

Publications of 2007:

Monographs and printed lecture notes:

1.Y. Yuan(袁亚湘): Stepsizes for the Gradient Method ,(美国数学会出版)

Papers published in research journals:

1.Zhong-Zhi Bai(白中治), Gene H. Golub, and Michael K. Ng: On successive-overrelaxation acceleration of the Hermitian and skew-Hermitian splitting iterations, Numerical Linear Algebra With Applications, 14:4(2007),319-335 . (SCI)

2.Zhong-Zhi Bai(白中治), Yu-Mei Huang, Huang, and Michael K. Ng: On preconditioned iterative methods for Burgers equations, SIAM Journal on Scientific Computing, 29:1(2007), 415-439, 2007.(SCI)

3.Zhong-Zhi Bai(白中治) and Heng-Bin An: A globally convergent Newton-GMRES method for large sparse systems of nonlinear equations, Applied Numerical Mathematics, 57:3(2007) ,235-252.(SCI)

4.Zhong-Zhi Bai(白中治) and Gene H. Golub: Accelerated Hermitian and skew-Hermitian splitting iteration methods for saddle-point problems, IMA Journal of Numerical Analysis, 27:1(2007) 1-23.(SCI)

5.Zhong-Zhi Bai(白中治), Gene H. Golub, and Chi-Kwong Li: Convergence properties of preconditioned Hermitian and skew-Hermitian splitting methods for non-Hermitian positive semidefinite matrices, Mathematics of Computation, 76:257(2007), 287 – 298.(SCI)

6.Zhong-Zhi Bai (白中治) and Yong-Hua Gao: Modified Bernoulli iteration methods for quadratic matrix equation, Journal of Computational Mathematics, 25:5(2007),498-511.(SCI)

7.Yu X.G. and Cui J.Z(崔俊芝): The prediction on mechanical properties of 4-step braided composites via two-scale method. Journal of Composites Science & Technology, 67 (2007), 471-480.

8.Wenming He and Junzhi Cui (崔俊芝): A Finite Element Method for Elliptic Problems with Rapidly Oscillating Coefficients, BIT Numerical Mathematics, 47:1 (2007). (SCI)

9.Wenming He and Junzhi Cui(崔俊芝): A Local Error Estimate for The Method of Multiscale Asymptotic Expansions for Elliptic Problem with Rapidly Oscillating Coefficients , J. Math. Anal. Appl., 329 (2007) , 547-556. (SCI)

10.Wenming He and Junzhi Cui(崔俊芝): A New Approximate Method for Second Order Elliptic Problems with Rapidly Oscillating Coefficients Based on The Method of Multiscale Asymptotic Expansions, Journal of Mathematical Analysis and Applications. (SCI)

11.W.Allegretto, L.Q.Cao(曹礼群) , and Y.P.Lin: Multiscale asymptotic expansion for second order parabolic equations with rapidly oscillating coefficients, Discrete and Continuous Dynamical Systems, Ser.A, 20:3(2007), 543-576. (SCI)

12.L.Q.Cao(曹礼群) and J.L.Luo: Multiscale numerical algorithm for the elliptic eigenvalue problem with the mixed boundary in perforated domains, Applied Numerical Mathematics, 57: 12(2007),1201-1226. (SCI)

13.Zhiming Chen (陈志明) , Long Wang and Weiyang Zheng (郑伟英): An adaptive adaptive multilevel method for time-harmonic Maxwell equations with singularity, SIAM J. Sci. Comput. 29 (2007),118-138. (SCI)

14.Y.Q. Hu and Y.H.Dai (戴彧红): Inexact Barzilai-Borwein method for saddle point problems, Numerical Linear Algebra with Applications, 14 (2007), 299-317. (SCI)

