A Bibliography of Publications of Achi Brandt

Achi Brandt
Dept. of Applied Mathematics and Computer Science
The Weizmann Institute of Science
Rehovot
Israel

Tel: ?n/a?
FAX: ?n/a?

E-mail: mabrandt@weizmann.weizmann.ac.il (Internet)

19 September 2023
Version 1.44

Abstract

This bibliography records publications of Achi Brandt.

Title word cross-reference

References

Abarbanel:1970:VPF

[ABBG70] S. Abarbanel, S. Bennett, A. Brandt, and J. Gillis. Velocity profiles of flow at low Reynolds numbers. *J. Appl. Mech*, 37:2–4, 1970.

Alcouffe:1981:MGM

[ABDP81] R. E. Alcouffe, A. Brandt, J. E. Dendy, Jr., and J. W. Painter. The multi-grid methods for the diffusion equation with strongly discontinuous coefficients. *SIAM J. Sci. Stat. Comput.*, 2(4):430–454, ???? 1981. CODEN SIJCD4. ISSN 0196-5204.

Adler:1995:TPA

[ABJS95a] J. Adler, A. Brandt, W. Janke, and S. Shmulyian. Three-state Potts antiferromagnet on the triangular lattice. *Journal of Physics A (Mathematical and General)*, 28(18):5117–5129, September 1995. CODEN JPHAC5. ISSN 0305-4470 (print), 1361-6447 (electronic).

Adler:1995:TSP

[ABJS95b] J. Adler, A. Brandt, W. Janke, and S. Shmulyian. Three-state Potts antiferromagnet on the triangular lattice. *Journal of Physics A (Mathematical and General)*, 28(18):5117–5129, 1995. CODEN JPHAC5. ISSN 0305-4470 (print), 1361-6447 (electronic).

Adams:2010:TTM

[ASB10] Mark F. Adams, Ravi Samtaney, and Achi Brandt. Toward textbook multigrid efficiency for fully implicit resistive magnetohydrodynamics. *Journal of Computational Physics*, 229(18): 6208–6219, September 1, 2010. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL http://www.sciencedirect.com/science/article/pii/S0021999110002007.

Ben-Av:1991:FSU

[BABH+91] R. Ben-Av, A. Brandt, M. Harmatz, E. Katznelson, P. G. Lauwers, S. Solomon, and K. Wolowesky. Fermion simulation using parallel transported multigrid. *Phys. Lett. B*, 253 (1–2):185–192, January 3, 1991. CODEN PYLBAJ. ISSN 0370-2693 (print), 1873-2445 (electronic).

Ben-Av:1990:FMI

[BABS90] R. Ben-Av, A. Brandt, and S. Solomon. The fermionic matrix, instantons, zero modes and multigrid. *Nucl. Phys. B*, B329: 193, 1990. CODEN NUPBBO. ISSN 0550-3213 (print), 1873-1562 (electronic).

Barkai:1983:VMP

[BB83] D. Barkai and A. Brandt. Vectorized multigrid Poisson solver for the CDC Cyber 205. *Applied Math. Comp.*, 13(3–4):215–227, November 1983. CODEN AMHCBQ. ISSN 0096-3003 (print), 1873-5649 (electronic).

Bai:1987:LMR

[BB87] D. Bai and A. Brandt. Local mesh refinement multilevel techniques. *SIAM J. Sci. Stat. Comput.*, 8(2):109–134, March 1987. CODEN SIJCD4. ISSN 0196-5204.

Balsara:1991:MMF

[BB91] Dinshaw S. Balsara and Achi Brandt. Multilevel methods for fast solution of N-body and hybrid systems. In W. Hackbusch and U. Trottenberg, editors, *Multigrid methods, III (Bonn, 1990)*, Internat. Ser. Numer. Math., pages 131–142 (of ix + 394). Birkhäuser Verlag, Basel, 1991. ISBN 0-8176-2632-8. LCCN QA377.C7628 1991.

Bolten:2011:BAM

[BBB+11] Matthias Bolten, Achi Brandt, James Brannick, Andreas Frommer, Karsten Kahl, and Ira Livshits. A bootstrap algebraic multilevel method for Markov chains. *SIAM Journal on Scientific Computing*, 33(6): 3425–3446, ???? 2011. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic). URL `http://epubs.siam.org/sisc/resource/1/sjoce3/v33/i6/p3425_s1`.

Brandt:1971:ITS

[BBDBA71] A. Brandt, E. Bresler, N. Dinar, and I. Ben-Asher. Infiltration from a trickle source. I. mathematical models. *Soil Sci. Soc. Amer. Proc.*, 35:675–682, 1971.

Brandt:2011:BA

[BBKL11] A. Brandt, J. Brannick, K. Kahl, and I. Livshits. Bootstrap AMG. *SIAM Journal on Scientific Computing*, 33(2): 612–632, ???? 2011. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic). URL `http://epubs.siam.org/sisc/resource/1/sjoce3/v33/i2/p612_s1`.

Brandt:2015:BAM

[BBKL15a] Achi Brandt, James Brannick, Karsten Kahl, and Ira Livshits. Bootstrap algebraic multigrid: status report, open problems, and outlook. *Numerical Mathematics. Theory, Methods and Applications*, 8(1): 112–135, 2015. ISSN 1004-8979 (print), 2079-7338 (electronic).

Brandt:2015:ADA

[BBKL15b] Achi Brandt, James Brannick, Karsten Kahl, and Irene Livshits. Algebraic distance for anisotropic diffusion problems: multilevel results. *Electronic Transactions on Numerical Analysis (ETNA)*, 44:472–496, 2015. ISSN 1068-9613 (print), 1097-4067 (electronic).

