

Schriftenverzeichnis von Peter Rentrop

1. P. Rentrop: Numerical solution of the singular Ginzburg-Landau equations by multiple shooting. Computing 16 (1976) 61-67
2. P. Deuffhard, H.-J. Pesch, P. Rentrop: A modified continuation method for the numerical solution of nonlinear two-point boundary value problems by shooting techniques. Numer. Math. 26 (1976) 327-343
3. P. Rentrop: Numerical solution of a transistor boundary value problem. TU Report, Mathematisches Institut TUM 7628, 1976
4. H.-J. Dieckhoff, P. Lory, H.J. Oberle, H.-J. Pesch, P. Rentrop, R. Seydel: Comparing routines for the numerical solution of initial value problems of ordinary differential equations in multiple shooting. Numer. Math. 27 (1977), 449-469
5. H.-J. Pesch, P. Rentrop: Numerical solution of the flow between two counter- rotating infinite plane discs by multiple shooting. ZAMM 58 (1978) 23-28
6. P. Rentrop: Eine Taylorreihenmethode zur numerischen Lösung von Zwei-Punkt Randwertproblemen mit Anwendung auf singuläre Probleme der nichtlinearen Schalentheorie. Dissertation als TU Report, Mathematisches Institut TUM 7733, 1977
7. P. Rentrop: A Taylor series method for the numerical solution of two-point boundary value problems. Numer. Math. 31 (1979) 359-376
8. P. Rentrop: Stability curves for thin spherical caps and hemispheres. Ingenieur-Archiv 49 (1979) 197-203
9. P. Kaps, P. Rentrop: Generalized Runge-Kutta methods of order four with stepsize control for stiff ordinary differential equations. Numer. Math. 33 (1979) 55-68
10. P. Rentrop: An algorithm for the computation of the exponential spline. Handbook Series Approximation, Numer. Math. 35 (1980) 81-93
11. P. Rentrop: Partitionierte Runge-Kutta Verfahren zur numerischen Lösung von nichtsteifen und steifen Anfangswertaufgaben. Habilitationsschrift als TU Report, Mathematisches Institut TUM 8304, 1983
12. P. Kaps, P. Rentrop: Application of a variable order semi-implicit Runge-Kutta method to chemical models - Short Note. Computers and Chemical Engineering 8 (1984) 393-396
13. P. Rentrop: Numerische Probleme in der Fahrzeugdynamik. Proceedings of the Workshop "The Road-Vehicle System and Related Mathematics I" in Lambrecht 1985, Ed. H. Neunzert, Teubner Verlag 1985, 44-58
14. P. Rentrop: Partitioned Runge-Kutta methods with stepsize control and stiffness detection. Numer. Math. 47 (1985) 545-564
15. P. Rentrop: Einsatzmöglichkeiten von Personal Computer in der Numerischen Datenverarbeitung. Proceedings of the WRK - Koordinationsseminar im Sept.1986 in Toulouse, Ed. J. Lehn, TH Darmstadt, 183-195

