

CURRICULUM VITAE

Zhiming Chen, Professor
Institute of Computational Mathematics
Academy of Mathematics and System Sciences
Chinese Academy of Sciences (CAS)
Beijing 100190, China

Research Interests

- Numerical analysis and scientific computing (Finite element methods; adaptivity and a posteriori error analysis; nonlinear PDEs; numerical homogenization)
- Applications: phase transitions (shape memory alloys, superconductivity); free boundary problems; electromagnetic waves; multiscale phenomena; seismic imaging.

Education

Bachelor's Degree of Sciences, Nanjing University, Nanjing (China), July 1986
Master's Degree of Sciences, Institute of Mathematics, Academia Sinica, Beijing (China), July 1989
PhD in Mathematics, University of Augsburg, Augsburg (Germany), February 1992

Professional experience

Institute of Computational Mathematics, CAS, Beijing (China), Full Professor, March 2000-present
Institute of Mathematics, Academia Sinica, Beijing (China), Full Professor, October 1997-February 2000
Institute of Mathematics, Academia Sinica, Beijing (China), Associate Professor, June 1995-September 1997
Institute of Mathematics, Academia Sinica, Beijing (China), Assistant Professor, June 1994-May 1995
Munich University of Technology, Munich (Germany), Scientific Research Fellow, March 1992-May 1994

Visiting positions

- Institute for Mathematics and its Applications: Program on "Mathematics of Materials and Macromolecules: Multiple Scales, Disorder, and Singularities", University of Minnesota, Minneapolis (US), November 1 - 30, 2004
- Isaac Newton Institute for Mathematical Sciences: Program on Computational Challenges in Partial Differential Equation, Cambridge (UK), March 30 - May 10, 2003
- California Institute of Technology, Pasadena (USA), March 1999-February 2000
- Hong Kong University of Science and Technology, Hong Kong, May-June 1998
- University of Maryland, College Park (USA), February 1998
- Chinese University of Hong Kong, Hong Kong, November 1996-January 1997
- Munich University of Technology, Munich (Germany), June-July 1996
- Chinese University of Hong Kong, Hong Kong, May 1996
- The Hong Kong Polytechnic University, Hong Kong, March-April 1996

Prizes and honors

- K.C.Wong Science Research Prize, Chinese Academy of Sciences (1994)
- Hundred Talent Project, Chinese Academy of Sciences (1999)
- NSFC Outstanding Young Scientist Grant (2000)
- Feng Kang Prize on Scientific Computing (2001)
- Invited Speaker, International Congress of Mathematicians, Madrid, Spain (2006)
- The Second National Natural Science Prize (2009)
- Shiing S. Chern Mathematics Award (2015)
- Elected Member, Chinese Academy of Sciences (2017)

Publications

A. ARTICLES PUBLISHED OR ACCEPTED FOR PUBLICATION IN RESEARCH JOURNALS

1. *A full-discretization moving FEM with optimal convergence rate*, with G.P. Liang, Chinese J. Num. Math. & Appl. 12 (1990), 91-111
2. *An error estimate for a finite element scheme for a phase field model*, with K.-H. Hoffmann, IMA J. Numer. Anal. 14 (1994), 243-255
3. *Optimal boundary controls for a phase field model*, IMA J. Math. Contr. Inform. 10 (1993), 157-176
4. *On a non-stationary Ginzburg-Landau superconductivity model*, with K.-H. Hoffmann and J. Liang, Math. Methods in Appl. Sci. 16 (1993), 855-875
5. *On a one-dimensional nonlinear thermoviscoelastic model for structural phase transitions in shape memory alloys*, with K.-H. Hoffmann, J. Diff. Equations 112 (1994), 325-350
6. *Asymptotic behaviors of Landau-Devonshire-Ginzburg model for structural phase transitions in shape memory alloys*, with K.-H. Hoffmann, Adv. Math. Sci. Appl. 4 (1994), 209-226
7. *Numerical Studies of a non-stationary Ginzburg-Landau model for superconductivity*, with K.-H. Hoffmann, Adv. Math. Sci. Appl. 5 (1995), 363-389
8. *Optimal control of dynamical Ginzburg-Landau vortices in Superconductivity*, with K.-H. Hoffmann, Numer. Funct. Anal. Optimiz. 17 (1996), 241-258
9. *Modelling and numerical solutions of a gauge periodic time dependent Ginzburg-Landau model for type-II superconductors*, J. Comput. Math. 15 (1997) 365-384
10. *Mixed finite element methods for a dynamical Ginzburg-Landau model in superconductivity*, Numer. Math. 76 (1997), 323-353
11. *On the Lawrence-Doniach model for layered superconductors*, with K.-H. Hoffmann and L. Jiang, Euro. J. Appl. Math. 8 (1997), 369-387
12. *Global classical solutions to a non-isothermal dynamical Ginzburg-Landau model in superconductivity*, with K.-H. Hoffmann, Numer. Funct. Anal. Optimiz. 18 (1997), 901-920
13. *Justification of a two-dimensional evolutionary Ginzburg-Landau superconductivity model*, with C.M. Elliott and Q. Tang, RAIRO Math. Model. Numer. Anal. 32 (1998), 25-50

