

# Bibliography

- [AL01] N. R. Atluri and G. Li. Finite cloud method: A true meshless technique based on a fixed reproducing kernel approximation. *Int. J. Num. Meth. Engg.*, 50:2373–2410, 2001.
- [ALT91] H. L. Resnikoff A. Latto and E. Tenenbaum. The evaluation of connection coefficients of compactly supported wavelets. *Technical report, AWARE, Inc, One Memorial Drive*, Cambridge, MA 02142-1301, USA, 1991.
- [And98] C. Anderson. A wavelet preconditioner for elliptic partial differential equations. Master’s thesis, Royal Institute of Technology, Sweden, 1998.
- [AWQW92] K. Amaratunga, J. R. Williams, S. Qian, and J. Weiss. Wavelet-Galerkin Solutions for One Dimensional Partial Differential Equations. *Int. J. Num. Meth. Eng.*, 27:2703–2716, November 1992.
- [BB94] M. Brewster and G. Beylkin. A multiresolution strategy for numerical homogenization. *Preprint*, 1994.
- [BCR91] G. Beylkin, R. Coifman, and V. Rohklin. Fast wavelet transforms and numerical algorithms. *comm Pure Appl. Math.*, 44:141–183, 1991.
- [Bey93] G. Beylkin. Wavelets and fast numerical algorithms, in different perspectives on wavelets. *AMS*, pages 89–117, 1993.
- [Bey94] G. Beylkin. On wavelet-based algorithms for solving differential equations. In *J. J. Benedetto and M. W. Frazier, editors, Wavelets-Mathematics and Applications*, chapter 12, pages 449–466., CRC Press, 1994.
- [BEZ94] S. Osher B. Engquist and S. Zhong. Fast wavelet based algorithms for linear evolution equations. *SIAM J. Sci. Comp.*, 15(4:755–775, 1994.

- [BKDC95] R. N. Mahapatra B. K. Das and B. N. Chatterli. Modelling of wavelet transform on multistage interconnection network. *Proceeding of the Australasian Conference on Parallel and Real-Time Systems*, pages pages 134–142, Fremantle, Western Australia, 28-29 September 1995.
- [BKO<sup>+</sup>96] T. Belytschko, Y. Krongauz, D. Organ, M. Flemming, and P. Krysl. Meshless method: An overview and recent developments. *Comput. Methods Appl. Mech. Engg.*, 139:3–47, 1996.
- [BKZ92] J. U. Brackbill, D. B. Kothe, and C. Zemach. A continuum method for modeling surface tension. *J. Comp. Phys.*, 100:355–354, 1992.
- [BMP90] E. Barcey, S. Mallat, and G. Papanicolaou. A wavelet based space time adaptive numerical methods for partial differential equation. *Technical Report, Courant Institute of Mathematical Sciences, Newyork*, 1990.
- [BN96] S. Bertouluzza and G. Naldi. A wavelet collocation method for the numerical solution of partial differential equations. *Appl. Comp. Harmonic Anal.*, 3:1–9, 1996.
- [BQ76] Beauwens and L. Quenon. Existence criteria for partial matrix factorizations in iterative methods. *SIAM J. Numer. Anal.*, 13:615–643, 1976.
- [BS02] S. C. Brenner and L. R. Scoot. The mathematical theory of finite element methods. *Springer-Verlag, New York*, 2002.
- [Cha96] P. Charton. Produits de matrices rapides en bases d’ondelettes: application á la résolution numérique d’équations aux dérivés partielles. *PhD thesis, Université de Paris Nord*, 1996.
- [Cho92] A. Chorin. Numerical solution of the navier-stokes equations. *J. Comput. Phys.*, 100:355–354, 1992.
- [CP96] P. Charton and V. Perrier. A pseudo-wavelet scheme for the two dimensional navier-stokes equations. *Mathematica Aplicada e Computational*, 15(2):139–160, 1996.
- [CR99] S. J. Cummins and M. Rudman. An sph projection method. *J.Comput.Phys.*, 152:584–607, 1999.
- [Dau88] I. Daubechies. Orthonormal bases of compactly supported wavelets. *comprapmth*, 41:909–996, 1988.
- [Dau92] I. Daubechies. *Ten Lectures on Wavelets*. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1992.

