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RENATO SPIGLER

List of Publications

1. "Accessibility to the lower hybrid resonance" (with G. Artico), *Lett. Nuovo Cimento* **10** (1974), 257-261.
2. "On the accessibility to the lower hybrid resonance" (with G. Artico), *Plasma Physics*, No. 11 **16** (1974), 1103-1106.
[DOI: <https://doi.org/10.1088/0032-1028/16/11/009>]
3. "Sulle radici dell'equazione: $AJ_\nu(x) + BxJ'_\nu(x) = 0$ ", *Atti Sem. Mat. Fis. Univ. Modena* **24**(1975), 399-419 (in Italian).
4. "General accessibility criterion in multi-component plasmas and effects of impurities" (with G. Artico), *Nuclear Fusion - Letters* **16**, No. 3 (1976), 542-546.
[DOI: <https://doi.org/10.1088/0029-5515/16/3/024>]
5. "Sulle radici dell'equazione: $AC_\nu(x) + BxC'_\nu(x) = 0$ ", *Atti Sem. Mat. Fis. Univ. Modena* **27** (1978), 153-166 (in Italian). [Also Errata Corrige, *Atti Sem. Mat. Fis. Univ. Modena* **28** (1979), 248.]
6. "Una generalizzazione del teorema di A.C. Dixon", *Atti Accad. Sci. Torino Cl. Sci. Fis. Mat. Natur.* **113** (1979), 263-268 (in Italian).
7. "La struttura delle relazioni 'molto maggiore' e 'molto minore' nel calcolo approssimato", *Rend. Sem. Mat. Univ. Padova* **63** (1980), 27-39 (in Italian).
8. "Alcuni risultati sugli zeri delle funzioni cilindriche e delle loro derivate", *Rend. Sem. Mat. Univ. Politec. Torino* **38** (1980), 67-85 (in Italian).
9. "An application of group theory to matrices and to ordinary differential equations", *Linear Algebra Appl.* **44** (1982), 143-151.
[[https://doi.org/10.1016/0024-3795\(82\)90009-X](https://doi.org/10.1016/0024-3795(82)90009-X)]
10. "An algorithm for the one-phase Stefan problem" (with E. Di Benedetto), *Rend. Sem. Mat. Univ. Padova* **69** (1983), 109-134.
11. "The linear differential equation whose solutions are the products of solutions of two given differential equations", *J. Math. Anal. Appl.* **98** (1984), 130-147.
[[https://doi.org/10.1016/0022-247X\(84\)90282-8](https://doi.org/10.1016/0022-247X(84)90282-8)]

12. "Some remarks on zeros of cylinder functions" (with M.E. Muldoon), *SIAM J. Math. Anal.* **15** (1984), 1231-1233.
13. "On the monotonic variation of the zeros of ultraspherical polynomials with the parameter", *Canad. Math. Bull.* **27** (4) (1984), 472-477.
14. "A stochastic model for lower hybrid wave scattering by density fluctuations" (with W. Grossmann), *Phys. Fluids.* **28** (6) (1985), 1783-1790.
15. "Numerical simulation for stochastic differential equations", Proc. Internat. AMSE Conference on Modelling & Simulation, Storrs, Connecticut, U.S.A., July 1-3, 1985 (A.M.S.E., Tassin La Demi Lune, France, 1985), Vol. 1, pp. 129-140 (invited paper).
16. "Nonlinear parametric oscillations in certain stochastic systems: A random van der Pol oscillator", *J. Statist. Phys.* **41** (1985), 175-200.
17. "A stochastic model for nonlinear oscillators of Duffing type", *SIAM J. Appl. Math.* **45** (1985), 990-1005.
18. "Mean power reflection from a one-dimensional nonlinear random medium", *J. Math. Phys.* **27** (7) (1986), 1760-1771.
19. "On the numerical solution of a nonlinear stochastic Helmholtz equation with a multigrid preconditioner" (with K.E. Jordan and G.C. Papanicolaou), *Appl. Math. Comput.* **19** (1986), 145-157.
20. "Inequalities and numerical bounds for zeros of ultraspherical polynomials" (with S. Ahmed and M.E. Muldoon), *SIAM J. Math. Anal.* **17** (1986), 1000-1007.
21. "Monte Carlo-type simulation for solving stochastic ordinary differential equations", *Math. Comput. Simulation*, special issue on 'Stochastic Systems Modelling', **29** (1987), 243-251.
22. "Boundary-layer theory in the Kramers-Smoluchowski limit for the Fokker-Planck equation on a half-space", *Boll. Un. Mat. Ital.* (7) **1-B** (1987), 918-938.
23. "Numerical treatment of a boundary-value problem for a certain singular parabolic partial differential equation", *J. Comput. Phys.* **74** (1988), 233-243.
24. "Numerical simulation for certain stochastic ordinary differential equations", *J. Comput. Phys.* **74** (1988), 244-262.
25. "Numerical simulation for degenerate diffusions", *Appl. Numer. Math.* **6** (1989/90), 405-413. [A preliminary version appeared as a solicited paper in: Proc. of the XII IMACS Congress on Scientific Computation, Session on 'Stochastic Systems Modelling', Paris, July 18-22, 1988].