14. *Finite element methods and their convergence for elliptic and parabolic interface problems*, with J. Zou, Numer. Math. 79 (1998), 175-202
15. *Approximation of a two-phase continuous casting Stefan problems*, with L. Jiang, J. Partial Differential Equations 11 (1998), 59-72
16. *Numerical solutions of an optimal control problem governed by a Ginzburg-Landau model in superconductivity*, with K.-H. Hoffmann, Numer. Funct. Anal. Optimiz. 19 (1998), 737-758
17. *An augmented Lagrangian method for identifying discontinuous parameters in elliptic systems*, with J. Zou, SIAM J. Control and Optimization 37 (1999), 892-910
18. *Residual type a posteriori error estimates for elliptic obstacle problems*, with R.H. Nochetto, Numer. Math. 84 (2000), 524-548
19. *Numerical methods for Stefan problems with prescribed convection and nonlinear flux*, with T.M. Shih and Y.X. Yue, IMA J. Numer. Anal. 20 (2000), 81-98
20. *An adaptive finite element method with error control for the continuous casting problem*, with R.H. Nochetto and A. Schmidt, Computer Meth. Appl. Mech. Engrg. 189 (2000), 249-276
21. *Finite element methods with matching and non-matching meshes for Maxwell equations with discontinuous coefficients*, with Q. Du and J. Zou, SIAM J. Numer. Anal. 37 (2000), 1524-1570
22. *An upwinding finite element method for a mean field model for superconducting vortices*, with Q. Du, Math. Model. Numer. Anal. 34 (2000), 684-706
23. *A posteriori error control and adaptivity for a phase relaxation model*, with R.H. Nochetto and A. Schmidt, Math. Model. Numer. Anal. 34 (2000), 775-797
24. *Adaptive Galerkin methods with error control for a dynamical Ginzburg-Landau model in superconductivity*, with S. Dai, SIAM J. Numer. Anal. 38 (2001), 1861-1985
25. *On the augmented Lagrangian approach to Signorini elastic contact problem*, Numer. Math. 88 (2001), 641-659
26. *On the efficiency of adaptive finite element methods for elliptic problems with discontinuous coefficients*, SIAM J. Sci. Comput. 24 (2002), 443-462.
27. *A mixed multiscale finite element method for elliptic problems with oscillating coefficients*, with T. Hou, Math. Comp. 72 (2002), 541-576.
28. *Numerical homogenization of well singularities in the flow transport through heterogeneous porous media*, with X.Y. Yue, Multiscale Modeling and Simulation: A SIAM Interdisciplinary Journal, 1 (2003), 260-303.
29. *An Adaptive Finite Element Method with Perfectly Matched Absorbing Layers for the Wave Scattering by Periodic Structures*, with H.J. Wu, SIAM J. Numer. Anal. 41 (2003), 799-826.
30. *An adaptive finite element method with reliable and efficient error control for linear parabolic problems*, with F. Jia, Math. Comp. 73 (2004), 1163-1197.
31. *On finite element methods for inhomogeneous dielectric waveguides*, with J.H. Yuan, J. Comput. Math. 22 (2004), 188-200.