16. P. Rentrop, U. Wever: Computational strategies for the tension parameters of the exponential spline. Oberwolfach Tagung "Optimal Control and Variational Calculus", Ed. R. Bulirsch, Springer: Lecture Notes in Control and Information Sciences 95 (1986) 122-134
17. P. Rentrop, G. Steinebach: The numerical solution of implicit ordinary differential equations arising in vehicle dynamics. Proceedings of NUMDIFF IV in Halle, Ed. K. Strehmel, Teubner (Leipzig) Band 104 (1987) 306-313
18. P. Rentrop, U. Wever: Interpolation algorithms for the control of a sewing machine. Proceedings of ECMI II in Oberwolfach, Ed. H. Neunzert, Teubner-Kluwer 1988, 251-268
19. P. Rentrop, G. Steinebach: Application of Runge-Kutta type methods in vehicle dynamics. Proceedings of the Workshop "The Road-Vehicle System and Related Mathematics II" in Turin 1987, Ed. H. Neunzert, Teubner-Kluwer 1989, 143-161
20. P. Rentrop, M. Roche, G. Steinebach: The application of Rosenbrock-Wanner type methods with stepsize control in differential-algebraic equations. Numer. Math. 55 (1989) 545-563
21. H.-J. Pesch, P. Rentrop: Numerical solution of asymptotic two-point boundary value problems with application to the swirling flow over a plane disk. Proceedings of the Third German-Italian Symposium on the Applications of Mathematics in Industry in Siena 1988, Eds. H. Boffi et al., Teubner-Kluwer 1989, 327-338
22. P. Rentrop: Three problems in the numerical solution of electric circuits by ROW-type methods. Proceedings of ECMI III in Glasgow 1988, Eds. J. Manley et al., Teubner-Kluwer 1990, 487-493
23. P. Rentrop: ROW-type methods for the integration of electric circuits. Proceedings of the Oberwolfach Conference "Mathematische Modellierung und Simulation elektrischer Schaltungen I" 1988, Eds. R. Bank et al., Birkhäuser ISNM 93 (1990) 59-71
24. G. Denk, P. Rentrop: Mathematical models in electric circuits simulation and their numerical treatment. Proceedings of NUMDIFF V in Halle 1989, Ed. K. Strehmel, Teubner (Leipzig), Band 121 (1991) 305-316
25. P. Rentrop, U. Wever: Parametrization for curve interpolation in technical applications. Proceedings of IFIP 14 in Leipzig 1989, Springer: Lecture Notes in Control and Information Sciences 143 (1990) 575-582
26. G. Engl, P. Rentrop: Case studies for a single cylinder combustion engine. Proceedings of ECMI V in Lahti 1990, Eds. M. Heiliö et al., Teubner-Kluwer 1991, 217-222
27. B. Simeon, C. Führer, P. Rentrop: Differential-algebraic equations in vehicle system dynamics. Surveys on Mathematics for Industry 1 (1991) 1-37
28. G. Engl, P. Rentrop: Gas flow in a single cylinder internal combustion engine: a model and its numerical treatment. Int. J. Num. Meth. Heat Fluid Flow 2 (1992) 63-78
29. R. Weiner, M. Arnold, P. Rentrop, K. Strehmel: Partitioning strategies in Runge-Kutta type methods. IMA J. Numer. Anal. 13 (1993) 303-319

30. P. Rentrop, U. Wever: Theory and applications of the exponential spline. DFG Schwerpunkt "Anwendungsbezogene Optimierung und Steuerung", Rep. 282, 1991
31. G. Pfaffenzeller, P. Rentrop, G. Schmidt: Robot control based on neural networks. Proceedings of ECMI VI in Limerick 1991, Ed. F. Hodnett, Teubner-Kluwer 1992, 247-250
32. B. Simeon, C. Führer, P. Rentrop: The Drazin inverse in multibody system dynamics. Numer. Math. 64 (1993) 521-539
33. W. Kampowsky, P. Rentrop, W. Schmidt: Classification and numerical solution of electric circuits. Surveys on Mathematics for Industry 2 (1992) 23-65
34. A. Jaschinski, W. Kortüm, P. Rentrop: Multibody dynamics software and numerical simulation of high-speed vehicles. Proceedings FORUM SCGM 1992 Transport 1992+, Montreal, Canada 1992, 720-726
35. B. Simeon, F. Grupp, C. Führer, P. Rentrop: A nonlinear truck model and its treatment as a multibody system. J. Comp. Appl. Math. 50 (1994) 523-532
36. M. Günther, P. Rentrop: Multirate ROW-methods and latency of electric circuits. Appl. Numerical Analysis 13 (1993) 83-102
37. M. Günther, P. Rentrop: Partitioning and multirate strategies in latent electric circuits. Proceedings of the Oberwolfach Conference "Mathematische Modellierung und Simulation elektrischer Schaltungen II" 1992, Eds. R. Bank et al., Birkhäuser ISNM 117 (1994) 33-60
38. P.C. Müller, P. Rentrop, W. Kortüm, C. Führer: Constrained mechanical systems in descriptor form - identification, simulation and control. Proceedings of Advanced Multibody System Dynamics in Stuttgart 1993, Ed. W. Schiehlen, Kluwer 1993, 451-456
39. B. Simeon, P. Rentrop: An extended descriptor form for the simulation of constrained mechanical systems. Proceedings of Advanced Multibody System Dynamics in Stuttgart 1993, Ed. W. Schiehlen, Kluwer 1993, 469-474
40. G. Engl, P. Rentrop: Simulation levels and differential-algebraic equations in technical simulation. Proceedings of ECMI VII in Montecatini 1993, Ed. A. Fasano, Teubner-Kluwer 1994, 199-206
41. P. Rentrop, K. Strehmel, R. Weiner: Ein Überblick über Einschrittverfahren zur numerischen Integration in der technischen Simulation. GAMM Mitteilungen 19 (1996) 9-43
42. M. Günther, P. Rentrop: The NAND-gate - a benchmark test for the numerical solution of digital circuits. W. Cauer Gedenk Band, Eds. W. Mathis et al., VDE - Verlag 1996, 27-33
43. P. Rentrop: Feedforward neural nets and Euler based ode-solvers. Dept. De Mathematiques, Universite de Geneve, 17 S., Juli 1994
44. Th. Neumeyer, G. Engl, P. Rentrop: Numerical benchmark for the charge cycle in a combustion engine. Appl. Numerical Analysis 18 (1995) 293-305

