

CURRICULUM VITAE

Hans D. Mittelmann

Mailing Addresses:

Department of Mathematics
Arizona State University
Tempe, Arizona 85287-1804
(480) 965-6595 (office)
(480) 965-3951 (dept.)
(480) 965-0461 (FAX)

Residence:
538 E. Geneva Drive
Tempe, Arizona 85282
(480) 966-2521 (home)
mittelmann@asu.edu
<http://plato.la.asu.edu/>

Personal Data:

Born January 1, 1945; Permanent U.S. resident; Married 1971, three children

Education:

University of Mainz	1971	M.S. (Mathematics/Physics)
University of Darmstadt	1973	Ph.D. (Mathematics)
University of Darmstadt	1976	Habilitation (Mathematics)

Research and Teaching Interests:

Numerical optimization, computer solution of partial differential equations; finite elements; large-scale scientific computation for linear and nonlinear problems.

Academic Experience:

University of Mainz	1971-1973	Scientific Staff, Computing Centre
University of Darmstadt	1974-1977	Assistant/Associate Professor
University of Dortmund	1977-1984	Associate Professor/Professor
University of Bochum	1979-1980	Visiting Professor
Stanford University	1981 (Mar-Sept)	Research Visitor
Arizona State University	1982-	Professor
University of Erlangen	1988 (Smr.-Sem.)	Visiting Professor
University of Heidelberg	1988 (Oct.)	Research Visitor
University of Jyväskylä	1991 (Smr.)	Visiting Professor
University of Leipzig	1992, 1994/5	Research Visitor/Professor

Professional Societies:

Society for Industrial and Applied Mathematics, Activity Group on Optimization, member of the GAMM activity groups "Discretization Methods in Solid Mechanics" and "Efficient Numerical Methods for Partial Differential Equations".

Reviewer for Mathematical Reviews; Referee for various journals, the National Science Foundation and the Department of Defense; Editor of the International Series in Numerical Mathematics, Birkhäuser-Verlag, Basel and of the journal Computational Optimization and Applications.

Recent Grant Support

Stability and Instability of Thermocapillary Convection in Models of the Float-Zone Process, NAG 3-1054 NASA, Microgravity Science & Applications Division, \$480,000, co-PI.

Continuation and Multi-grid Methods for Bifurcation Problems, AFOSR 90-0080, \$220,000, PI.

Computational Methods for Capillary Flows and Surfaces, NSF, DMS-9403716, \$40,000, PI.

Performance Evaluation and Selection of Optimization Software, NSF, ACR-9981984, \$100,000, PI.

Constrained Multisine Inputs for Plant-Friendly Identification of Chemical Processes, American Chemical Society, PRF#37610-AC9, \$120,000, Co-PI.

Selected invitations to conferences

- 1988 AMS-SIAM Summer Seminar on Computational Solution of Nonlinear Systems, Fort Collins, Colorado.
 Recent Trends in Nonlinear Computational Mathematics and Applications, University of Pittsburgh.
 Fundamental Problems in Mechanics, Leipzig, Germany.
 Bifurcation Theory and its Numerical Analysis, Xi'an, PR China.
 Mathematical Modeling and Simulation of Electric Circuits, Oberwolfach, Germany.
 Numerical Treatment of Problems in Solid Mechanics, Bad Honnef, Germany.
- 1989 Fourth Copper Mountain Conference on Multigrid Methods, Copper Mountain, Colorado.
 SIAM Annual Meeting, San Diego.
 Computational Methods in Solid Mechanics, Oberwolfach, Germany.
 Free Boundary Problems, Numerical Treatment & Optimal Control, Oberwolfach, Germany.
 Computation of Nonlinear Flow and Instabilities, Austin, Texas.
 Workshop on Continuation and Bifurcations: Numerical Techniques and Applications, Leuven, Belgium.
 Miniconference on Newton-like Methods for Large-Scale Nonlinear Methods, Logan, Utah.
- 1990 Fourth International Conference on Computational and Applied Mathematics, Leuven, Belgium.
 Contributions to the Numerics of Partial Differential Equations, Darmstadt, Germany.
 Multigrid Methods, Oberwolfach, Germany
 Conference on Numerical Methods for Free Boundary Problems, Jyväskylä, Finland.
- 1991 Banach Center, 37th Semester on Numerical Analysis and Mathematical Modeling, Warsaw, Poland
 Bifurcation and Symmetry: Cross Influences between Mathematics and Applications, Marburg, Germany