## Bibliography

---

- [Dav91] G. David. Wavelets and singular surfaces integrals on curves and surfaces. Number 1465 in *Lecture Notes in Mathematics*, 1991. Springer-Verlag.
- [Dil96] G. A. Dilts. Moving least squares particle hydrodynamics i, consistency and stability. *Hydrodynamics group report, Los Alamos Natinal Laboratory*, 1996.
- [DK98] S. M. Deshpande and P. S. Kulkarni. New developments in kinetics schemes. *Comp. Math. Appl.*, 35:75–93, 1998.
- [DO96] C. A. Durate and J. T. Oden. H-p clouds and h-p meshless methods. *Num. Meth. for PDEs*, pages 1–34, 1996.
- [Dor95] M. Dorobantu. *Wavelet-Based Algorithms for Fast PDE Solvers*. PhD thesis, Royal Institute of Technology, Stockholm, Sweden, September 1995.
- [Eir92] T. Eirola. Sobolev characterization of solutions of dilation equations. *SIAM J. Math. Anal.*, 23(4):1015–1030, 1992.
- [Fra99] M. W. Fraizer. *An Introduction to Wavelets through Linear Algebra*. Springer Verlag, Heibelberg, Germany, 1999.
- [GM77] R. A. Gingold and J. J. Monaghan. Smoothed particle hydrodynamics: theory and application to non-spherical stars. *Mon.Not.Roy.Astron.Soc.Moving least squares particle hydrodynamics I, consistency and stability*, Los Alamos Natinal Laboratory, 1977.
- [GM84] A. Grossman and J. Morlet. Decomposition of hardy functions into square integrable wavelets of constant shape. *SIAM Journal of Mathematical Analysis*, 15:723 – 736, 1984.
- [GRWZ95] R. Glowinski, A. Rieder, R. O. Wells, and X. Zhou. A preconditioned cg-method for wavelet-galerkin discretizations of elliptic problems. *Z. Angew. Math. Mech.*, 75:683–684, 1995.
- [GS01] M. Griebel and Schweitzer. A particle-partition of unity method for the solution of elliptic, parabolic and hyperbolic pdes. *SIAM J. Dci. Comput.*, 166:302–335, 2001.
- [GW01] I. Ginzburg and G. Wittum. Two phase flows on interface refined grids modeled with vof, staggered finite volumes, and spline interpolant. *J. Comp. Phys.*, 166:302–335, 2001.
- [Heg95] M. Hegland. An implementation of multiple and multi-variate fast fourier transforms on vector processors. *SIAM J. Sci. Comp.*, 16(2):271–288, 1995.

## Bibliography

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- [Heg96] M. Hegland. Real and complex fast fourier transforms on the fujitsu vpp500, parallel comp. 22:539–553, 1996.
- [HJKT03] D. Hietel, M. Junk, J. Kuhnert, and S. Tiwari. Meshless methods for conservation laws. *preprint, ITWM*, 2003.
- [HJSS00] D. Hietel, M. Junk, K. Steiner, and J. Struckmeier. A finite volume-particle method for compressible flows. *Math. Models Methods Appl. Sci.*, 10:1363–1382, 2000.
- [HN81] C. W. Hirt and B. D. Nichols. Volume of fluid (vof) method for dynamic of free boundaries. *J. Comput. Phys.*, 39:201, 1981.
- [HW65] F. H. Harlow and J. E. Welch. Numerical study of large amplitude free surface motions. *Physics Fluids*, 8:2182, 1965.
- [HW96] E. Hernández and G. Weiss. A first course on wavelets. *CRC Press*, 1996.
- [IT02] O. Iliev and S. Tiwari. A generalized (meshfree) finite difference discretization for elliptic interface problems”, numerical methods and applications. *Lecture Notes in Computer Sciences*, I. Dimov, I. Lirkov, S. Margenov, Z. Zlatev(Eds), Springer Verlag,, pages 480–489, 2002.
- [Jaf92] S. Jaffard. Wavelet methods for fast resolution of elliptic problems. *SIAM Journal of Numerical Analysis*, 29:965–986, 1992.
- [Jam93] L. Jameson. On the daubechies-based wavelet differentiation matrix. *J. Sci. Comp*, 8(3):267–305, 1993.
- [Jam94] L. Jameson. On the wavelet-optimized finite difference method. *Technical Report NASA CR-191601, ICASE Report*, No. 94-9, 1994.
- [Jam96] L. Jameson. The wavelet-optimized finite difference method. In *G. Erlebacher and M. Y. Hussaini an L. Jameson, editors,, Wavelets. Theory and Applications*, Oxford University Press:chapter 1.5, pages 16–22, 1996.
- [JS93] B. Jawerth and W. Sweldens. Wavelet resolution analysis adapted for the fast solution of boundary value ordinary differential equations. *Proceedings of the sixth Copper Mountain Multigrid Conference*,, 1993.
- [Ker78] D. Kershaw. The incomplete cholesky-conjugate gradient method for the iterative solution of systems of linear equations. *J. Comput. Phys.*, 26:43–65, 1978.