Brandt:1983:MAS

[BC83] Achi Brandt and Colin W. Cryer. Multigrid algorithms for the solution of linear complementarity problems arising from free boundary problems. *SIAM J. Sci. Stat. Comput.*, 4(4):655–684, December 1983. CODEN SIJCD4. ISSN 0196-5204.

Brandt:1979:MGS

[BD79] A. Brandt and N. Dinar. Multigrid solutions to elliptic flow problems. In S. Parter, editor, *Numerical Methods for Partial Differential Equations*, pages 53–147 (of ix + 332). Academic Press, New York, NY, USA, 1979. ISBN 0-12-546050-3. LCCN QA374 .A38 1978.

Brandt:1992:MSD

[BD92] A. Brandt and B. Diskin. Multigrid solvers on decomposed domains. In A. Quarteroni, editor, *Proc. Sixth Int. Conf. on Domain Decomposition Methods*, pages ??–?? (of xxii + 484). Amer. Math. Soc., Providence,

RI, USA, 1992. ISBN 0-8218-5158-6. LCCN QA402.2 .I55 1992.

Brandt:1994:MSD

[BD94] Achi Brandt and Boris Diskin. Multigrid solvers on decomposed domains. In *Domain decomposition methods in science and engineering (Como, 1992)*, volume 157 of *Contemp. Math.*, pages 135–155. Amer. Math. Soc., Providence, RI, USA, 1994.

Brandt:1999:FCM

[BD99a] A. Brandt and J. Dym. Fast calculation of multiple line integrals. *SIAM Journal on Scientific Computing*, 20(4):1417–1429, 1999. CODEN SJOCE3. ISSN 1095-7197.

Brandt:1999:MSN

[BD99b] Achi Brandt and Boris Diskin. Multigrid solvers for nonaligned sonic flows. *SIAM Journal on Scientific Computing*, 21(2):473–501, 1999. CODEN SJOCE3. ISSN 1095-7197.

Brandt:1980:MMS

[BDR80] Achi Brandt, J. E. Dendy, Jr., and Hans Ruppel. The multigrid method for semi-implicit hydrodynamics codes. *Journal of Computational Physics*, 34(3): 348–370, March 1, 1980. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL `http://www.sciencedirect.com/science/article/pii/0021999180900947`.

Brandt:1985:ISM

[BFT85] Achi Brandt, Scott R. Fulton, and G. D. Taylor. Improved spectral multigrid methods for periodic elliptic problems. *Journal of Computational Physics*, 58 (1):96–112, March 1985. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL `http://www.sciencedirect.com/science/article/pii/0021999185901597`.

Brandt:1966:MFI

[BG66] A. Brandt and J. Gillis. Magnetohydrodynamic flow in the inlet region of a straight channel. *Phys. of Fluids*, 9:690–699, 1966. CODEN PHFLE6. ISSN 1070-6631.

Brandt:1969:AAH

[BG69] A. Brandt and J. Gillis. Asymptotic approach to Hartmann–Poiseuille flows. *Journal of Computational Physics*, 3(4): 523–538, April 1969. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL `http://www.sciencedirect.com/science/article/pii/0021999169900606`.

Brandt:1991:PMR

[BG91] Achi Brandt and Joseph Greenwald. Parabolic multigrid revisited. In W. Hackbusch and U. Trottenberg, editors, *Multigrid methods, III (Bonn, 1990)*, Internat. Ser. Numer. Math., pages 143–154 (of ix + 394). Birkhäuser Verlag, Basel, 1991.

ISBN 0-8176-2632-8. LCCN QA377.C7628 1991.

Brandt:1996:OMA

[BG96] A. Brandt and M. Galun. Optimal multigrid algorithms for the massive Gaussian model and path integrals. *Journal of Statistical Physics*, 82 (5–6):1503–1518, March 1996. CODEN JSTPSB. ISSN 0022-4715 (print), 1572-9613 (electronic). URL `http://link.springer.com/article/10.1007/BF02183393`.

Brandt:1997:OMA

[BG97] A. Brandt and M. Galun. Optimal multigrid algorithms for variable-coupling isotropic Gaussian models. *Journal of Statistical Physics*, 88 (3–4):637–664, August 1997. CODEN JSTPSB. ISSN 0022-4715 (print), 1572-9613 (electronic). URL `http://link.springer.com/article/10.1023/B%3AJOSS.0000015166.92664.d8`.

Brandt:2003:MAD

[BG03] Achi Brandt and Rima Gandlin. Multigrid for atmospheric data assimilation: analysis. In *Hyperbolic problems: theory, numerics, applications*, pages 369–376. Springer-Verlag, Berlin, Germany / Heidelberg, Germany / London, UK / etc., 2003.

Brandt:1994:OMA

[BGR94] A. Brandt, M. Galun, and D. Ron. Optimal multigrid algorithms for calculating thermodynamic limits. *Journal of Statistical Physics*, 74 (1–2):313–348, January 1994. CODEN JSTPSB. ISSN 0022-4715 (print), 1572-9613 (electronic). URL `http://link.springer.com/article/10.1007/BF02186816`.

Bressler:1971:ITS

[BHD+71] E. Bressler, J. Heller, N. Dinar, I. Ben-Asher, A. Brandt, and D. Goldberg. Infiltration from a tricle source. II. experimental data and theoretical predictions. *Soil Sci. Soc. Amer. Proc.*, 35: 683–689, 1971.

Brandt:1971:APT

[BI71] A. Brandt and Y. Intrator. The assignment problem with three job categories. *Cas. Pest. Mat.*, 96:8–11, 1971. CODEN CPMTA8. ISSN 0008-7394, 0528-2195.