- 1992 AMS–SIAM Summer Seminar in Applied Mathematics on Exploiting Symmetries in Applied and Numerical Analysis, Fort Collins, Colorado
 Short Course on Scientific Computing, Darmstadt, Germany
 Mathematical Modeling and Simulation of Electric Circuits and Semiconductors, Oberwolfach, Germany
 Surface Tension and Movement by Mean Curvature, Trento, Italy
 International Symposium on Numerical Analysis, Prague, Czechoslovakia
 First International Colloquium on Numerical Analysis, Plovdiv, Bulgaria
 Theory and Numerical Methods for Initial-Boundary Value Problems, Oberwolfach, Germany
- 1993 Computational Methods for Nonlinear Phenomena, Oberwolfach, Germany
 International Conference on Advances in Geometric Analysis and Continuum Mechanics, Stanford, California
- 1994 Motion by Mean Curvature and Related Topics, Trento, Italy
 Sixth International Congress on Computational and Applied Mathematics, Leuven, Belgium
 Parallel Algorithms for the Solution of Problems in Solid Mechanics, Bad Honnef, Germany
- 1995 Multilevel Methods and Applications, Oberwolfach, Germany
 Numerical and Computational Methods for Free Boundary Problems, Freiburg, Germany
 Generalized Stefan Problems: Analysis and Numerical Methods, Pavia, Italy
- 1996 Recent Advances in Applied Mathematics, Kuwait City, Kuwait
- 1997 Dutch Numerical Analysis Conference, Zeist, The Netherlands
- 1998 NODEM 98, Arizona State University
 High-Order Finite Element Methods, Bad Honnef, Germany
- 1999 SIAM Conference on Optimization, minisymposium on Optimal Control of Elliptic and Parabolic Equations, Atlanta
- 2000 AMS-IMS-SIAM Summer Research Conference, Algorithms and their Complexity for Nonlinear Problems, Mt. Holyoke College, Mass.
 International Symposium on Mathematical Programming, Atlanta, minisymposium on Large-Scale Nonlinear Programming
 Seventh DIMACS Implementation Challenge on Semidefinite Programming, Rutgers University
- 2001 First International Conference on Industrial and Applied Mathematics on Indian Subcontinent, Amritsar
 INFORMS Annual Meeting, Miami, FL, minisymposiums "Computational SDP and SOCP" and "Optimization Services on the Internet"
- 2002 Optimization and Applications, Oberwolfach, Germany
 SIAM Conference on Optimization, Toronto (minisymposium)
 INFORMS Annual Meeting, San Jose (2 invited minisymposia)

Most recent contributed conference talks

- 1998 Optimization 98, Coimbra, Portugal
 Nonlinear Optimization and Applications, Erice, Sicily, Italy
- 1999 19th IFIP TC7 Conference on System Modeling and Optimization, Cambridge, UK
 Workshops on Nonlinear Analysis and Control Theory, Porto, Portugal

- 2000 Workshop "Fast Solution of Discretized Optimization Problems," Weierstrass Institute, Berlin, Germany
Special Functions 2000, Arizona State University
IMACS 2000, Lausanne, Switzerland
- 2002 Conference on Scientific Computation, Geneva, Switzerland
15th IFAC World Congress, Barcelona, Spain
ICCAM 2002, Leuven, Belgium
AIChE Annual Meeting, Indianapolis