32. *Adaptive computation for convection dominated diffusion problems*, with G.H. Ji, Science in China 47 Supplement (2004), 22-31.
33. *A New Upscaling Method for the solute transport equations*, with W.B. Deng and H. Ye, Continuous and Discrete Dynamical Systems 13 (2005), 941-962.
34. *An adaptive finite element method for diffraction gratings*, with G. Bao and H.J. Wu, Journal of the Optical Society of America A 22 (2005), 1106-1114.
35. *An Adaptive Perfectly Matched Layer Technique for Time-harmonic Scattering Problems*, with X.Z. Liu, SIAM J. Numer. Anal. 43 (2005), 645-671.
36. *Upscaling of a class of nonlinear parabolic equations for the flow transport in heterogeneous porous media*, with W.B. Deng and H. Ye, Communications in Mathematical Sciences 3 (2005), 493-515.
37. *Recent advances of upscaling methods for the simulation of flow transport through heterogeneous porous media*, Journal of Computational Mathematics 24 (2006), 393-400.
38. *Sharp L^1 a posteriori error analysis for nonlinear convection-diffusion problems*, with G.H. Ji, Math. Comp. 75 (2006), 43-71.
39. *An adaptive finite element method for the H - ψ formulation of time-dependent eddy current problems*, with W. Zheng and L. Wang, Numer. Math. 103 (2006), 667-689.
40. *Uniform convergence of multigrid V-cycle on adaptively refined finite element meshes for second order elliptic*, with H. Wu, Science in China: Series A Mathematics 49 (2006), 1405-1429.
41. *An adaptive multilevel method for time-harmonic Maxwell equations with singularities*, with L. Wang and W. Zheng, SIAM J. Sci. Comput. 29 (2007), 118-138.
42. *An adaptive perfectly matched layer technique for 3-D time-harmonic electromagnetic scattering problems*, with J. Chen, Math. Comp. 77 (2008), 673-698.
43. *An adaptive uniaxial perfectly matched layer technique for Time-Harmonic Scattering Problems*, with X.M. Wu, Numerical Mathematics: Theory, Methods and Applications, 1 (2008), 113-137.
44. *On Maxwell Equations with the transparent boundary condition*, with J.C. Nédélec, J. Comput. Math. 26 (2008), 284-296.
45. *An hp Adaptive Uniaxial Perfectly Matched Layer Method for Helmholtz Scattering Problems*, with B.Q. Guo and Y.M. Xiao, Communications in Computational Physics 5 (2009), 546-564.
46. *Convergence of the time-domain perfectly matched layer method for acoustic problems*, International Journal of Numerical Analysis and Modeling, 6 (2009), 124-146
47. *The adaptive immersed interface finite element method for elliptic and Maxwell interface problems*, with Y.M. Xiao and L. Zhang, Journal of Computational Physics 228 (2009), 5000-5019.
48. *An adaptive finite element method for the eddy current model with circuit/field couplings*, with J. Chen, T. Cui and L. Zhang, SIAM J. Sci. Computing, 32 (2010), 1020-1042.
49. *Convergence of the uniaxial perfectly matched layer method for time-harmonic scattering problems in two-layered media*, with W. Zheng, SIAM J. Numer. Anal. 48 (2010), 2158-2185.

50. *ParAFEMCap: A Parallel Adaptive Finite Element Method for 3-D VLSI Interconnect Capacitance Extraction*, with G. Chen, H. Zhu, T. Cui, X. Zeng, and W. Cai, IEEE Trans. Microwave Theory and Techniques 60 (2012), 218-231.
51. *Long-time Stability and Convergence of the Uniaxial Perfectly Matched Layer Method for Time-domain Acoustic Scattering Problems*, with X. Wu, SIAM J. Numer. Anal. 50 (2012), 2632-2655.
52. *An adaptive anisotropic perfectly matched layer method for 3-D time harmonic electromagnetic scattering problems*, with T. Cui and L. Zhang, Numer. Math. 125 (2013), 639-677.
53. *A Source Transfer Domain Decomposition Method For Helmholtz Equations in Unbounded Domain, Part II: Extensions* with X. Xiang, Numer. Math. Theor. Meth. Appl. 6 (2013), 538-555.
54. *An Anisotropic Perfectly Matched Layer Method for Helmholtz Scattering Problems with Discontinuous Wave Number*, with C. Liang and X. Xiang, Inverse Problems and Imaging, 7 (2013), 663-678.
55. *Reverse Time Migration for Extended Obstacles: Acoustic Waves*, with J. Chen and G. Huang, Inverse Problems 29 (2013) 085005 (17pp).
56. *A Source Transfer Domain Decomposition Method For Helmholtz Equations in Unbounded Domain*, with X. Xiang, SIAM J. Numer. Anal. 51 (2013), 2331-2356.
57. *Reverse Time Migration for Extended Obstacles: Electromagnetic Waves*, with J. Chen and G. Huang, Inverse Problems 29 (2013) 085006 (17pp) .
58. *Target Detection and Characterization from Electromagnetic Induction Data*, with H. Ammari, J. Chen, J. Garnier, and Volkov, J. Math. Pures Appl. 101 (2014), 54-75.
59. *Reverse Time Migration for Extended Obstacles: Elastic Waves*, with G. Huang, (in Chinese). Sci. Sin. Math. 45 (2015), 11031114, doi: 10.1360/N012014-00097.
60. *An Adaptive Immersed Finite Element Method with Arbitrary Lagrangian-Eulerian Scheme for Parabolic Equations in Time Variable Domains*, with Z. Wu and Y. Xiao, International Journal of Numerical Analysis and Modeling 12 (2015), 567-591.
61. *Reverse Time Migration for Reconstructing Extended Obstacles in the Half Space*, with G. Huang, Inverse Problems 31 (2015) 055007 (19pp) .
62. *Reverse Time Migration for Reconstructing Extended Obstacles in Planar Acoustic Waveguides*, with G. Huang, Science in China: Series A Mathematics 58 (2015), 1811-1834.
63. *Convergence of the PML Method for Elastic Wave Scattering Problems*, with X. Xiang and X. Zhang, Math. Comp. 85 (2016), 2687-2714.
64. *A Direct Imaging Method for Electromagnetic Scattering Data without Phase Information*, with G. Huang, SIAM J. Imaging Sci. 9 (2016), 1273-1297.
65. *A source transfer domain decomposition method for time-harmonic elastic wave equations*, with X. Xiang, Scientia Sinica Informatics 46 (2016), 1359-1371. (in Chinese)
66. *Phaseless Imaging by Reverse Time Migration: Acoustic Waves*, with G. Huang, Numer. Math. Theor. Meth. Appl. 10 (2017), 1-21.