Brandt:1978:FAL

[BI78] A. Brandt and J. Intrator. Fast algorithms for long transportation problems. *Computers and Operations Research*, 5:263–271, 1978. CODEN CMORAP. ISSN 0305-0548 (print), 1873-765X (electronic).

Brandt:2009:DDA

[BIW09] Achi Brandt, Oleg Iliev, and Joerg Willems. A domain decomposition approach for calculating the graph corresponding to a fibrous geometry. In *Domain decomposition methods in science and engineering XVIII*, volume 70 of *Lect. Notes Comput.*

Sci. Eng., pages 3–14. Springer-Verlag, Berlin, Germany / Heidelberg, Germany / London, UK / etc., 2009.

Brandt:2000:MSE

[BIYS00] Achi Brandt, Moshe Israeli, Irad Yavneh, and Andrew Siegel. Multigrid solution of an elliptic boundary-value problem with integral constraints. *SIAM Journal on Scientific Computing*, 21 (4):1357–1369, July 2000. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic). URL `http://epubs.siam.org/sam-bin/dbq/article/33181`.

Brandt:1969:SPT

[BK69] A. Brandt and I. Kelson. Single particle theory of fission. *Phys. Ref.*, 183:1025–1054, 1969.

Brandt:1988:MGR

[BL88] A. Brandt and A. Lanza. Multigrid in general relativity: I. Schwarzschild spacetime. *Class. Quantum Grav.*, 5:713–732, 1988. CODEN CQGRDG. ISSN 0264-9381 (print), 1361-6382 (electronic).

Brandt:1990:MMMa

[BL90a] A. Brandt and A. A. Lubrecht. Multilevel matrix multiplication and fast solution of integral equations. *Journal of Computational Physics*, 87(2):494, April 1990. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL `http://www.sciencedirect.com/science/article/pii/0021999190902642`.

Brandt:1990:MMMb

[BL90b] A. Brandt and A. A. Lubrecht. Multilevel matrix multiplication and fast solution of integral equations. *Journal of Computational Physics*, 90(2): 348–370, October 1990. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL `http://www.sciencedirect.com/science/article/pii/002199919090171V`.

Brandt:1997:WRM

[BL97] A. Brandt and I. Livshits. Wave-ray multigrid method for standing wave equations. *Electronic Transactions on Numerical Analysis (ETNA)*, 6(Dec.): 162–181, 1997. CODEN ???? ISSN 1068-9613 (print), 1097-4067 (electronic). URL `http://etna.mcs.kent.edu/vol.6.1997/pp162-181.dir/pp162-181.pdf`. Special issue on multilevel methods (Copper Mountain, CO, 1997).

Brandt:2011:MTG

[BL11] Achi Brandt and Oren E. Livne. *Multigrid techniques — 1984 guide with applications to fluid dynamics*, volume 67 of *Classics in Applied Mathematics*. SIAM, Philadelphia, PA, USA, 2011. ISBN 1-61197-074-1. xx + 218 pp. Revised edition of the 1984 original [MR0772748].

Bates:1995:GSN

[BLB+95] J. R. Bates, Y. Li, A. Brandt, S. F. McCormick, and J. Ruge.

A global shallow-water numerical model based on the semi-Lagrangian advection of potential vorticity. *Quart. J. Roy. Met. Soc.*, 121(528):1981–??, 1995. Submitted.

Brandt:1995:RIM

[BM95] A. Brandt and V. Mikulinsky. On recombining iterants in multigrid algorithms and problems with small islands. *SIAM Journal on Scientific Computing*, 16(1):20–28, January 1995. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic).

Brandt:19xx:MTP

[BMxx] A. Brandt and V. Mikulinsky. Multigrid treatment of problems with highly oscillating boundary and boundary conditions. *SIAM J. Sci. Stat. Comput.*, ??(??):??, ???? 19xx. CODEN SIJCD4. ISSN 0196-5204. Submitted.

Brandt:1999:FAM

[BMBG99] Achi Brandt, Jordan Mann, Matvei Brodski, and Meirav Galun. A fast and accurate multilevel inversion of the radon transform. *SIAM Journal on Applied Mathematics*, 60 (2):437–462, 1999. CODEN SMJMAP. ISSN 0036-1399 (print), 1095-712X (electronic). URL `http://epubs.siam.org/sam-bin/dbq/article/32425`.

Brandt:2000:FAM

[BMBG00] Achi Brandt, Jordan Mann, Matvei Brodski, and Meirav Galun. A fast and accurate multilevel inversion of the Radon transform. *SIAM Journal on Applied Mathematics*, 60 (2):437–462, 2000. CODEN SMJMAP. ISSN 1095-712X.

Brandt:1982:AMA

[BMR82] A. Brandt, S. McCormick, and J. Ruge. Algebraic multigrid (AMG) for automatic multigrid solution with application to geodetic computations. Technical report, Institute for Computational Studies, Fort Collins, CO, POB 1852, 1982.

Brandt:1983:MMD

[BMR83] A. Brandt, S. McCormick, and J. Ruge. Multigrid methods for differential eigenproblems. *SIAM J. Sci. Stat. Comput.*, 4 (2):244–260, June 1983. CODEN SIJCD4. ISSN 0196-5204.

Brandt:1984:AMA

[BMR84] A. Brandt, S. McCormick, and J. Ruge. Algebraic multigrid (AMG) for sparse matrix equations. In D. J. Evans, editor, *Sparsity and its Applications*, pages 257–284 (of x + 338). Cambridge University Press, Cambridge, UK, 1984. ISBN 0-521-26272-0. LCCN QA188.S58 1985.