Selected invitations to Seminars/Colloquia

- | | | | |
|------|---|------|---|
| 1984 | University of Heidelberg, Germany
Federal Institute of Technology,
Lausanne, Switzerland
University of Paderborn, Germany | 1990 | University of Darmstadt, Germany
University of Heidelberg, Germany
North Carolina State University
University of Aachen (RWTH),
Germany |
| 1985 | University of Hannover, Germany
University of California, San Diego
University of Darmstadt, Germany | 1991 | University of Kiel, Germany
University of Heidelberg, Germany
University of British Columbia,
Canada |
| 1986 | University of Bonn, Germany
Free University of Berlin, Germany
Fraunhofer Institute for
Microelectronics, Duisburg,
Germany
Southern Methodist University, Dallas | 1992 | University of Stuttgart, Germany
University of Tübingen, Germany
Stanford University
Los Alamos National Laboratory
University of Leipzig, Germany
Technical University of Dresden,
Germany |
| 1987 | University of Wyoming, Laramie
University of Lyon, France
University of Grenoble, France
Universität der Bundeswehr, Munich,
Germany
University of Erlangen, Germany
University of Darmstadt, Germany
University of Nijmegen, Netherlands
University of Freiburg, Germany | 1993 | University of Darmstadt, Germany
University of Clausthal, Germany
University of Leipzig, Germany
University of Frankfurt, Germany |
| 1988 | University of Mainz, Germany
University of Konstanz, Germany
Technical University of Berlin,
Germany
University of Paderborn, Germany
University of Münster, Germany
University of Cologne, Germany
University of Darmstadt, Germany
University of Augsburg, Germany
University of Würzburg, Germany
University of Heidelberg, Germany
University of Hamburg, Germany
University of Karlsruhe, Germany
University of Kaiserslautern, Germany | 1994 | Emory University
Georgia Institute of Technology
University of Heidelberg, Germany
University of California, San Diego
University of Fribourg, Switzerland |
| 1989 | University of Ulm, Germany
University of Heidelberg, Germany | 1995 | University of Paderborn, Germany
University of Bremen, Germany
University of Leipzig, Germany
University of Fribourg, Switzerland |
| | | 1996 | University of Kuwait
University of Fribourg, Switzerland |
| | | 1997 | University of Münster, Germany
University of Minneapolis |
| | | 1998 | University of Münster, Germany
University of Dresden, Germany |

	Max Planck Institute for Mathematics in the Sciences, Leipzig, Germany	2001	University of Bangalore, India University of Madras, India ITT Delhi, India University of Arizona University of Düsseldorf, Germany
1999	University of Iowa Purdue University University of Wisconsin, Madison Technical University of Munich, Germany		
2000	University of Leipzig Federal Institute of Technology, Zurich, Switzerland University of Fribourg, Switzerland	2002	Northwestern University University of Fribourg, Switzerland

Major Webpages maintained

<http://plato.la.asu.edu/guide.html>

Decision Tree for Optimization Software (accessed 100+ times daily; updated daily; generally regarded as invaluable information source; linked to from hundreds of sites)

<http://plato.la.asu.edu/bench.html>

Benchmarks for Optimization Software (accessed 50+ times daily; only source of its kind on the web; generally regarded as authoritative source on performance of optimization software)

PUBLICATIONS OF HANS D. MITTELMANN

1. Die Approximation der Lösungen gemischter Randwertprobleme quasilinearer elliptischer Differentialgleichungen, *Computing* 13, 253-265 (1974)
2. Finite-Element Verfahren bei quasilinearen elliptischen Randwertproblemen, in "Numerische Behandlung nichtlinearer Integrodifferential- und Differentialgleichungen", R. Ansorge, W. Törnig (eds.), Springer Lecture Notes in Mathematics, vol. 395, 199-214, 1974
3. Stabilität bei der Methode der finiten Elemente für quasilineare elliptische Randwertprobleme, in "Numerische Behandlung von Differentialgleichungen", R. Ansorge, L. Collatz, G. Hämmerlin, W. Törnig (eds.), ISNM 27, 197-226, Birkhäuser-Verlag, Basel and Stuttgart, 1975
4. Existenz und Konvergenz von Lösungen diskreter Variationsprobleme, *Z. Angew. Math. Mech.* 55, T255-T257 (1975).
5. Nichtlineare Dirichletprobleme und einfache finite-element Verfahren, *Bonn. Math. Schr.* 77, 46-61 (1975).
6. Numerische Behandlung des Minimalflächenproblems mit finiten Elementen, in "Finite Elemente und Differenzenverfahren", J. Albrecht, L. Collatz (eds.), ISNM 28, 91-108, Birkhäuser-Verlag, Basel and Stuttgart, 1975.
7. Zur gleichmässigen Konvergenz einer Finite-Elemente Lösung des Minimalflächen-problems, *Z. Angew. Math. Mech.* 56, T304-T306 (1976).
8. Die Methode der finiten Elemente zur numerischen Lösung von Randwertproblemen quasilinearer elliptischer Differentialgleichungen. Habilitationsschrift, 99 pp., Technische Hochschule Darmstadt, 1976.