45. M. Günther, J. Lehn, P. Rentrop, S. Rettig, B. Simeon: Wissenschaftliches Rechnen aus der Sicht der Mathematik. Thema Forschung, TH Darmstadt Heft 2 (1995) 26-35
46. B. Karasözen, P. Rentrop, Y. Wagner: The inverted n-bar model in descriptor and in state space form. Math. Model. Systems 1 (1995) 272-285
47. P. Rentrop: Chip Production. Proceedings of ECMI VIII in Kaiserslautern 1994, Ed. H. Neunzert, Teubner-Kluwer 1996, 268-273
48. P. Rentrop, G. Steinebach: Model and numerical techniques for the alarm system of river Rhine. Surveys on Mathematics for Industry 6 (1997) 245-265
49. M. Günther, P. Rentrop: The differential-algebraic index concept in electric circuit simulation. ICIAM/GAMM 95, ZAMM 76 (1996) Supplement 1, 91-94
50. P. Rentrop, Th. Neumeyer, K. A. Görg: Zur numerischen Simulation des Ladungswechsels im Verbrennungsmotor. Tagungsband des BMBF-Statusseminars bei der BMW-AG München 1995, Eds. K.-H. Hoffmann et al., Springer 1997, 49-58
51. Th. Neumeyer, P. Rentrop: The DAE aspect of the charge cycle of a combustion engine. Appl. Numerical Analysis 25 (1997) 287-295
52. P. Rentrop, G. Steinebach: A method of lines approach for river alarm systems. Proceedings of ECMI IX in Kopenhagen 1996, Ed. M. Brons et al., Teubner 1997, 12-19
53. R. Gerstberger, P. Rentrop: Feedforward neural nets as discretization schemes for ODEs and DAEs. J. Comp. Appl. Math. 82 (1997) 117-128
54. M. Hankel, B. Karasözen, P. Rentrop, U. Schmitt: A molecular dynamics model for symplectic integrators. Math. Model. Systems 3 (1997) 282-296
55. M. Hoschek, P. Rentrop, Y. Wagner: Network approach and DAEs in technical simulation. Surveys on Mathematics for Industry 9 (1999) 49-76
56. M. Günther, M. Hoschek, P. Rentrop: Differential-algebraic equations in electric circuits simulation. Intern. J. Electronics Communications (AÜE) 54 (2000) 101-107
57. P. Rentrop, O. Scherf, B. Simeon: Mechanical multibody systems with deformable components. Tagungsband: High Performance Scientific and Engineering Computing, Eds. H.-J. Bungartz, F. Durst, C. Zenger, Springer 1999, 143-155
58. M. Günther, P. Rentrop: PDAE-Netzwerkmodelle in der elektrischen Schaltungssimulation. Analog 99, Ed. W. John, FhG IZM 2000, 31-38
59. M. Günther, A. Kvaerno, P. Rentrop: Multirate partitioned Runge-Kutta methods. BIT 41 (2001) 504-514
60. A. Kirsch, P. Rentrop: Mathematik - Basis moderner Technologie. Eds. H. Kunle, S. Fuchs: Die Technische Universität an der Schwelle zum 21. Jahrhundert. Springer Verlag 2000, 169-175
61. P. Rentrop, M. Hilden, G. Steinebach: Wissenschaftliches Rechnen. Ingenieur der Wasser- und Schifffahrtsverwaltung (IWSV) 4 (1999) 19-23