Brandt:1984:GTU

[BO84] A. Brandt and D. Ophir. GRIDPACK: Toward unification of general grid programming. In B. Engquist and T. Smedsaas, editors, *PDE Software:*

Modules Interfaces and Systems, pages 269–288 (of ix + 453). North-Holland, Amsterdam, The Netherlands, 1984. ISBN 0-444-87620-0. LCCN QA377 .I44 1983.

Brandt:2001:RMR

[BR01] Achi Brandt and Dorit Ron. Renormalization multigrid (RMG): Statistically optimal renormalization group flow and coarse-to-fine Monte Carlo acceleration. *Journal of Statistical Physics*, 102(1–2):231–257, January 2001. CODEN JSTPSB. ISSN 0022-4715 (print), 1572-9613 (electronic). URL `http://link.springer.com/article/10.1023/A%3A1026520927784`.

Brandt:2003:MSM

[BR03] Achi Brandt and Dorit Ron. Multigrid solvers and multilevel optimization strategies. In *Multilevel optimization in VLSICAD*, volume 14 of *Comb. Optim.*, pages 1–69. Kluwer Acad. Publ., Dordrecht, 2003.

Brandt:1961:GCT

[Bra61] A. Brandt. A generalization of a combinatorial theorem of Sparre Andersen about sums of random variables. *Math. Scand*, 9:325–358, 1961. CODEN MTSCAN. ISSN 0025-5521 (print), 1903-1807 (electronic).

Brandt:1966:EDQ

[Bra66] Achi Brandt. Estimates for difference quotients of solutions of Poisson type difference equations. *Math. Comp.*, 20(96): 473–499, October 1966. CODEN MCMPAF. ISSN 0025-5718 (print), 1088-6842 (electronic).

Brandt:1969:IES

[Bra69a] A. Brandt. Interior estimates for second order elliptic differential (or finite-difference) equations via the maximum principle. *Israel J. Math*, 7:95–121, 1969.

Brandt:1969:ISE

[Bra69b] A. Brandt. Interior schauder estimates for parabolic differential equations via the maximum principle. *Israel J. Math*, 7:254–262, 1969.

Brandt:1973:MLA

[Bra73a] A. Brandt. Multi-level adaptive technique (MLAT) for fast numerical solutions to boundary value problems. In H. Cabannes and R. Temam, editors, *Lecture Notes in Physics 18*, pages 82–89. Proc. 3rd Int. Conf. Numerical Methods in Fluid Mechanics, Springer-Verlag, Berlin, Germany / Heidelberg, Germany / London, UK / etc., 1973. ISBN 0-387-06170-3. LCCN QA901 .I471 1972.

Brandt:1973:GLM

[Bra73b] Achi Brandt. Generalized local maximum principles for finite-difference operators. *Math. Comp.*, 27(124):685–718, October 1973. CODEN MCMPAF. ISSN 0025-5718 (print), 1088-6842 (electronic).

Brandt:1976:MLA

[Bra76] A. Brandt. Multi-level adaptive technique (MLAT). I. the multigrid method. IBM Research Report RC-6026, IBM T. J. Watson Research Center, Yorktown Heights, NY, 1976.

Brandt:1977:MLAb

[Bra77a] A. Brandt. Multi-level adaptive techniques (MLAT) for partial differential equations: ideas and software. In Rice [Ric77], pages 273–314 (of ix + 388). ISBN 0-12-587260-7. LCCN QA297 .M36 1977. URL `https://www.sciencedirect.com/book/9780125872607/mathematical-software`.

Brandt:1977:MLAa

[Bra77b] Achi Brandt. Multi-level adaptive solutions to boundary-value problems. *Math. Comp.*, 31 (138):333–390, April 1977. CODEN MCMPAF. ISSN 0025-5718 (print), 1088-6842 (electronic).

Brandt:1979:MLA

[Bra79] A. Brandt. Multi-level adaptive techniques (MLAT) for singular perturbation problems. In P. W. Hemker and J. J. H. Miller, editors, *Numerical analysis of singular perturbation problems*, pages 53–142 (of xi + 499). Academic Press, New York, NY, USA, 1979. ISBN 0-12-340250-6. LCCN QA371 .N79 1978.

Brandt:1980:MLAb

[Bra80a] A. Brandt. Multi-level adaptive finite-element computations in fluid dynamics. *AIAA Journal*, 18:1165–1172, 1980.

Brandt:1980:MLAa

[Bra80b] A. Brandt. Multi-level adaptive finite elements methods: I. variational problems. In D. Pallaschke J. Frehse and U. Trottenberg, editors, *Special Topics of Applied Mathematics*, pages 91–128 (of viii + 248). North-Holland, Amsterdam, The Netherlands, 1980. ISBN 0-444-86035-5. LCCN QA320 .S62 1979.

Brandt:1980:NSF

[Bra80c] A. Brandt. Numerical stability and fast solutions to boundary value problems. In J. J. H. Miller, editor, *Boundary and Interior Layers - Computational and Asymptotic Methods*, pages 29–49 (of xi + 425). Boole Press, Dublin, Ireland, 1980. ISBN 0-906783-01-1. LCCN QA913 .B68 1980.

Brandt:1981:MGSb

[Bra81a] A. Brandt. Multi-grid solvers for non-elliptic and singular-perturbation steady-state problems. Technical report, Weizmann Institute of Science, 1981.

Brandt:1981:MGSa

[Bra81b] A. Brandt. Multi-grid solvers on parallel computers. In M. Schultz, editor, *Elliptic Problem Solvers*, pages 39–84 (of xiii

+ 444). Academic Press, New York, NY, USA, 1981. ISBN 0-12-632620-7. LCCN QA377 .E53 1980.