9. Über die Methode der finiten Elemente zur numerischen Lösung elliptischer Randwertprobleme 2. Ordnung (with W. Törnig), Jahrbuch Überblicke Mathematik 1977, 89-105, Bibliographisches Institut, Mannheim.
10. On pointwise estimates for a finite element solution of nonlinear boundary value problems, SIAM J. Num. Anal. 14, 773-778 (1977)
11. Numerische Behandlung nichtlinearer Randwertprobleme mit finiten Elementen, Computing 18, 67-77 (1977)
12. On the approximation of capillary surfaces in a gravitational field, Computing 18, 141-148 (1977)
13. On the approximate solution of nonlinear variational inequalities, Numer. Math. 29, 451-462 (1978)
14. Numerical methods for bifurcation problems - A survey and classification (with H. Weber), in "Bifurcation Problems and their Numerical Solution", H. D. Mittelmann, H. Weber (eds.), ISNM 54, 1-45, Birkhäuser-Verlag, Basel and Stuttgart, 1980
15. On the efficient solution of nonlinear finite element equations I, Numer. Math. 35, 277-291 (1980)
16. On the efficient solution of nonlinear finite element equations II. Bound-constrained problems, Numer. Math. 36, 375-387 (1981)
17. Some remarks on the discrete maximum-principle for finite elements of higher order (with W. Höhn), Computing 27, 145-154 (1981)
18. On the efficient solution of nonlinear finite element systems, in "Nonlinear Finite Element Analysis in Structural Mechanics", W. Wunderlich, E. Stein and K. J. Bathe (eds.), 621-636, Springer-Verlag, Berlin, 1981
19. On the numerical solution of contact problems, in "Numerical Solution of Nonlinear Equations", E. L. Allgower, K. Glashoff and H. O. Peitgen (eds.), Springer Lecture Notes in Mathematics, vol. 878, 259-274, 1981
20. Multi-grid methods for simple bifurcation problems, in "Multi-grid methods", W. Hackbusch, U. Trottenberg (eds.), Springer Lecture Notes in Mathematics, vol. 960, 558-575, 1982
21. Bifurcation problems for discrete variational inequalities, Math. Meth. in the Appl. Sci. 4, 243-258 (1982)
22. A Bibliography on Numerical Methods for Bifurcation Problems, Preprint 56, (Angewandte Mathematik), 32 pp., Universität Dortmund, 1982.
23. A fast solver for nonlinear eigenvalue problems, in "Iterative Solution of Nonlinear Systems", A. R. Ansorge, T. Meis and W. Törnig (eds.), Springer Lecture Notes in Mathematics, vol. 953, 46-67, 1982
24. On multi-grid methods for variational inequalities (with W. Hackbusch), Numer. Math. 42, 65-76 (1983)
25. An efficient algorithm for bifurcation problems of variational inequalities, Math. of Comp. 41, 473-485 (1983)

26. Multi-grid solution of bifurcation problems (with H. Weber), *SIAM J. Sci. Stat. Comp.* 6, 49-60 (1985)
27. Continuation near symmetry-breaking bifurcation points, in "Numerical Methods for Bifurcation Problems", T. Küpper, H. D. Mittelmann and H. Weber (eds.), *ISNM 70*, Birkhäuser-Verlag, 319-334, 1984.
28. A free boundary problem and stability for the nonlinear beam (with E. Miersemann), *Math. Meth. in the Appl. Sci.* 8, 516-532 (1986).
29. Multi-level continuation techniques for nonlinear boundary value problems with parameter-dependence, *Appl. Math. Comp.* 19, 265-282 (1986).
30. An algorithm that exploits symmetries in bifurcation problems (with B. Thomson), *Notes on Numer. Fluid Mech.* 16, 52-68 (1987).
31. A pseudo-arclength continuation method for nonlinear eigenvalue problems, *SIAM J. Numer. Anal.* 23, 1007-1016 (1986).
32. Continuation and multi-grid for nonlinear elliptic systems (with R. Bank), in "Multigrid Methods II", W. Hackbusch, U. Trottenberg (eds.), *Springer Lecture Notes in Mathematics*, vol. 1228, 24-37, 1986.
33. Multi-grid continuation and spurious solutions for nonlinear boundary value problems, *Rocky Mountain Math. J.* 18, 387-401 (1988).
34. A free boundary problem and stability for the circular plate (with E. Miersemann), *Math. Meth. in the Appl. Sci.* 9, 240-250 (1987).
35. On continuation for variational inequalities, *SIAM J. Numer. Anal.* 24, 1374-1381 (1987)
36. Approximation of obstacle problems by continuation methods (with F. Conrad and R. Herbin), *SIAM J. Numer. Anal.* 25, 1409-1431 (1988).
37. Continuity of closest rank-p approximations to matrices (with J. A. Cadzow), *IEEE Trans. Acoust., Speech, Signal Processing*, Vol. ASSP-35, 1211-1212 (1987).
38. On the continuation for variational inequalities depending on an eigenvalue parameter (with E. Miersemann), *Math. Meth. in the Appl. Sci.* 11, 95-104 (1989).
39. Continuation methods for parameter-dependent boundary value problems, *AMS Lectures in Appl. Math.* 25, 159-175 (1990).
40. A multi-grid continuation strategy for parameter-dependent variational inequalities (with R. H. W. Hoppe), *J. Comput. Appl. Math.* 26, 35-46 (1989).
41. Extension of Beckert's continuation method to variational inequalities (with E. Miersemann), *Math. Nachr.* 148, 183-195 (1990).
42. Step size selection in continuation procedures and damped Newton's method (with R. E. Bank), *J. Comput. Appl. Math.* 26, 67-77 (1989).
43. A finite element method for capillary surfaces with volume constraints (with U. Hornung), *J. Comput. Phys.* 87, 126-136 (1990).
44. Continuation for parametrized nonlinear variational inequalities (with E. Miersemann), *J. Comput. Appl. Math.* 26, 23-34 (1989).
45. The augmented skeleton method for parametrized surfaces of liquid drops (with U. Hornung), *J. Colloid Interface Sci.* 133, 409-417 (1989)