67. *A direct imaging method for the half-space inverse scattering problems with phaseless data*, with S. Fang and G. Huang, *Inverse Problems and Imaging* 11 (2017), 901-916.
68. *PML method for electromagnetic scattering problem in a two-layer medium*, with W. Zheng, *SIAM J. Numer. Anal.* 55 (2017), 2050-2084.
69. *Stochastic convergence of a nonconforming finite element method for the thin plate spline smoother for observational data*, with R. Tuo and W. Zhang, *SIAM J. Numer. Anal.* 56 (2018), to appear.

B. ARTICLES IN PROCEEDINGS OF SYMPOSIA AND CONFERENCES

1. *On the Relation Between Optimized Schwarz Methods and Source Transfer*, with M.J. Gander and H. Zhang, in *Domain Decomposition Methods in Science and Engineering XXII*, Th. Dickopf et al eds., Springer (2016), 217-226.
2. *A Posteriori Error Analysis and Adaptive Finite Element Methods for Electromagnetic and Acoustic Problems*, in *Modeling and Computations in Electromagnetics: A Volume Dedicated to Jean-Claude Nedelec*, Habib Ammari ed., Springer (2007), 39-65.
3. *A Posteriori Error Analysis and Adaptive Methods for Partial Differential Equations*, in the *Proceedings of International Congress of Mathematicians (Volume III)*, Madrid, Spain, August 22-30, 2006, M. Sanz-Sole et al eds., European Mathematical Society (2006), 1163-1180.
4. *Adaptive Computation with Perfectly Matched Layers for the Wave Scattering by Periodic Structures*, with H.J. Wu, in the *Proceedings of International Conference on High Performance Scientific Computing: Modeling, Simulation and Optimization of Complex Processes*, Hanoi, March 2003, H.G.Bock et al eds., Springer (2005), 69-84.
5. *Upscaling of well singularities in the flow transport through heterogeneous porous media*, with X.Y. Yue, in the *Proceedings of Free Boundary Problems: Theory and Applications*, Trento, June 2002, *International Series of Numerical Mathematics* 147, Birkhäuser Verlag, Basel (2003), 87-101.
6. *A posteriori error analysis and adaptive methods for parabolic problems*, in *Recent Progress in Computational and Applied PDEs*, T.F. Chan, Y. Huang, T. Tang, J. Xu and L.-A. Ying eds., Kluwer Academic Publishers (2002), 143-154.
7. *Recent advances of a posteriori error analysis and adaptive finite element methods*, in the *Proceedings of the Second International Congress of Chinese Mathematicians*, Taipei, Taiwan, December 17-22, 2001, C-S Lin, L. Yang and S.T. Yau, eds., International Press (2004), 587-600.
8. *Numerical methods for two phase continuous casting problems*, in *Proceedings of Third China-Japan Seminar on Numerical Mathematics*, Z. Shi and M. Mori, eds., Science Press, Beijing (1998), 11-17.
9. *Numerical simulations of dynamical Ginzburg-Landau vortices in superconductivity*, with K.-H. Hoffmann, in *Numerical Simulation in Science and Engineering*, M. Griebel and C. Zenger, eds., *Notes on Numerical Fluid Mechanics* 48, Vieweg (1994), 31-38.
10. *Numerical solutions of the optimal control problem governed by a phase field model*, with K.-H. Hoffmann, in *Control and Estimation of Distributed Parameter Systems*, W. Desch, F. Kappel and K. Kunisch, eds., *International Series of Numerical Mathematics* 100, Birkhäuser Verlag, Basel (1991), 79-97.

11. *Numerical solutions of two phase continuous casting problem*, in Numerical Methods for Free Boundary Problems, P. Neittaanmäki, eds., International Series of Numerical Mathematics 99, Birkhäuser Verlag, Basel (1991), 103-121

C. MONOGRAPHS AND PRINTED LECTURE NOTES

1. *Selected Topics in Finite Element Methods*, with Haijun Wu, Science Press, Beijing, 2010.
2. *Recent Advances in Adaptive Computation*, Proceedings of the International Conference on Recent Advances in Adaptive Computation held in May 24-28, 2004 in Zhejiang University, Hanzhou (China), with Z.-C. Shi, T. Tang and D. Yu, eds., Contemporary Mathematics 383, American Mathematical Society, Providence, 2005.
3. *Das Phasenfeldmodell für das Problem der Phasenübergänge: Analysis, Numerik und Steuerung*, Doctoral Dissertation in Applied Mathematics, University of Augsburg, Germany, 1992.