Brandt:1982:IRM

[Bra82a] A. Brandt. Introductory remarks on multigrid methods. In K. W. Morton and M. J. Baines, editors, *Numerical Methods for Fluid Dynamics*, pages 127–134 (of xiv + 517). Academic Press, New York, NY, USA, 1982. ISBN 0-12-508360-2. LCCN TA357.N87 1982.

Brandt:1982:MGS

[Bra82b] A. Brandt. Multi-grid solutions to steady-state compressible Navier–Stokes equations. I. In R. Glowinsky and J. L. Lions, editors, *Computing Methods in Applied Sciences and Engineering, V*, pages 407–422 (of x + 668). North-Holland, Amsterdam, The Netherlands, 1982. ISBN 0-444-86450-4. LCCN QA297 .E53 1981.

Brandt:1984:LMLa

[Bra84a] A. Brandt. Local and multi-level parallel processing mill. Technical report, Department of Applied Mathematics, Weizmann Institute, Rehovot, Israel, 1984.

Brandt:1984:LMLb

[Bra84b] A. Brandt. Local and multi-level parallel processing mill. In U. Trottenberg and P. Wypior, editors, *Rechnerarchiteckturen fur die Numerische Simulation auf der Basis Superschneller Losungsverfahren I*, pages 31–40. GMD-Studien 88, 1984.

Brandt:1984:MTG

[Bra84c] A. Brandt. Multigrid techniques: 1984 guide, with applications to fluid dynamics. Gmd studien nr. 85, GMD, GMD-AIW, Postfach 1240, D-5205, St. Augustin 1, Germany, 1984. ISBN 3-88457-081-1. 191 pages.

Brandt:1985:ILS

[Bra85] A. Brandt. Introduction – levels and scales. In D. Paddon and H. Holstein, editors, *Multigrid Methods for Integral and Differential Problems*, pages 1–10 (of xii + 323). Clarendon Press, Oxford, UK, 1985. ISBN 0-19-853606-2. LCCN QA431 .M751 1985. US$36.40.

Brandt:1986:AMT

[Bra86a] A. Brandt. Algebraic multigrid theory: The symmetric case. *Appl. Math. Comp.*, 19:23–56, 1986. Preliminary proceedings of the International Multigrid Conference, April 6–8, 1983, Copper Mountain, CO.

Brandt:1986:MLA

[BRA86b] A. Brandt, D. Ron, and D. J. Amit. Multi-level approaches to discrete-state and stochastic problems. In W. Hackbusch and U. Trottenberg, editors, *Multigrid Methods II*, pages 66–99 (of vi + 335). Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1986. ISBN 0-387-16491-X. LCCN QA3 .L35 v.1228. DM50.00.

Brandt:1987:MLA

[Bra87] A. Brandt. Multi-level approaches to large scale problems. In Gleason [Gle87], pages 1319–1334. ISBN 0-8218-0110-4. LCCN QA1 .I8 1986 v. 1-2. Two volumes.

Brandt:1988:MCR

[Bra88] A. Brandt. Multilevel computations: review and recent developments. In S. F. McCormick, editor, *Multigrid Methods: Theory, Applications and Supercomputing*, pages 35–62 (of xiv + 644). Marcel Dekker, New York, NY, USA, 1988. ISBN 0-8247-7979-7. LCCN QA377 .M9431 1988.

Brandt:1989:RLM

[Bra89] A. Brandt. Rigorous local mode analysis of multigrid. In Mandel et al. [MMD+89], page 438. ISBN 0-89871-248-3. LCCN QA377 .C767 1989. US$39.50.

Brandt:1990:SMI

[Bra90a] A. Brandt. The scope of multiresolution iterative computations. *SIAM News*, 23:8–9, 1990. ISSN 0036-1437.

Brandt:1990:WIR

[Bra90b] A. Brandt. The weizmann institute research in multilevel computation: 1988 report. In J. Mandel et al., editors, *Proc. 4th Copper Mountain Conference on Multigrid Methods*, pages 13–53. SIAM, Philadelphia, PA, USA, 1990. ISBN 0-89871-248-3. LCCN QA377 .C767 1989. US$39.50.

Brandt:1991:MCI

[Bra91] Achi Brandt. Multilevel computations of integral transforms and particle interactions with oscillatory kernels. *Computer Physics Communications*, 65(1–3):24–38, April 2, 1991. CODEN CPHCBZ. ISSN 0010-4655 (print), 1879-2944 (electronic). URL `http://www.sciencedirect.com/science/article/pii/001046559190151A`.

Brandt:1992:MML

[Bra92a] A. Brandt. Multigrid methods in lattice field computations. *Nucl. Phys. B*, 26:137–180, 1992. CODEN NUPBBO. ISSN 0550-3213 (print), 1873-1562 (electronic). Proc. Suppl.

Brandt:1992:MCM

[Bra92b] A. Brandt. Multiscale computational methods: research activities. In T. Chan and Z.-C. Shi, editors, *Proc. 1991 Hang Zhou International Conference on Scientific Computation*, pages 1–7. World Scientific Publishing Co., Singapore, Philadelphia, River Edge, NJ, 1992.

Brandt:1992:MSHb

[Bra92c] A. Brandt. On multigrid solution of high-Reynolds incompressible entering flows. *Journal of Computational Physics*, 99(2):352, April 1992. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL http://www.sciencedirect.com/science/article/pii/0021999192902260.

Brandt:1994:RQA

[Bra94] Achi Brandt. Rigorous quantitative analysis of multigrid, I: Constant coefficients two-level cycle with L_2-norm. *SIAM Journal on Numerical Analysis*, 31(6): 1695–1730, December 1994. CODEN SJNAAM. ISSN 0036-1429 (print), 1095-7170 (electronic).