46. Nonlinear parametrized equations: new results for variational problems and inequalities, *AMS Lectures in Appl. Math.* 26, 451-466 (1990).
47. A free boundary problem and stability for the rectangular plate (with E. Miersemann), *Math. Meth. in the Appl. Sci.* 12, 129-138 (1990).
48. The obstacle Bratu problem, *AMS Lectures in Appl. Math.* 26, 747-748 (1990).
49. The augmented Skeleton method for parametrized capillary surfaces, in *Proceedings of the Fifth International Symposium on Numerical Methods in Engineering*. Vol. 2, 227-234, R. Gruber, J. Periaux, and R. P. Shaw (eds.) Springer-Verlag, Berlin, 1989.
50. On the stability in obstacle problems with applications to the beam and plate (with E. Miersemann), *Z. Angew. Math. Mech.* 71, 311-321 (1991).
51. Energy stability of thermocapillary convection in a model of the float-zone, crystal-growth process (with Y. Shen, G.P. Neitzel and D. F. Jankowski), *J. Fluid Mech.* 217, 639-660 (1990).
52. Computing stability bounds for thermocapillary convection in a crystal-growth free boundary problem, in "Free Boundary Problems," K.-H. Hoffmann, J. Sprekels (eds.), *ISNM 95*, 165-180, Birkhäuser-Verlag, Basel, 1990.
53. Stability of Marangoni convection in a microgravity environment, in "Continuation and Bifurcations: Numerical Techniques and Applications," D. Roose, B. De Dier, and A. Spence (eds.), *NATO ASI Series C*, Vol. 313, 363-377, Kluwer, Dordrecht, 1990.
54. The nonlinear beam via optimal control with bounded state variables (with H. Maurer), *Optimal Control Applications and Methods* 12, 19-31 (1991).
55. A large sparse and indefinite generalized eigenvalue problem from fluid mechanics (with C. Law, D. F. Jankowski, G. P. Neitzel), *SIAM J. Sci. Stat. Comp.* 13, 411-424 (1992).
56. Computation of parametrized capillary surfaces, in "Contributions to the Numerics of Partial Differential Equations," *THD Schriftenreihe Wissenschaft und Technik*, vol. 52, 187-202, Technical University of Darmstadt Press, Darmstadt, 1991.
57. Stability and continuation of solutions to obstacle problems (with E. Miersemann), *J. Comp. Appl. Math.* 35, 5-31 (1991).
58. Stability in obstacle problems for the von Karman plate (with E. Miersemann), *SIAM J. Math. Anal.* 23, 1099-1116 (1992).
59. Stability of thermocapillary convection in float-zone crystal growth (with C. Law, D.F. Jankowski, G.P. Neitzel), in "Numerical Methods for Free Boundary Problems," P. Neittaanmäki (ed.), *ISNM99*, 58-69, Birkhäuser-Verlag, Basel, 1991.
60. Bifurcation of axially symmetric capillary surfaces (with U. Hornung), *J. Colloid Interface Sci.* 146, 219-225 (1991).
61. Stability and instability of thermocapillary convection in models of float-zone crystal growth (with G. P. Neitzel, C. C. Law, D. F. Jankowski), in *Proceedings of the AIAA/IKI Microgravity Sciences Symposium*, Moscow, USSR, pp. 57-65, 13-17 May 1991.
62. Energy stability of thermocapillary convection in a model of the float-zone crystal-growth process. Part 2. Non-axisymmetric disturbances (with G. P. Neitzel, C. C. Law, D. F. Jankowski), *Phys. Fluids A*. 3, 2841-2846 (1991).