- [KMMG87] R. Kronland-Martinet, J. Morlet, and A. Grossmann. Analysis of sound patterns through wavelet transforms. *International Journal of Pattern Recognition and Artificial Intelligence*, 1:273 – 301, 1987.
- [KP97] F. J. Kelecy and R. H. Pletcher. The development of free surface capturing approach for multi dimensional free surface flows in closed containers. *J. Comp. Physics*, 138:939, 1997.
- [KTU00] J. Kuhnert, A. Tramecon, and P. Ulrich. Advanced air bag fluid structure coupled simulations applied to out-of position cases. *European Conference Proceedings, ESI group*, Paris, France, 2000.
- [Kuh99] J. Kuhnert. General smoothed particle hydrodynamics. *Ph. D. Thesis*, Kaiserslautern University, Germany, 1999.
- [Kuh02] J. Kuhnert. An upwind finite pointset method for compressible euler and navier-stokes equation. *Springer LNCSE: Meshfree methods for partial Differential Equations*, 26:M. Griebel, M.A. Schweitzer(Eds), 2002.
- [Kun94] A. Kunoth. *Multilevel Preconditioning*. PhD thesis, TU, Berlin, 1994.
- [LBG94] Y. Y. Lu, T. Belytschko, and L. Gu. Element free galerkin methods. *Int. J. Num. Methods in Engineering*, 37:229–256, 1994.
- [LDT96] T. Liszka, C. Durate, and W. Tworzydło. H-p meshless cloud method. *J. Comp. Meth. Appl. Mech. Eng.*, 139:263–288, 1996.
- [LER97] F. Berntsson L. Eldén and T. Regińska. Wavelet and fourier methods for solving the sideways heat equation. *Preprint. Department of Mathematics*, Linköping University, 1997.
- [LL] S. Li and W. K. Liu. Meshfree and particle methods and their applications. *Applied Mechanics Review, To Appear*.
- [LL59] L. D. Landau and E. M. Lifshitz. Fluid mechanics. *Pergamon, New york*, 1959.
- [LO80] T. Liszka and J. Orkisz. The finite difference method on arbitrary irregular grid and its application in applied mechanics. *Computers and Structures*, 11:83–95, 1980.
- [LS95] R. Lang and A. Spray. The 2d wavelet transform on a massively parallel machine. *Proceedings of the Australian Conference on Parallel and Real-Time Systems*, 325–332:Freemantle, Western Australia, 28–29 September 1995.

## Bibliography

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- [LT90] A. Latto and E. Tenenbaum. Compactly supported wavelets and the numerical solution of burger's equation. *C. R. Acad. Sci. Paris, t.311, Série I*, pages 903–909, 1990.
- [Lu93] J. Lu. Parallelizing mallat algorithm for 2-d wavelet transforms. *Inf. Proc. Letters*, 45:225–229, 1993.
- [Luc77] L. B. Lucy. A numerical approach to the testing of the fission hypothesis. *Astron. J.*, 82:1013, 1977.
- [MAFG82] J. Morlet, G. Arens, E. Fourgeau, and D. Giard. Wave propagation and sampling theory. *Geophysics*, 47:222 – 236, 1982.
- [Mal89a] S. G. Mallat. Multi-frequency channel decompositions of images and wavelet models. *IEEE Trans. Acoustic Signal Speech Process*, 37:2091 – 2110, 1989.
- [Mal89b] S. G. Mallat. Multiresolution approximations and wavelet orthonormal bases of  $L^2(R)$ . *amstrans*, 315(1):69–87, September 1989.
- [Mal91] S. G. Mallat. Zero-crossings of a wavelet transform. *ieeefth*, 37(4):1019–1033, July 1991.
- [Man80] T. Manteuffel. An incomplete factorization technique for positive definite linear systems. *Mathematics of Computation*, 34:473–497, 1980.
- [MB97] J. M. Melenk and I. Babushka. The partition of unity method. *International Journal of Numerical methods in Engineering*, 40:727–75, 1997.
- [Mey92] Y. Meyer. *Wavelets and Operators*. Cambridge University Press, 1992.
- [Mey93] Y. Meyer. *Wavelets: Algorithms and Applications*. Society for Industrial and Applied Mathematics, Philadelphia, PA, USA, 1993.
- [MFZ97] J. P. Morris, P. J. Fox, and Y. Zhu. Modelling low reynolds number incompressible flows using sph. *J. Comput. Phys.*, 136:214–226, 1997.
- [MG83] J. J. Monaghan and R. A. Gingold. Shock simulation by particle method sph. *J. Comp. Phys.*, 52:374–389, 1983.
- [Mon92] J. J. Monaghan. Smoothed particle hydrodynamics. *Annu. Rev. Astron. Astrop.*, 30:543–574, 1992.
- [Mon94] J. J. Monaghan. Simulating free surface flows with sph. *J. Comput. Phys.*, 110:399, 1994.