Editorships

- Acta Mathematicae Applicatae Sinica (in Chinese), Associate editor, January 2002-present
- Chinese Journal on Engineering Mathematics (in Chinese), Associate editor, August 2007-present
- Communications in Mathematical Sciences, Associate editor, January 2005-December 2006
- Discrete and Continuous Dynamical Systems – B, Associate editor, November 2003-December 2007
- European Journal of Applied Mathematics, Associate editor, January 2005-present
- International Journal of Numerical Analysis and Modeling, Associate Editor, January 2004-present
- Journal of Computational Mathematics, Associate editor, May 2000-June 2014
- Journal of Computational Mathematics, Editor-in-Chief, July 2014-present
- Journal of Information and Computational Science, Associate editor, September 2004-present
- Journal of Mathematical Research with Applications, Associate editor, January 2012-present
- Mathematics of Computation, Associate editor, February 2007-January 2018
- Numerical Mathematics: J of Chinese Universities (in Chinese), Editor-in-Chief, January 2004-December 2015
- Numerical Mathematics: Theory, Methods and Applications, Editor-in-Chief, January 2008-December 2016
- SIAM Journal on Numerical Analysis, Associate editor, January 2005-present
- Sciences on China (Series A), Associate editor, January 2003-present
- Vietnam Journal of Mathematics, Associate editor, January 2013-December 2015
- Journal of Korean Society for Industrial and Applied Mathematics, Associate Editor-in-Chief, January 2016-present
- Numerische Mathematik, Associate editor, June 2016-present

Grants

- China NSF, Principal Investigator, Subject: Phenomenological Superconductivity Models and Adaptive Computations, January 1995-December 1997 (Grant No. 19401032)
- China National Key Project "Large Scale Scientific and Engineering Computing", Principal Investigator, Subject: Numerical Solutions of Free Boundary Problems, January 1997-December 2000
- China NSF, Principal Investigator, Subject: Numerical Methods for Nonlinear PDEs, January 1998-December 2000 (Grant No. 19771080)

- China National Basic Research Project (973 Project) "Large Scale Scientific Computing Research", Sub-project Leader, Subject: Basic Research in Computational Method, October 1999-September 2004 (Grant No. G1999032800)
- Chinese Academy of Sciences "Hundred Talent Project", Principal Investigator, Subject: High-end Technology and Scientific Computing, June 2000-May 2003
- China NSF Outstanding Young Scientist Grant, Principal Investigator, Subject: Scientific Computing Research on some Problems from High Technology, January 2001-December 2004 (Grant No. 10025102)
- China NSF Outstanding Oversea Young Scientist Grant, Co-Principal Investigator with Bao Gang, Subject: Computational Mathematics and Scientific Engineering Computing, January 2005-December 2007 (Grant No. 10428105)
- China National Basic Research Project (973 Project) "High Performance Scientific Computing Research", Chief Scientist, December 2005-November 2010 (Grant No. 2005CB321700)
- China NSF Innovation Group Grant, Principal Investigator, Subject: The Methods and Applications of Scientific and Engineering Computing, January 2011-December 2013 (Grant No. 11021101)
- China National Basic Research Project (973 Project) "The Novel Computational Model for Petascale Scientific Computation", Chief Scientist, January 2011- August 2015 (Grant No. 2011CB309700)
- China NSF Innovation Group Grant, Principal Investigator, Subject: The Methods and Applications of Scientific and Engineering Computing, January 2014-December 2016 (Grant No. 11321061)

Invited Talks

1. Carnegie-Mellon University, Pittsburgh (USA), July 1993
2. University of Sussex, Brighton (UK), February 1994
3. The Hong Kong University of Science and Technology, Hong Kong, May 1996
4. Fudan University, Shanghai, November 1997
5. University of Maryland, College Park (USA), March 1998
6. University of Maryland, College park (USA), September 1999
7. Michigan State University, East Lansing (USA), October 1999
8. Penn State University, State College (USA), November 1999
9. Iowa State University, Ames (USA), November 1999
10. Suzhou University, Suzhou, September 2000
11. Nanjing Normal University, Nanjing, September 2000
12. Southeastern University, Nanjing, September 2000
13. Sichuan University, Chengdu, October 2000
14. Chinese University of Hong Kong, Hong Kong, October 2000
15. Nihon University, Tokyo (Japan), December 2000
16. Hokkaido University, Sapporo (Japan), December 2000