63. Linear stability of axisymmetric thermocapillary convection in crystal growth (with K.-T. Chang, D. F. Jankowski, and G. P. Neitzel). In "Bifurcation and Symmetry," E. Allgower, K. Böhmer, and M. Golubitsky (eds.), ISNM 104, 275-284, Birkhäuser-Verlag, Basel., 1992.
64. Linear-stability theory of thermocapillary convection in a model of float-zone crystal growth (with G. P. Neitzel, K.-T. Chang, and D. F. Jankowski), Paper AIAA-92-0604, Proceedings of the AIAA 30th Aerospace Sciences Meeting, Reno, NV, January 6–9, 1992.
65. Symmetric capillary surfaces in a cube, *Math. Comp. Simulation* 35, 139-152 (1993).
66. Iterative solution of the eigenvalue problem in Hopf bifurcation for the Boussinesq equations (with G. P. Neitzel, K.-T. Chang, and D. F. Jankowski), *SIAM J. Sci. Stat. Comp.* 15, 704-712 (1994).
67. Linear-stability theory of thermocapillary convection in a model of the float-zone crystal growth process (with G. P. Neitzel, K.-T. Chang, and D. F. Jankowski), *Phys. Fluids A.* 5, 108-114 (1993).
68. Symmetric capillary surfaces in a cube, part II: Near the limit angle, *AMS Lectures in Appl. Math.* 29, 339-361 (1993)
69. Stability analysis of thermocapillary convection in semiconductor crystal growth, in "Mathematical Modeling and Simulation of Electrical Circuits and Semiconductor Devices," R.E. Bank, R. Bulirsch, H. Gajewski, and K. Merten (eds.), ISNM 117, 237–249, Birkhäuser-Verlag, Basel, 1994.
70. Thermocapillary convection instability in microgravity crystal growth (with G. P. Neitzel, D. F. Jankowski, and K.-T. Chang), in *Proceedings of the VIIIth European Symposium on Materials and Fluid Sciences in Microgravity*, European Space Agency, ESA SP-333, 463-467, Paris, France, 1992.
71. Hydrodynamic stability of thermocapillary convection in cylindrical liquid bridges, *Math. Comp. Modelling* 20, 175-188 (1994).
72. Symmetric capillary surfaces in a cube, part III: More exotic surfaces, gravity, in "Advances in Geometric Analysis and Continuum Mechanics," P. Concus and K. Lancaster (eds.), 199-208, International Press, Boston, 1995.
73. Parallel multisplittings for optimization (with R. A. Renaut), *J. Parallel Alg. Appl.* 7, 17-27 (1995).
74. Parallel multisplittings: overview and extensions (with R. A. Renaut and Q. He), in "Proceedings of the Fifth SIAM Conference on Applied Linear Algebra," J. G. Lewis, editor, 34-38, SIAM Press, Philadelphia, 1994.
75. Lebesgue constant minimizing linear rational interpolation of continuous functions over the interval (with J.-P. Berrut), *Computers Math. Applic.* 33, 77-86 (1997).
76. Parallel multisplittings for constrained optimization, *Parallel Algor. Appl.* 9, 91-99 (1996).
77. Exponentially convergent linear rational interpolation between equidistant and other points (with J.-P. Berrut), *Meth. Appl. Anal.* 4, 67-76 (1997).