Brandt:1997:GCR

[Bra97] Achi Brandt. The Gauss Center research in multiscale scientific computation. *Electronic Transactions on Numerical Analysis (ETNA)*, 6(Dec.):1–34, 1997. CODEN ???? ISSN 1068-9613 (print), 1097-4067 (electronic). URL http://etna.mcs.kent.edu/vol.6.1997/pp1-34.dir/pp1-34.pdf. Special issue on multilevel methods (Copper Mountain, CO, 1997).

Brandt:2000:GHA

[Bra00] Achi Brandt. General highly accurate algebraic coarsening. *Electronic Transactions on Numerical Analysis (ETNA)*, 10: 1–20, 2000. CODEN ???? ISSN 1068-9613 (print), 1097-4067 (electronic). URL http://etna.mcs.kent.edu/vol.10.2000/pp1-20.dir/pp1-20.pdf. Multilevel methods (Copper Mountain, CO, 1999).

Brandt:2002:MSC

[Bra02] Achi Brandt. Multiscale scientific computation: review 2001. In *Multiscale and multiresolution methods*, volume 20 of *Lect. Notes Comput. Sci. Eng.*, pages 3–95. Springer-Verlag, Berlin, Germany / Heidelberg, Germany / London, UK / etc., 2002.

Brandt:2005:MSS

[Bra05] A. Brandt. Multiscale solvers and systematic upscaling in computational physics. *Computer Physics Communications*, 169 (1–3):438–441, July 1, 2005. CODEN CPHCBZ. ISSN 0010-4655 (print), 1879-2944 (electronic). URL http://www.sciencedirect.com/science/article/pii/S0010465505001943.

Brandt:2010:PSU

[Bra10] Achi Brandt. Principles of systematic upscaling. In Jacob Fish, editor, *Multiscale methods. Bridging the scales in science and engineering*, pages 193–215. Oxford University Press, Walton Street, Oxford OX2 6DP, UK, 2010. ISBN 0-19-923385-3. LCCN TA335 .M85 2010.

Brandt:1985:MSQ

[BT85] A. Brandt and S. Ta'asan. Multigrid solutions to quasi-elliptic schemes. In E. M. Murman and S. S. Abarbanel, editors, *Progress and Supercomputing in Computational Fluid Dynamics*, pages 235–255 (of ix + 403). Birkhäuser Verlag, Basel, 1985. ISBN 0-8176-3321-9. LCCN QA911 .U21 1984.

Brandt:1986:MMN

[BT86] A. Brandt and S. Ta'asan. Multigrid method for nearly singular and slightly indefinite problems. In W. Hackbusch and U. Trottenberg, editors, *Multigrid Methods II*, pages 100–122 (of vi + 335). Springer-Verlag, Berlin, Heidelberg, New York, Tokyo, 1986. ISBN 0-387-16491-X. LCCN QA3 .L35 v.1228. DM50.00.

Brandt:1998:MEIb

[BV98a] A. Brandt and C. H. Venner. Multilevel evaluation of integral transforms on adaptive grids. In *Multigrid methods V (Stuttgart, 1996)*, volume 3 of *Lect. Notes Comput. Sci. Eng.*, pages 21–44. Springer-Verlag, Berlin, Germany / Heidelberg, Germany / London, UK / etc., 1998.

Brandt:1998:MEI

[BV98b] A. Brandt and C. H. Venner. Multilevel evaluation of integral transforms with asymptotically smooth kernels. *SIAM Journal on Scientific Computing*, 19 (2):468–492, 1998. CODEN SJOCE3. ISSN 1095-7197.

Brandt:1990:IFO

[BY90] A. Brandt and Irad Yavneh. Inadequacy of first-order upwind difference schemes for some recirculating flows. *Journal of Computational Physics*, 89(1):251, July 1990. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL `http://www.sciencedirect.com/science/article/pii/002199919090127M`.

Brandt:1991:ICG

[BY91a] A. Brandt and I. Yavneh. Improved coarse-grid correction for high-Reynolds flows. In Mandel and Carey [MC92], page ?? ISBN ???? LCCN ???? Two volumes.

Brandt:1991:IFO

[BY91b] A. Brandt and I. Yavneh. Inadequacy of first-order upwind difference schemes for some recirculating flows. *Journal of Computational Physics*, 93(1): 128–143, 1991. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic).

Brandt:1992:MSHa

[BY92] A. Brandt and I. Yavneh. On multigrid solution of high-Reynolds incompressible entering flows. *Journal of Computational Physics*, 101(1): 151–164, July 1992. CODEN JCTPAH. ISSN 0021-9991 (print), 1090-2716 (electronic). URL `http://www.sciencedirect.com/science/article/pii/0021999192900495`.

Brandt:1993:AMC

[BY93] A. Brandt and I. Yavneh. Accelerated multigrid convergence and high-Reynolds recirculating flows. *SIAM Journal on Scientific Computing*, 14(3):607–626, 1993. CODEN SJOCE3.

ISSN 1064-8275 (print), 1095-7197 (electronic).

Brandt:1997:MAA

[BZ97] Achi Brandt and Leonid Yu. Zaslavsky. Multiscale algorithm for atmospheric data assimilation. *SIAM Journal on Scientific Computing*, 18(3):949–956, 1997. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic).

Gleason:1987:PIC

[Gle87] Andrew M. Gleason, editor. *Proceedings of the International Congress of Mathematicians, 1986: August 3–11, 1986, Berkeley*. Amer. Math. Soc., Providence, RI, USA, 1987. ISBN 0-8218-0110-4. LCCN QA1 .I8 1986 v. 1-2. Two volumes.