17. Ryukoko University, Seta (Japan), December 2000
18. Caesar Institute, Bonn (Germany), June 2001
19. The Baptist University of Hong Kong, December 2001
20. Nanjing University, Nanjing, September 2002
21. University of Maryland, College Park (US), November 2002
22. Suzhou University, Suzhou (China), October 2003
23. Michigan State University, East Lansing, November 2003
24. Wyane State University, Detroit, November 2003
25. Chinese University of Science and Technology, Hefei, May 2004
26. Nankai University, Tianjin, September 2005
27. Beijing Normal University, Beijing, September 2005
28. Zhejiang University, Hanzhou, 2 July 2006
29. Xiangtan University, Xiangtan, 23 November 2006
30. University of Macau, Macau, 16 December 2006
31. National University of Singapore, Singapore, 2 May 2007
32. Fudan University, Shanghai, 28 June 2007
33. Shanghai Normal University, 30 June 2007
34. Graduate School of Chinese Academy of Sciences, Beijing, 2 July 2007
35. Summer School on Applied Mathematics, Zhejiang University, Hangzhou, 20-26 July 2007
36. Sichuan University, Chengdu, 30-31 August 2007
37. Xiamen University, Xiamen, 5 November 2007
38. Tsinghua University, Beijing, 13 March 2008
39. Zhongshan University, Guangzhou, 8 September 2008
40. South China Normal Univeristy, Guangzhou, 9 September 2008
41. Nagoya University, Nagoya (Japan), 2 December 2008
42. Dalian University of Science and Technology, Dalian (China), 21 March 2009
43. Nankai University, Tianjin (China), 27 April 2009
44. Beijing Institute of Computational Physics and Computational Mathematics, Beijing (China), 8 May 2009

45. Huazhong University of Science and Technology, Wuhan (China), 7 September 2009
46. Ecole Polytechnique, Paris (France), 22 September 2009
47. ZIB, Berlin (Germany), 28 September 2009
48. Zhengzhou University, Zhengzhou (China), 20 May 2010
49. University of California at Davis, Davis (USA), 9 November 2010
50. Lawrence Berkeley National Laboratory, Berkeley (USA), 10 November 2010
51. University of Texas, Austin (USA), 29 March 2011
52. University of California, Irvine (USA), 1 April 2011
53. Hunan Normal University, Changsha (China), 16 September 2011
54. Inha University, Incheon (Korea), 12 October 2011
55. University of Science and Technology, Hefei (China), 25 October 2011
56. Nanjing Normal University, Nanjing (China), 24 November 2011
57. Nanjing Information Engineering University, Nanjing (China), 25 November 2011
58. South East University, Nanjing (China), 26 November 2011
59. Chongqing University, Chongqing (China), 14 March 2012
60. North Carolina University, Raleigh (USA), 27 March 2012
61. Nanjing University, Nanjing (China), 26 April 2012
62. Beijing University of Aerospace and Aeronautics, Beijing (China), 14 June 2012
63. NSFC Summer School on Applied Mathematics, Beijing (China), 29 June 2012
64. Jilin University, Changchun (China), 3 July 2012
65. Tsinghua University, Beijing (China), 16 November 2012
66. Zhejiang Normal University, Jinhua (China), 23 November 2012
67. Chongqing University, Chongqing (China), 26 November 2012
68. ETH, Zürich (Switzerland), 30 January 2013
69. University of Geneva, Geneva (Switzerland), 26 March 2013
70. Beijing Computational Science Research Center, Beijing (China), 9 September 2013
71. Sichuan University, Chengdu (China), 12 September 2013
72. Central South University, Changsha (China), 20 October 2013
73. Hunan University, Changsha (China), 22 October 2013

74. Nanjing University, Nanjing (China), 6 November 2013
75. Brown University, Providence (USA), 9 May 2014
76. Ecole Normale Supérieure, Paris (France), 26 September 2014
77. CERMICS, Paris (France), 29 September 2014
78. Laboratoire Jacques-Louis Lions, Paris (France), 10 October 2014
79. Shandong Normal University, Jinan (China), 23 December 2014
80. Beijing Industrial University, Beijing (China), 18 July 2016
81. Fudan University, Shanghai (China), 31 October 2016
82. Suzhou University, Suzhou (China), 2 November 2016
83. Summer School on Numerical PDEs, Southern China Normal University, Guangzhou (China), 7-9 August 2017
84. Columbia University, New York City (USA), 3 October 2017

Conference presentations

1. Control and Estimation of Distributed Parameter Systems, Vöran (Austria), July 1990
2. Numerical Methods for Free Boundary Problems, Jyväskylä (Finland), July 1990
3. Symposium on Applied Mathematics for Young Chinese Scholars, Beijing (China), July 1992
4. Optimal Control Problems, Oberwolfach (Germany), January 1993
5. Mathematics of Superconductivity, Seattle (USA), July 1993
6. Conference on Scientific and Engineering Computing for Young Chinese Scientists, Beijing (China), August 1993
7. Workshop on Mathematical Modelling and Analysis of Superconductivity, Suzhou (China), June 1995 (one of the organizers, invited talk)
8. The 5th Annual Meeting of Chinese Society for Computational Mathematics, Zhengzhou (China), October 1995 (invited plenary talk)
9. The 2nd World Congress of Nonlinear Analysts, Athens (Greece), July 1996 (invited 45-minute talk)
10. The 3rd China-Japan Joint Seminar on Numerical Mathematics, Dalian (China), August 1996 (invited talk)
11. Free Boundary Problems: Theory and Applications, Crete (Greece), June 1997
12. The 8th National Symposium on Computational Fluid Dynamics, Mianyan (China), September 1997 (invited talk)