78. Capillary surfaces with different contact angles in a corner (with A. Zhu), *Microgravity Sci. Technol.* 9, 22-27 (1996).
79. Matrices for the direct determination of the barycentric weights of rational interpolation (with J.-P. Berrut), *J. Comp. Appl. Math.* 78, 355-370 (1997).
80. Stability of thermocapillary convection in the float-zone process for the manufacturing of semiconductors, pp. 371-388 in *Proceedings of Recent Advances in Applied Mathematics*, May 4-7, 1996, Kuwait University, Kuwait.
81. Nonlinear optimization approach to construction of general linear methods (with J. C. Butcher and Z. Jackiewicz), *J. Comp. Appl. Math.* 81, 181-196 (1997).
82. Wave propagation in striated mathematical models of cortex (with F. Hoppensteadt), *J. Math. Biol.* 35, 988-994 (1997).
83. Exploiting structure in the construction of DIMSIMs (with Z. Jackiewicz), *J. Comp. Appl. Math.* 107, 233-239 (1999)
84. Optimization Techniques for Solving Elliptic Control Problems with Control and State Constraints. Part 1: Boundary Control (with H. Maurer), *Comp. Optim. Applic.* 16, 29-55 (2000).
85. H. D. Mittelmann, Benchmarking Interior Point LP/QP Solvers, *Opt. Meth. Software* 12, 655-670 (1999).
86. Rational Interpolation Through the Optimal Attachment of Poles to the Interpolating Polynomial (with J.-P. Berrut), *Numer. Algor.* 23, 315-328 (2000).
87. Interior Point Methods for Solving Elliptic Control Problems with Control and State Constraints: Boundary and Distributed Control (with H. Maurer), *J. Comp. Appl. Math.* 120, 175-195 (2000).
88. Optimization Techniques for Solving Elliptic Control Problems with Control and State Constraints. Part II: Distributed Control (with H. Maurer), *Distributed Control, Comp. Optim. Applic.* 18, 141-160 (2001).
89. The Linear Rational Collocation Method with Iteratively Optimized Poles for Two-Point Boundary Value Problems (with J.-P. Berrut), *SIAM J. Sci. Comp.* 23, 961-975 (2001).
90. Verification of Second-Order Sufficient Optimality Conditions for Semilinear Elliptic and Parabolic Control Problems, *Comp. Optim. Applic.* 18, 141-160 (2001).
91. Sufficient Optimality for Discretized Parabolic and Elliptic Control Problems, in *Fast solution of discretized optimization problems*, K.-H. Hoffmann, R.H.W. Hoppe, and V. Schulz (eds.), ISNM 138, Birkhäuser, Basel, 2001.
92. J.-P. Berrut and H. D. Mittelmann, Linear Rational Interpolation and its Application in Approximation and Boundary Value Problems, *Rocky Mt. J. Math.* 32, 527-544 (2002).
93. H. D. Mittelmann, An Independent Benchmarking of SDP and SOCP solvers, to appear in *Math. Progr.*

94. H. D. Mittelman and F. Tröltzsch, Sufficient Optimality in a Parabolic Control Problem, in: Trends in Industrial Mathematics, Applied Optimization, vol. 72, A.H. Siddiqi and M. Kocvara (eds), Kluwer, Dordrecht, The Netherlands, 2002.
95. J.-P. Berrut and H. D. Mittelman, Point Shifts in Rational Interpolation with Optimized Denominator, in Proceedings of Algorithms for Approximation IV, University of Huddersfield, July 2001.
96. D. E. Rivera, M. W. Braun, and H. D. Mittelman, Constrained Multisine Inputs for Plant-Friendly Identification of Chemical Processes, in Proceedings of IFAC World Congress, 21-27 July 2002, Barcelona, Spain.
97. Yu-Ju Kuo and H. D. Mittelman, Interior Point Methods for Second Order Cone Programming and OR Applications, submitted.
98. J.-P. Berrut and H. D. Mittelman, Adaptive point shifts in rational approximation with optimized denominator, to appear in J. Comp. Appl. Math.

BOOKS/EDITORSHIPS

1. Bifurcation Problems and their Numerical Solution (editor; H. Weber coeditor), ISNM 54, Birkhäuser - Verlag, Basel and Boston, 1980.
2. Numerical Methods for Bifurcation Problems, (editor; T. Küpper and H. Weber coeditors), ISNM 70, Birkhäuser - Verlag, Basel and Boston, 1984.
3. Continuation Techniques and Bifurcation Problems (editor; D. Roose coeditor), special volume 26 (1989) of Journal of Computational and Applied Mathematics, reprinted as ISNM 92 , Birkhäuser-Verlag, Basel and Boston, 1990.