Harmatz:1991:PTM

[HLBA+91] M. Harmatz, P. G. Lauwers, R. Ben-Av, A. Brandt, E. Katznelson, S. Solomon, and K. Wolowesky. Parallel-transported multigrid and its application to the Schwinger model. *Nucl. Phys. B*, 20, 1991. CODEN NUPBBO. ISSN 0550-3213 (print), 1873-1562 (electronic). (Proc. Suppl.).

Kandel:1989:SCS

[KDB89] D. Kandel, E. Domany, and A. Brandt. Simulations without critical slowing down — Ising and 3-state Potts models. *Physical Review B: Condensed Matter and Materials Physics*, 40:330–344, 1989. CODEN PRBMDO. ISSN 1098-0121.

Kandel:1988:SCS

[KDR+88] D. Kandel, E. Domany, D. Ron, A. Brandt, and E. Loh, Jr. Simulations without critical slowing down. *Phys. Rev. Lett.*, 60:1591–1594, 1988. CODEN PRLTAO. ISSN 0031-9007 (print), 1079-7114 (electronic), 1092-0145.

Livne:2002:MEC

[LB02a] Oren E. Livne and Achi Brandt. Multiscale eigenbasis calculations: N eigenfunctions in $O(N \log N)$. In *Multiscale and multiresolution methods*, volume 20 of *Lect. Notes Comput. Sci. Eng.*, pages 347–357. Springer-Verlag, Berlin, Germany / Heidelberg, Germany / London, UK / etc., 2002.

Livne:2002:RSE

[LB02b] Oren E. Livne and Achi Brandt. N roots of the secular equation in $O(N)$ operations. *SIAM Journal on Matrix Analysis and Applications*, 24(2):439–453, 2002. CODEN SJMAEL. ISSN 1095-7162.

Livne:2004:LMA

[LB04] O. E. Livne and A. Brandt. Local mode analysis of multicolor and composite relaxation schemes. *Computers and Mathematics with Applications*, 47(2–3):301–317, January/February 2004. CODEN CMAPDK. ISSN 0898-1221 (print), 1873-7668 (electronic).

Livshits:2006:APW

[LB06] Irene Livshits and Achi Brandt. Accuracy properties of the wave-ray multigrid algorithm for Helmholtz equations. *SIAM Journal on Scientific Computing*, 28(4):1228–1251, 2006. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic).

Livne:2011:MMS

[LB11] Oren E. Livne and Achi E. Brandt. MuT: The Multilevel Sinc Transform. *SIAM Journal on Scientific Computing*, 33 (4):1726–1738, ???? 2011. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic). URL `http://epubs.siam.org/sisc/resource/1/sjoce3/v33/i4/p1726_s1`.

Livne:2012:LAM

[LB12] Oren E. Livne and Achi Brandt. Lean Algebraic Multigrid (LAMG): Fast graph Laplacian linear solver. *SIAM Journal on Scientific Computing*, 34 (4):B499–B522, ???? 2012. CODEN SJOCE3. ISSN 1064-8275 (print), 1095-7197 (electronic).

Mikulinsky:1991:MTF

[MB91] V. Mikulinsky and A. Brandt. Multigrid treatment of free boundary conditions. In W. Hackbusch and U. Trottenberg, editors, *Multigrid methods: special topics and applications, II (Bonn, 1990)*, volume 189, pages 940–949. Gesellsch. Math. Datenverarbeitung, St. Augustin, 1991. GMD-Studien.

Mandel:1992:SIM

[MC92] Jan Mandel and Graham F. Carey, editors. *Special issue on multigrid methods: from the Fifth Copper Mountain Conference on Multigrid Methods, Colorado, April 1991*, volume 9(9–10) of *Communications in applied numerical methods*. John Wiley and Sons, Inc., Chichester, UK, 1992. ISBN ???? LCCN ???? Two volumes.

Mandel:1989:PFC

[MMD+89] J. Mandel, S. F. McCormick, J. E. Dendy, C. Farhat, G. Lonsdale, S. V. Parter, J. W. Ruge, and K. Stüben, editors. *Proceedings of the Fourth Copper Mountain Conference on Multigrid Methods*. SIAM, Philadelphia, PA, USA, 1989. ISBN 0-89871-248-3. LCCN QA377 .C767 1989. US$39.50.

Ruge:1988:MAE

[RB88] J. Ruge and A. Brandt. A multigrid approach for elasticity problems on thin domains. In S. F. McCormick, editor, *Multigrid Methods: Theory, Applications and Supercomputing*, pages 541–555 (of xiv + 644). Marcel Dekker, New York, NY, USA, 1988. ISBN 0-8247-7979-7. LCCN QA377 .M9431 1988.

Ruge:1991:MMA

[RBMM91a] J. Ruge, A. Brandt, J. McWilliams, and R. Milliff. Multigrid methods applied to turbulent flow problems. In W. Hackbusch and

T. Trottenberg, editors, *Multigrid Methods III*, pages 91–103 (of ix + 394). Birkhäuser Verlag, Basel, 1991. ISBN 0-8176-2632-8. LCCN QA377.C7628 1991.

Ruge:1991:MMT

[RBMM91b] John Ruge, Achi Brandt, Jim McWilliams, and Ralph Milliff. Multigrid methods for turbulent flow problems. In *Multigrid methods, III (Bonn, 1990)*, volume 98 of *Internat. Ser. Numer. Math.*, pages 91–103. Birkhäuser Verlag, Basel, 1991.

Rice:1977:MSI

[Ric77] John R. Rice, editor. *Mathematical software III: Proceedings of a symposium conducted by the Mathematics Research Center, the University of Wisconsin–Madison, March 28–30, 1977*, number 39 in Publication of the Mathematics Research Center, the University of Wisconsin, Madison. Academic Press, New York, NY, USA, 1977. ISBN 0-12-587260-7. LCCN QA3 .U45 no. 39; QA297 .M36 1977. URL https://www.sciencedirect.com/book/9780125872607/mathematical-software.