13. The 1st China-Italy Joint Symposium on Applied and Computational Mathematics, Beijing (China), October 1998 (invited talk)
14. The 4th International Congress on Industrial and Applied Mathematics, Edinburgh (Scotland), July 1999 (Minisymposium "Models, Analysis and Algorithms in Superconductivity" invited session talk)
15. The 2nd China-Italy Joint Symposium on Applied and Computational Mathematics, Ischia (Italy), June 2000 (invited talk)
16. The 3rd World Congress of Nonlinear Analysts, Catania (Italy), July 2000 (invited 45-minute talk)
17. '2000 BICCP Workshop on Electromagnetics and Wave Propagation, Beijing (China), July 2000
18. The 5th China-Japan Joint Seminar on Numerical Mathematics, Shanghai (China), August 2000
19. The 1st Joint Chinese-Korean Workshop on Recent Advances in Numerical Analysis and its Applications, Seoul (Korea), February 2001 (invited talk)
20. International Conference on Scientific and Engineering Computing, Beijing (China), March 2001 (invited plenary talk)
21. Numerik von Mikrostrukturen, Oberwolfach (Germany), June 2001 (invited talk)
22. International Symposium on Computational and Applied PDEs, ZhangJiaJie (China), July 2001 (invited talk)
23. The 4th Annual Chinese-American Frontiers of Science Symposium, Beijing (China), September 2001 (invited talk)
24. Workshop on Scientific Computing, Hong Kong (China), December 2001
25. The 2nd International Congress of Chinese Mathematicians, Teipei (China), December 2001 (invited 45-minute talk)
26. Free Boundary Problems: Theory and Applications, Trento (Italy), June 5-8, 2002 (invited plenary talk)
27. The 3rd China-Sweden Workshop on Computational Mathematics, Goteborg (Sweden), June 10-12, 2002 (invited talk)
28. The Sino-US Joint Symposium on Multiscale Analysis in Material Sciences and Engineering, Beijing (China), June 17-20, 2002 (invited talk)
29. 2002 Workshop on Multiscale Analysis and Computation, Tsingchu (China), June 23-27, 2002 (invited talk)
30. The Satellite Conference of ICM 2002 on Scientific Computing, Xi'an (China), August 15-18, 2002 (invited talk)
31. The 2nd Joint Chinese-Korean Workshop on Recent Advances in Numerical Analysis and its Applications, Beijing (China), February 23-27, 2003 (invited talk)
32. International Conference on High Performance Scientific Computing: Modelling, Simulation and Optimization for Complex Processes, Hanoi (Vietnam), March 10-14, 2003 (invited plenary talk)

33. Interphase 2003: Numerical Methods for Free Boundary Problems, Cambridge (UK), April 14-17, 2003 (invited talk)
34. The 5th International Congress on Industrial and Applied Mathematics, Sydney (Australia), July 2003 (Minisymposium "Mathematical Modelling of Optics and Electromagnetics" invited session talk)
35. The 5th International Congress on Industrial and Applied Mathematics, Sydney (Australia), July 2003 (Minisymposium "Adaptive Mesh Methods for PDEs" invited session talk)
36. The 7th Annual Meeting of Chinese Society for Computational Mathematics, Nanjing (China), October 2003 (invited plenary talk)
37. The 9th Annual Conference of Chinese Mathematical Society, Wuhan (China), November 2003 (invited 45-minute talk)
38. Computational Electromagnetism, Oberwolfach (Germany), February 22-28, 2004
39. Recent Advances in Adaptive Computation, Hangzhou (China), May 24-28, 2004 (plenary talk, one of the organizers)
40. The 4th China-Sweden Workshop on Computational Mathematics, Beijing (China), June 6-9, 2004
41. International Conference on Frontiers of Applied Mathematics, Beijing (China), June 14-17, 2004 (plenary talk, one of the organizers)
42. The 2nd International Conference on Inverse Problems, Shanghai (China), June 17-21, 2004 (plenary talk)
43. International Conference on Numerical and Applied PDEs, Changchun (China), June 23-28, 2004 (plenary talk)
44. International Conference on Partial Differential Equations and Numerical Analysis, Jinan (China), August 18-23, 2004 (plenary talk)
45. The 3rd Joint Chinese-Korean Workshop on Recent Advances in Numerical Analysis and its Applications, Cheju Island (Korea), February 21-25, 2005 (invited talk)
46. International Conference on Nonlinear Partial Differential Equations and its Applications, Putian (China), June 18-22, 2005 (invited talk)
47. Chinese Mathematics Conference 2005, Weihai (China), July 25-29, 2005 (invited 45-minutes talk)
48. The 1st China-Germany Workshop on Computational and Applied Mathematics, Berlin (Germany), September 5-10, 2005 (invited talk)
49. The 2nd International Conference on Scientific Computing and Partial Differential Equations, Hong Kong (China), December 12-16, 2005 (plenary talk)
50. The 5th International Workshop on Scientific Computing and Applications, Banff National Park (Canada), May 19-22, 2006 (plenary talk)
51. International Congress of Mathematicians, Madrid (Spain), September 22-30, 2006 (invited 45-minutes talk)