- 15.J. Hong(洪佳林), X.Liu, and C. Li: Multi-symplectic Runge – Kutta – Nyström methods for nonlinear Schrödinger equations with variable coefficients, *J. Comput. Phys.* 226 (2007), 1968-1984. (SCI, EI)
- 16.J. Hong (洪佳林), S. Jiang, C. Li, and H. Liu: Explicit multi-symplectic methods for Hamiltonian wave equations, *Commun. Comput. Phys.* 2 (2007), 662-683. (SCI, EI)
- 17.J. Hong (洪佳林), S. Jiang, L. Kong, and C. Li: Numerical comparison of five difference scheme for coupled Klein-Gordon-Schrödinger equations in quantum physics, *J. Phys. A.* 40 (2007), 9125-9136. (SCI, EI)
- 18.J. Hong (洪佳林), R. Scherer, and L. Wang: Predictor-corrector methods for a linear stochastic oscillator with additive noise, *Math. Comput. Modeling* 46 (2007), 738-764. (SCI, EI)
- 19.F. Cong, J. Hong (洪佳林), and Y. Han: Near-invariant tori on exponentially long time for Poisson systems, *J. Math. Anal. Appl.* 334 (2007),59-68. (SCI, EI)
- 20.Y. Han and J. Hong (洪佳林): Existence of ϵ -bounded solutions for linear difference equations, *Appl. Math. Lett.* 20 (2007), 301-305. (SCI, EI)
- 21.Y. Han and J. Hong (洪佳林): Almost periodic random sequence in probability, *J. Math. Anal. Appl.* 336 (2007), 962-974. (SCI, EI).
- 22.Qiya Hu(胡齐芽): A Regularized Domain Decomposition Method with Lagrange Multiplier, *Advances in Computational Mathematics*, 4(2007) , 367-401 (SCI)
- 23.Qiya Hu(胡齐芽): Hermann Brunner and Qiya Hu, Optimal superconvergence results for delay Volterra integro-differential equations of pantograph type. *SIAM J. Numer. Anal.*, 45:3(2007), 986-1004. (SCI)
- 24.Qun Lin(林 群) and Jiaquan Liu: Counterexamples to the asymptotic expansion of interpolation in finite elements, *Adv. Comp. Math.*, 27(2007), 167-177. (SCI).
- 25.Qun Lin(林 群) and Junming Zhou: Superconvergence in high-order Galerkin finite element methods, *Computer Methods in Applied Mechanics and Engineering*, 196(2007), 3779-3784. (SCI).
- 26.Qun Lin(林 群) and Jiafu Lin: Extrapolation of the bilinear element approximation for the Poisson equation on anisotropic meshes, *Numerical Methods for PDE*, DOI 10.1002/num.20202. (SCI).
- 27.Hung-Tsai Huang, Zi-Cai Li, and Qun Lin(林 群): New expansions of numerical eigenvalues by finite elements, *Journal of Computational and Applied Mathematics*, DOI: 10.1016/j.cam.2007.06.011. (SCI).
- 28.Qun Lin(林 群) and Jiafu Lin: Superconvergence on anisotropic meshes, *International Journal of Information and Systems Sciences*, 3:2 (2007), 261-266.
- 29.G. Fairweather, Qun Lin(林 群), Y Lin, J Wang, and S Zhang: Asymptotic expansions and Richardson extrapolation of approximate solutions for second order elliptic problems on rectangular domain by mixed finite element methods, *SIAM J. Numer. Anal.* 44: 3 (2007), 1122-1149. (SCI)
- 30.W. E and P. B. Ming(明平兵): Cauchy-Born rule and the stability of crystalline solids: static problems, *Arch. Ration. Mech. Anal.*, 183(2007), 241 - 297.(SCI)
- 31.W. E and P. B. Ming(明平兵): Cauchy-Born rule and the stability of crystalline solids: dynamic problems, *Acta Math. Appl. Sin. Engl. Ser.*, 23(2007), 529 -550.
- 32.P. B. Ming(明平兵) and P. W. Zhang: Analysis of the heterogeneous multiscale method for parabolic homogenization problems, *Math. Comp.*, 76(2007), 153 - 177.(SCI)
- 33.F. Liu, P. B. Ming (明平兵), and J. Li: Ab initio calculation of ideal strength and phonon instability of graphene in tension, *Phy. Rev. B*, 76(2007), 64-120. (SCI)
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- 36.H.J. Liu, J.L. Fu and Y.F. Tang(唐贻发): A Series of Non-Noether Conservative Quantities and Mei Symmetries of Nonconservative Systems, *Chin. Phys.*, 16:3(2007), 599-604. (SCI)
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- 38.Q.D. Feng, Y.D. Jiao, and Y.F. Tang(唐贻发): Conjugate Symplecticity of 2nd-Order Linear Multi-Step Methods, *J. Comput. Appl. Math.*, 203:1(2007), 6-14. (SCI)
- 39.Y.D. Jiao, G.D. Dai, Q.D. Feng, and Y.F. Tang(唐贻发): Non-existence of Conjugate-Symplectic Multi-Step Methods of Odd Order, *J. Comput. Math.*, 25:6(2007), 690-696. (SCI)
- 40.Yingguang Shi and Guoliang Xu(徐国良): Construction of σ -orthogonal Polynomials and Gaussian Quadrature Formulas, *Advances in Computational Mathematics*, 27:1 (2007), 79-94. (SCI)
- 41.Guoliang Xu(徐国良), Zhang Qin, and Liu Dan: Smooth Surface Reconstruction from Moisy Scattered Data--- Variational Level Set Methods. *Journal of Computer-Aided Design & Computer Graphics*, 19:7(2007), 840-848. (SCI)
- 42.Dan Liu and Guoliang Xu(徐国良): A General Sixth Order Geometric Partial Differential Equation and Its Application in Surface Modeling. *Journal of Information & Computational Science*, 4:1(2007), 129-140. (EI)
- 43.Guoliang Xu(徐国良): Qin Zhang, G^2 Surface Modeling by Minimal Mean-Curvature-Variation Flow. *Computer Aided Design*, 39(2007),342-351. (SCI)
44. . Dan Liu and Guoliang Xu(徐国良): Angle Deficit Approximation of Gaussian Curvature and Its Convergence over Quadrilateral Meshes, *Computer Aided Design*, 39:6(2007), 506-517. (SCI)
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- 46.Z.C. Shi(石钟慈), X.J. Xu(许学军), and Y.Q. Huang: Economical Cascadic Multigrid Methods, *Science in China , Series A*, 50:12 (2007), 1755-1770.(SCI)
- 47.C.L. Li, C.M. Chen and X.J. Xu(许学军): 基于超收敛和外推方法的一类新的瀑布多重网格方法论 , 29:4 (2007), 439-448.
- 48.Zhang Sheng and Yu Dehao(余德浩): Multigrid algorithm for the coupling system of natural boundary element method and finite element method for unbounded domain problems, *J. Comput. Math.*, 25:1(2007), 13-26. (SCI , EI)
- 49.Liu Yang, Hu Qiya, and Yu Dehao(余德浩): A Non-overlapping Domain Decomposition for Low-frequency Time-harmonic Maxwell's Equations in Unbounded Domains, *Advances in Computational Mathematics*, (online first), 2007. (SCI)
- 50.Li Yuan (袁 礼) and Tao Tang: Resolving the shock-induced combustion by an adaptive mesh redistribution method, *Journal of Computational Physics*, 224:2 (2007), 587-600. (SCI , EI)
- 51.Y. Lu and Y. Yuan(袁亚湘): An interior-point trust-region algorithm for general symmetric cone programming , *SIAM J. Optim.* 18(2007) 65-86. (SCI)
- 52.C. Jin and A. Zhou (周爱辉): A posteriori error estimates for Markov approximations of Frobenius-Perron operators, *Nonlin. Anal.*, 67(2007), 763-772. (SCI).
- 53.F. Liu and A. Zhou (周爱辉): Two-scale Boolean Galerkin discretizations for Fredholm integral equations of the second kind, *SIAM J. Numer. Anal.*, 45(2007), 296-312. (SCI).
- 54.A. Zhou (周爱辉): Finite dimensional approximations for the electronic ground state solution of a molecular system, *Math. Methods Appl.* , 30(2007), 429-447. (SCI).