- [Mor83] J. Morlet. Sampling theory and wave propagation. In *In NATO ASI Series, Issues on Accoustic signal/ Image Processing and Recognition*, volume 1, Spriger Verlag, Berlin, 1983.
- [Mor00] J. P. Morris. Simulating surface tension with smoothed particle hydrodynamics. *Int. J. Numer. Methods Fluids*, 33:333–353, 2000.
- [MPR99] V. Maronnier, M. Picasso, and J. Rappaz. Numerical simulation of free surface flows. *J. Comp. Physics*, 155:439, 1999.
- [New93] D. E. Newland. Random vibrations, spectral & wavelet analysis. *Longman Scientific & Technical*, 1993.
- [NH97] O. M. Nielsen and M. Hegland. A scalable parallel 2d wavelet transform algorithm. *ANU Computer Science Technical Reports TR-CS-97-21*, Submitted to Parallel Computing, Australian National University, 1997.
- [Nie98] O. M. Nielsen. *Wavelets in Scientific Computing*. PhD thesis, Technical University of Denmark, March 1998.
- [PB91] V. Perrier and C. Basdevant. Travelling wavelet method. *Proc. of the US-French 'Wavelets and Turbulence*, Workshop. Princeton, 1991.
- [PPU02] D. P. Patel, I. Pendharkar, and K. N. Uprety. Heat generation in slider bearing. *UN-ESCO Regional Instructional Workshop on Industrial Mathematics, IIT, Mumbai*, December 2002.
- [PS] D. Patel and S. Somani. On wavelet coefficients in multiresolution analysis space. *Indian Journal of Pure and Applied Mathematics (Communicated)*.
- [PS03] D. Patel and S. Somani. Mathematical models for pressure distribution in slider bearing lubricated with viscous fluid. 26th - 29th December 2003.
- [PS04] D. Patel and S. Somani. Error estimates for wavelet-galerkin solution of boundary value problem. *Bulletin of Pure and Applied Sciences*, 23 E, No. 1, New Delhi 2004.
- [PS06] D. Patel and S. Somani. Numerical simulation of cooling of coke in can. *Applied Science Periodical*, Vol. VIII, No. 2, May 2006.
- [PW76] W. Proskusowski and O. Widlund. On the numerical solution of helmholtz's equation by capacitance matrix method. *Math. Comp.*, 30(135):433–468, 1976.

- [PW96] I. Pierce and L. Watkins. Modelling optical pulse propagation in nonlinear media using wavelets. *University of Wales, Bangor, UK*, Technical report, School of Electronic Engineering and Computer Systems, 1996.
- [PY01] S. H. Park and S. K. Youn. The least squares meshfree method. *Int. J. Num. Meth. Eng.*, 52:997–1012, 2001.
- [QW93] S. Qian and J. Weiss. Wavelets and the numerical solution of partial differential equations. *Journal of Computational Physics*, 106(1):155–175, 1993.
- [RE97] T. Regińska and L. Eldén. Solving the sideways heat equation by a wavelet-galerkin method. *Inv. Prob.*, 13:1093–1106, 1997.
- [RGT90] M. Ravachol R. Glowinski, W. Lawton and E. Tenenbaum. Wavelet solution of linear and non-linear elliptic, parabolic, and hyperbolic problems in one space dimension. In *Proce. 9th International Conference on Numerical Methods in Applied Science and Engineering*, SIAM, Philadelphia 1990.
- [Saa00] Y. Saad. Iterative methods for sparse linear linear systems. 2000.
- [SN96] G. Strang and T. Nguyen. Wavelets and filter banks. Wellesley-Cambridge Press, 1996.
- [Sod78] G. A. Sod. A survey of several finite difference methods for systems of nonlinear hyperbolic conservation laws. *J. Comp. Phys.*, 27:1–31, 1978.
- [Soma] S. Somani. Wavelet-galerkin solution of hyperbolic problems with preconditioning. *Bulletin of Calcutta Mathematical Society (Communicated)*.
- [Somb] S. Somani. Wavelet-galerkin solution of parabolic problems with preconditioning. *Indian Journal of Pure and Applied Mathematics (Communicated)*.
- [Somec] S. Somani. Wavelet transform solution of dirichlet boundary value problem. *Nepal Mathematical Sciences (Communicated)*.
- [Som04a] S. Somani. Numerical simulation of burger’s equation using daubechies wavelets. 4th - 6th December 2004.
- [Som04b] S. Somani. Preconditioners and the finite pointset discretizations of elliptic problems arise in fluid models. 26th - 29th December 2004.
- [Som04c] S. Somani. Weight functions and finite pointset method for one dimensional problem. 10th - 13th December 2004.