Ruge:2000:NMS

[RLM+00] John W. Ruge, Yong Li, Steve McCormick, Achi Brandt, and J. R. Bates. A nonlinear multigrid solver for a semi-Lagrangian potential vorticity-based shallow-water model on the sphere. *SIAM Journal on Scientific Computing*, 21(6): 2381–2395, 2000. CODEN SJOCE3. ISSN 1095-7197.

Ron:2010:FMA

[RSB10] Dorit Ron, Ilya Safro, and Achi Brandt. A fast multigrid algorithm for energy minimization under planar density constraints. *Multiscale Modeling & Simulation*, 8(5):1599–1620, ???? 2010. CODEN MMSUBT. ISSN 1540-3459 (print), 1540-3467 (electronic). URL http://epubs.siam.org/mms/resource/1/mmsubt/v8/i5/p1599_s1.

Ron:2011:RBC

[RSB11] Dorit Ron, Ilya Safro, and Achi Brandt. Relaxation-based coarsening and multiscale graph organization. *Multiscale Modeling & Simulation*, 9(1):407–423, ???? 2011. CODEN MMSUBT. ISSN 1540-3459 (print), 1540-3467 (electronic). URL http://epubs.siam.org/mms/resource/1/mmsubt/v9/i1/p407_s1.

South:1977:AML

[SB77] J. C. South and A. Brandt. Application of a multi-level grid method to transonic flow calculations. In T. C. Adamson, Jr. and M. F. Platzer, editors, *Transonic flow problems in turbo machinery*, pages 180–207. Hemisphere, Washington, DC, USA, 1977. ISBN 0-89116-069-8. LCCN TJ267 .P66 1976.

Sidilkover:1993:MSS

[SB93] David Sidilkover and Achi Brandt. Multigrid solution to steady-state two-dimensional conservation laws. *SIAM Journal on Numerical Analysis*, 30 (1):249–274, February 1993. CODEN SJNAAM. ISSN 0036-1429 (print), 1095-7170 (electronic).

Schlick:1996:CWM

[SB96] Tamar Schlick and Achi Brandt. Conferences & workshops: A Multigrid Tutorial with Applications to Molecular Dynamics. *IEEE Computational Science & Engineering*, 3(3):78–79, 82, Fall 1996. CODEN ISCEE4. ISSN 1070-9924 (print), 1558-190X (electronic).

Safro:2006:GML

[SRB06a] Ilya Safro, Dorit Ron, and Achi Brandt. Graph minimum linear arrangement by multilevel weighted edge contractions. *Journal of Algorithms*, 60(1):24–41, 2006. CODEN JOALDV. ISSN 0196-6774 (print), 1090-2678 (electronic).

Safro:2006:MAM

[SRB06b] Ilya Safro, Dorit Ron, and Achi Brandt. A multilevel algorithm for the minimum 2-sum problem. *J. Graph Algorithms Appl.*, 10 (2):237–258, 2006. ISSN 1526-1719.

Safro:2008:MAL

[SRB08] Ilya Safro, Dorit Ron, and Achi Brandt. Multilevel algorithms for linear ordering problems. *ACM Journal of Experimental Algorithmics*, 13:20, 2008. ISSN 1084-6654.

Thomas:2003:TME

[TDB03] James L. Thomas, Boris Diskin, and Achi Brandt. Textbook multigrid efficiency for fluid simulations. In *Annual review of fluid mechanics, Vol. 35*, volume 35 of *Annu. Rev. Fluid Mech.*, pages 317–340. Annual Reviews, Palo Alto, CA, 2003.

Thomas:2002:GFA

[TDBS02] James L. Thomas, Boris Diskin, Achi Brandt, and Jerry C. South, Jr. General framework for achieving textbook multigrid efficiency: one-dimensional Euler example. In *Frontiers of computational fluid dynamics, 2002 (Half Moon Bay, CA, 2000)*, pages 61–80. World Sci. Publishing, River Edge, NJ, 2002.

Trottenberg:2001:M

[TOS01] U. Trottenberg, C. W. Oosterlee, and A. Schüller. *Multigrid*. Academic Press, New York, NY, USA, 2001. ISBN 0-12-701070-X. xvi + 631 pp. With contributions by A. Brandt, P. Oswald and K. Stüben.

Yavneh:1998:FMS

[YVB98] Irad Yavneh, Cornelis H. Venner, and Achi Brandt. Fast multigrid solution of the advection problem with closed characteristics. *SIAM Journal on Scientific Computing*, 19(1):111–125, 1998. CODEN SJOCE3.

ISSN 1095-7197. Special issue on iterative methods (Copper Mountain, CO, 1996).

Ye:2012:MNB

[YYD+12] Jian Ye, Igor Yanovsky, Bin Dong, Rima Gandlin, Achi Brandt, and Stanley Osher. Multigrid narrow band surface reconstruction via level set functions. *Lecture Notes in Computer Science*, 7431:61–70, 2012. CODEN LNCSD9. ISSN 0302-9743 (print), 1611-3349 (electronic). URL `http://link.springer.com/chapter/10.1007/978-3-642-33179-4_7/`; `http://link.springer.com/content/pdf/10.1007/978-3-642-33179-4_7`.

Zhu:2010:EMM

[ZSTB10] Yongning Zhu, Eftychios Sifakis, Joseph Teran, and Achi Brandt. An efficient multigrid method for the simulation of high-resolution elastic solids. *ACM Transactions on Graphics*, 29(2):16:1–16:18, March 2010. CODEN ATGRDF. ISSN 0730-0301 (print), 1557-7368 (electronic).