55.J. Ding and A. Zhou (周爱辉): Eigenvalues of rank-one updated matrices with some applications, Appl. Math. Letter., 20 (2007), 1223-1226 (SCI).

56.F. Liu and A. Zhou (周爱辉): Localizations and parallelizations for two-scale finite element discretizations, Comm. Pure Appl. Anal., 6(2007), 757-773(SCI).

57. Liu Dongjie and Yu Dehao (???): The coupling method of natural boundary element and finite element for KPZ equation in unbounded domains, J. Univ. of Sci. and Tech. of China, 37:11, 2007, 1363-1368.

Papers published in proceedings of symposia and conferences :

1.Z. Cui(崔俊芝), X. G. Yu, Y. Yu and F. Han: The Statistical Two-Scale Method for Strength Prediction of Composite Materials with Random Distribution and Its Application, 'Computational Mechanics' Proceedings of ISCM 2007 Edited by Z.H.Yao and M.W. Yuan, July 30-August 1, TSINGHUA University and Springer, PP:60-79, Semi-plenary lecture at ISCM-07, Jul.30-Aug. 1, Beijing, China.

2.Wan J.J. and Cui J.Z(崔俊芝): Two-scale analysis for dynamic coupled thermo-elasticity problems of periodic composite materials, International Workshop: Advancements in Design Optimization of Materials Structures and Mechanical Systems, 17-20 Dec., 2007, Xi'an, China, Northwestern Polytechnic University and University De Liege, PP262-273.

3.Huang Hongying and Yu Dehao(余德浩): Coupling of natural BEM and FEM for 3d nonlinear interface problem, Proc. Of ICCES '07, Tech Science Press, 2007.

4.C. Bajaj and Guoliang Xu(徐国良): Qin Zhang, Smooth Surface Construction via a Higher-Order Level-Set Method, Proceedings of 2007 10Th IEEE International Conference on Computer Aided Design and Computer Graphics, Oct. 15-18, Beijing China.

5.Qin Zhang and Guoliang Xu(徐国良): A General Sixth Order Geometric Flow and Its Applications in Surface Processing, Proceedings of 2007 International Conference on Cyberworlds, 2007, Oct. 24-27, Hannover, pages, 447—456, IEE

6.Huang Hongying and Yu Dehao(余德浩): Coupling of natural BEM and FEM for 3d nonlinear interface problem, Proc. Of ICCES '07, Tech Science Press, 2007.

7.Y. Yuan(袁亚湘): Subspace techniques for nonlinear optimization, In: Jeltsch, Li and Sloan Eds. CAM 8, 2007 pp.206-218

8.T. Raham and X.J. Xu(许学军): A New Variant of the Mortar Technique for the Crouzeix-Raviart Finite Element, Lecture Notes in Comput. Sci. Engrg., 55 (2007), 465-475.(SCI)