- [Som05a] S. Somani. Finite pointset method and neighboring algorithms for the elliptic problems modeled from flow problems. 19th February 2005.
- [Som05b] S. Somani. A wavelet preconditioner for two-dimensional elliptic problem. 4th - 7th April 2005.
- [Str89] G. Strang. Wavelets and dilation equations: A brief introduction. *siamrev*, 31(4):614–627, December 1989.
- [Str96] G. Strang. Creating and comparing wavelets. *Available from the author (gs@math.mit.edu)*, 1996.
- [Tiw00] S. Tiwari. A lsq-sph approach for compressible viscous flows. *International series of numerical mathematics*, Vol.141, H. Freituehler, G. Warnecke(Eds), Birkhaueser, 2000.
- [TJ02] S. Tiwari and J. Kuhnert J. A mesh free method for incompressible fluid flows with incorporated surface tension. *revue auope'enne des elements finis*, Volume 11-n 7-8,(Mesh free and particle Based approaches in computational Mechanis), 2002.
- [TK] S. Tiwari and J. Kuhnert. A numerical scheme for solving incompressiblke and low mach number flows by finite pointset method. *To appear*.
- [TK01] S. Tiwari and J. Kuhnert. Grid free method for solving poisson equation. *preprint, Berichte des Fraunhofer ITWM, Kaiserslautern, Germany,, 25*, 2001.
- [TK02] S. Tiwari and J. Kuhnert. Finite pointset method based on the projection method for simulations of the incompressible navier-stokes equations. *springer LNCSE: Meshfree methods for partial Differential Equations*, Vol. 26, M. Gribel, M.A. Schweitzer(Eds), 2002.
- [TK03] S. Tiwari and J. Kuhnert. Particle method for simulations of free surface flows, hyperbolic problems: Theory, numerics, application. *Proceedings of the Ninth International conference on Hyperbolic Problems, T.Y.Hou and E. Tadmor(EDs)*, Springer Verlag 2003.
- [TM03] S. Tiwari and S. Manservisi. Modelling incompressible navier-stokes flows by lsq-sph. *Nepal Mathematical Sciences Report*, Vol 20 No 1 & 2, 2003.
- [VB00] O. V. Vasilyev and C. Bowman. Second-generation wavelet collocation method for the solution of partial differential equations. *Journal of Computational Physics*, 165:660–693, 2000.

- [Vor81] H. Van Der Vorst. Iterative solution methods for certain sparse linear systems with a non-symmetric matrix arising from pde-problems. *J. Comp. Phys.*, 44:1–91, 1981.
- [Wal96] J. Waldén. Wavelet solvers for hyperbolic pdes. *PhD thesis, Department of Scientific Computing*, Uppsala University 1996.
- [WDU96] A. Kuno W. Dahmen and K. Urban. A wavelet galerkin method for the stokes equations. *Computing*, 56:259–301, 1996.
- [Wei] J. Weiss. Wavelets and the study of two dimensional turbulence.
- [WZ94] L. Watkins and Y. R. Zhou. Modelling propagation in optical fibers using wavelets. *J. Lightwave Tech*, 12(9):1536–1542, 1994.
- [ZLJ95] Y. F. Zhang, W. K. Liu, and N. Ju. Reproducing kernel particle method. *Int. J. Num.Meth. in Fluids*, 20:1081–1106, 1995.