26. "A boundary-layer theory for the nonlinear Fokker-Planck equation on the half-space", Boundary and interior layers - computational and asymptotic methods, Proc. 5th Int. Conf., BAIL-V (Shanghai/China, 1988), 326-331, Boole Press Conf. Ser. 12, Boole, Dún Laoghaire 1988.
27. "The Huber polygonal method for the Stefan problem with the specification of energy" (with C. Sartori), *Z. angew. Math. Mech.* (ZAMM) **69** (1989) 12, 447-456.
28. "Wave propagation in one-dimensional inhomogeneous random media with an application to lower hybrid waves in fusion plasmas" (with W. Grossmann), *Phys. Fluids* **B-2** (7) (1990), 1535-1544.
29. "Approximating zeros of solutions of second-order linear ODEs by 'phase function' methods" (with M. Vianello), in 'Asymptotic and Computational Analysis': Conference in Honor of Frank W.J. Olver's 65th Birthday, Lecture Notes in Pure and Applied Mathematics, vol. 124, ed. by R. Wong, Marcel Dekker, New York and Basel, 1990, 707-722.
30. "A numerical method for evaluating zeros of solutions of second-order linear differential equations" (with M. Vianello), *Math. Comp.* **55** (1990), 591-612.
31. "Numerical solution for the one-phase Stefan problem by piecewise-constant approximation of the interface" (with F. Sartoretto), *Computing* **45** (1990), 235-249.
32. "Applied and Industrial Mathematics. Venice-1, 1989" (book), Editor, Mathematics and Its Applications: West Series, vol. **56**, Kluwer, Dordrecht, 1991, 374+xiii pp. [ISBN-10: 9401073511; ISBN-13: 978-9401073516]
33. "Global existence and uniqueness for the Kummer transformation problem subject to non-Cauchy data" (with M. Vianello), *Differential Integral Equations* **4** (1991), 991-1003.
34. "Improved estimates for the derivatives of the O -symbols in view of numerical applications" (with M. Vianello), *J. Math. Anal. Appl.* **164** (1992), 480-488.
35. "Liouville-Green approximations for a class of linear oscillatory difference equations of the second order" (with M. Vianello), *J. Comput. Appl. Math.* **41** (1992), 105-116.
36. "WKB-type approximation for finite moments perturbations of the differential equation $y'' = 0$ and the analogous difference equation" (with M. Vianello), *J. Math. Anal. Appl.* **169** (1992), 437-452.
37. "A-stability of Runge-Kutta methods for systems with additive noise" (with D.B. Hernandez), *BIT* **32**:4 (1992), 620-633.

38. "Reaction-diffusion models from the Fokker-Planck formulation of chemical processes" (with D.H. Zanette), *IMA J. Appl. Math.* **49** (1992), 217-229.
39. "Nonlinear stability of incoherence and collective synchronization in a population of coupled oscillators" (with L.L. Bonilla and J.C. Neu), *J. Statist. Phys.* **67** (1992), 313-330.
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44. "Convergence and stability of implicit Runge-Kutta methods for systems with multiplicative noise" (with D.B. Hernandez), *BIT* **33**:4 (1993), 654-669.
45. "Asymptotic analysis and reaction-diffusion approximation for BGK kinetic models of chemical processes in multispecies gas mixtures" (with D.H. Zanette), *Z. angew. Math. Phys. (ZAMP)* **44** (1993), 812-827.
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47. "Discrete and continuous Liouville-Green-Olver approximations: A unified treatment via Volterra-Stieltjes integral equations" (with M. Vianello), *SIAM J. Math. Anal.* **25** (1994), 720-732.
48. "Semi-implicit discretization of abstract evolution equations" (with M. Vianello), *Tatra Mountains Math. Publ.* **4** (1994), 207-212.
49. "Computing expansion coefficients in orthogonal bases of ultraspherical polynomials" (with F. Sartoretto), *J. Comput. Appl. Math.* **56** (1994), 295-303.
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71. "Regularizing a nonlinear integroparabolic Fokker-Planck equation with space-periodic solutions: Existence of strong solutions" (with D. R. Akhmetov and M. M. Lavrentiev, Jr.), *Siberian Math. J.* **42** (2001), 693-714.
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84. "Fast simulations of stochastic dynamical systems" (with J.A. Acebrón), *J. Comput. Phys.* **208** (2005), 106-115.
85. "Probabilistically induced domain decomposition methods for elliptic boundary-value problems" (with J.A. Acebrón, M.P. Busico, and P. Lanucara), *J. Comput. Phys.* **210** (2005), 421-438.
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89. “Liouville-Green asymptotics for almost-diagonal second-order matrix differential equations” (with M. Vianello), *Asymptot. Anal.* **48** (2006), 267-294.
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