptotic parameters a , b and z (with E.J.M. Veling). *Indagationes Mathematicae* **33**, 6, 1221–1235, 2022. <https://doi.org/10.1016/j.indag.2022.08.001>, arXiv:2202.12857
195. Evaluation of the generalized Fermi-Dirac integral and its derivatives for moderate/large values of the parameters (with Amparo Gil, Andrzej Odrzywolek and Javier Segura). *Comput. Phys. Comm.* **283**, 2023. <https://doi.org/10.1016/j.cpc.2022.108563>
196. Computation of the regularized incomplete beta function (with Vera Egorova, Amparo Gil and Javier Segura). Accepted for publication in *Journal Dolomites Research Notes on Approximation*.
197. Evaluation of integrals with fractional Brownian motion for different Hurst indices (with Fei Gao, Shuaiqiang Liu, Cornelis W. Oosterlee). *International Journal of Computer Mathematics*, 100:4, 847–866, 2023. DOI: 10.1080/00207160.2022.2163166, arXiv:2203.02323.
198. Computation of the confluent hypergeometric function $U(a, b, x)$ and its derivative for positive arguments (with Amparo Gil, Diego Ruiz-Antolín and Javier Segura). *Numerical Algorithms*, March 2023, DOI: 10.1007/s11075-023-01515-y.

199. New asymptotic representations of the noncentral t -distribution (with Amparo Gil and Javier Segura). *Studies in Applied Mathematics*, 151:3, 857–882, 2023.
200. Computation of the confluent hypergeometric function $M(a, b, x)$ (with Amparo Gil, Diego Ruiz-Antolín and Javier Segura). Accepted for publication in the LNCS volume dedicated to the NUMTA 2023 conference held in Italy (June 14-29, 2023).

Submitted or in preparation

1. Asymptotic expansion of the leaky aquifer function for two negative parameters.
2. Airy-type asymptotic expansions of the Kummer functions.

Books

1. *Lineaire Algebra*, MC Syllabus 17.3, 1976.
2. *The Calculation of Special Functions*, CWI Tract, No. 10, 1984 (with C.G. van der Laan).
3. *Speciale functies in de mathematische fysica*, Epsilon Uitgaven, 15, Utrecht, 1990.
4. *Special Functions: An Introduction to the Classical Functions of Mathematical Physics*, Wiley, 1996, ISBN: 0471-11313-1.
5. *Numerical Methods for Special Functions* (with Amparo Gil and Javier Segura), SIAM, 2007, ISBN: 978-0-898716-34-4.
<http://epubs.siam.org/doi/book/10.1137/1.9780898717822>
6. *Asymptotic Methods for Integrals*. Series in Analysis 6. World Scientific Publishing Co, Singapore (ISBN 978-981-4612-15-9/hbk). 628 p. December 2014.
<http://www.worldscientific.com/worldscibooks/10.1142/9195>. arXiv:1308.1547.

Editor of books

1. *Non-linear Analysis*, MC Syllabus 26, 2 Volumes, 1976.
2. *Non-linear Diffusion Problems* (with O. Diekmann), MC Syllabus 28, 1977.
3. *TW in Beeld, bij het afscheid van Prof. H.A. Lauwerier*, CWI, December, 1988.
4. K.R. Apt, A. Schrijver, and N.M. Temme (eds.), (1994), *From Universal Morphisms to Megabytes – A Baayen Space Odyssey*, on the occasion of the retirement of Prof.dr. P.C. Baayen, CWI, Amsterdam.