62. G. Steinebach, P. Rentrop: An adaptive method of lines approach for modelling flow and transport in rivers. In Adaptive Method of Lines, Eds. A. Vande Wouwer et al., Chapman Hall CRC 2001, 181-205
63. M. Günther, M. Hoschek, P. Rentrop, U. Feldmann: CHORAL - a chargeoriented algorithm for the numerical integration of electric circuit. Eds. W. Jäger, H.-J. Krebs: Mathematics - key technology for the future. Springer Verlag 2003, 429-438
64. M. Günther, P. Rentrop, U. Feldmann: CHORAL - a one step method as numerical low pass filter in electrical network analysis. Scientific computing in Electrical Engineering, Eds. U. van Rienen et al., Springer 2001, 199-215
65. M. Günther, P. Rentrop: Numerical integration methods in electric circuits simulation. GAMM Mitteilungen 1/2 (2000) 51-77
66. P. Rentrop, S.-O. Stoll, U. Wever: Sensitivity calculations for 2D-optimization of Turbomachine blading. Birkhäuser ISNM 139 (2001) 203-216
67. A. Bartel, M. Günther, R. Pulch, P. Rentrop: Numerical techniques for different time scales in electric circuit simulation. Tagungsband: High Performance Scientific and Engineering Computing, Eds. M. Breuer et al., Springer 2002, 343-360
68. G. Steinebach, S. Rademacher, P. Rentrop, M. Schulz: Mechanisms of coupling in river flow simulation systems. JCAM 168 (2004) 459-470
69. P. Rentrop: Differential-Algebraische Gleichungen im Wissenschaftlichen Rechnen. Ed. M. Hermann, Jenaer Schriften zur Mathematik und Informatik, Bericht des IZWR Band 2, 2003, 35-42
70. K. Arens, P. Rentrop, S. O. Stoll, U. Wever: An adjoint approach to optimal shape design of turbine blades. Appl. Numerical Analysis 53 (2005) 93-105
71. G. Steinebach, P. Rentrop: Fliessgewässersimulation zur Wasserstands- und Stofftransportvorhersage. Buchbeitrag 2004, 33 pages; NUM 2004, Nr. 5
72. K. Arens, P. Rentrop, S. O. Stoll: Gradient computations for optimal design of turbine blades. Proceedings zu ECMI 8, 2004, Eds. A. di Bucchianico et al., Springer 2006, 34-38
73. T. Stolte, P. Rentrop: A singular value based probability algorithm for protein cleavage. Eds. M. Breitner et al.: From Nano to Space. Springer 2007, 99-110
74. M. Herzog, A. Gilg, M. Paffrath, P. Rentrop, U. Wever: Intrusive versus nonintrusive methods for stochastic finite elements. Eds. M. Breitner et al.: From Nano to Space. Springer 2007, 161-174
75. R. Callies, P. Rentrop: Optimal control of rigid-link manipulators by indirect methods. GAMM Mitteilungen 31 (2008) 27-58
76. F. Augustin, A. Gilg, M. Paffrath, P. Rentrop, U. Wever: Polynomial chaos for the approximation of uncertainties: chances and limits. European J. Appl. Math. 19 (2008) 149-190
77. G. Steinebach, M. Paffrath, P. Rentrop, R. Rosen, S. Seidl: Process simulation for sewer systems by splitting. Int. J. Eng. Syst. Model. Sim. 1, (2009) 185-192.

78. A. Hmadi, P. Rentrop: DAE-Index concept for reactive Euler equations. ENUMATH 2007, Eds. K. Kunisch et al., Springer 2008, p. 777-784
79. M. Pospiech, P. Rentrop: Spectral methods in linear 3D-Aeroacoustic numerical simulation. MATHMOD 2009, Eds. I. Troch et al., CD-Volume 2009, 1173 – 1180
80. F. Augustin, P. Rentrop: Numerics of the van der Pol equation with random parameter. MATHMOD 2009, Eds. I. Troch et al., CD-Volume 2009, 2363-2371
81. F. Augustin, P. Rentrop, U. Wever: Wiener calculus for differential equations with uncertainties. Proceedings ECMI 2010, Eds. M. Günther et al., Springer 2012, p 271-282
82. F. Augustin, P. Rentrop: Rosenbrock Methods. In Encyclopedia of Applied and Computational Mathematics. 8 pages to appear 2013/2014
83. F. Augustin, P. Rentrop: Stochastic Galerkin technique for random ordinary differential equations. Numer. Math. 122 (2012) 399-419
84. F. Augustin, A. Gilg, M. Paffrath., P. Rentrop, M. Villegas, U. Wever: An accuracy comparison of polynomial chaos type methods for the propagation of uncertainties. J. Math. in Industry 3 (2013) 2 (Springer Open Journal) 17 pages

85. Tagungsband (Mitherausgeber)
K. Antreich, R. Bulirsch, A. Gilg, P. Rentrop: Modeling, simulation and optimization of integrated circuits. Zur Oberwolfach Konferenz vom 25.11 - 1.12. 2001, Birkhäuser ISNM 146, 2003

86. Tagungsband (Mitherausgeber)
M. Breitner, G. Denk, P. Rentrop: From Nano to Space — Applied Mathematics Inspired by Roland Bulirsch. Springer Verlag 2007