52. Computational Electromagnetism and Acoustics, Oberwolfach (Germany), February 4-10, 2007 (invited talk)
53. The 1st International Conference on Impacts of Mathematical Sciences on the Future, Daejeon (Korea), October 1-2, 2007 (invited talk)
54. The 2nd China-Germany Workshop on Computational and Applied Mathematics, Hanzhou (China), October 9-13 (invited talk)
55. The 4th International Congress of Chinese Mathematicians, Hanzhou (China), December 17-22, 2007 (plenary talk)
56. The first Chinese Academy of Sciences-Kyoto University Joint Workshop on Mathematical Methods for Informatics, Engineering and Management, Beijing (China), March 17-18, 2008 (invited talk)
57. International Conference on Applied Mathematics: Modeling, Analysis and Computation, Hong Kong (China), June 1-5, 2008 (invited talk)
58. The 4th Annual Conference of Chinese Academy of Engineering Physics, Mianyang (China), October 20-23, 2008 (plenary talk)
59. International Conference on Approximation and Scientific Computing 2008, Beijing (China), October 26-30, 2008 (plenary talk)
60. National Annual Conference on High Performance Computing 2008, Wuxi (China), October 30-November 1, 2008 (plenary talk)
61. International Symposium on Frontiers of Computational Science 2008, Nagoya (Japan), November 27-29, 2008 (invited talk)
62. The 4th International Conference on High Performance Scientific Computing: Modelling, Simulation and Optimization for Complex Processes, Hanoi (Vietnam), March 2-6, 2009 (Mini-symposium talk)
63. The 9th Hellenic-European Conference on Computer Mathematics and its Applications, Athens (Greece), September 24-26, 2009 (Plenary talk)
64. China-Germany Conference on "Mathematics and Industry", Beijing (China), March 15-18, 2010 (invited talk)
65. The First Workshop on Interdisciplinary Applied and Computational Mathematics, Hangzhou (China), June 2-5, 2010 (invited talk)
66. International Conference on Applied Mathematics City University of Hong Kong (Hong Kong), June 7 - 11, 2010 (invited talk)
67. Workshop on Mathematical and Statistical Methods of Imaging, Inha University, Incheon (Korea), August 10-13, 2010 (invited talk)
68. Durham Symposium on Numerical Analysis of Multiscale Problems, Durham (UK), July 5-15, 2010 (invited talk)
69. Numerical Solutions of Partial Differential Equations: Novel Discretization Techniques, IMA Annual Program Year Workshop, Minneapolis (USA), November 1-5, 2010 (invited talk)

70. KAUST-IAMCS Workshop on Multiscale Modeling, Advanced Discretization Techniques, and Simulation of Wave Propagation, Thuwal (Saudi Arabia), 7-8 May 2011 (invited talk)
71. Workshop on Multiscale and High-contrast PDE: from Modeling to Mathematical Analysis, to Inversion, Oxford (UK), June 28-July 1, 2011 (invited talk)
72. Sino-French Workshop on Contemporary Applied Mathematics, Shanghai (China), July 4-8, 2011 (invited talk)
73. The 7th International Congress on Industrial & Applied Mathematics, Vancouver (Canada), July 18-22, 2011 (Mini-symposium organizer and speaker)
74. The 5th China-Germany Workshop on Computational and Applied Mathematics, Guangzhou (China), September 26-30, 2011 (invited talk)
75. Imaging, wave propagation in complex media, and optimal control under uncertainties, Ecole Normale Supérieure, Paris (France), December 19-21, 2011 (invited talk)
76. International Conference on Scientific Computing 2012, Hong Kong (China), 4-7 January 2012 (invited talk)
77. BAIL2012: International Conference on Boundary and Interior Layers – Computational and Asymptotic Method, POSTECH (Korea), February 6-10, 2012 (plenary talk)
78. Second International Symposiums on Scientific Computing (ISSC12), Nanjing (China), 23-26 May 2012 (invited talk)
79. Workshop on Methods and Applications of Industrial and Applied Mathematics, Kyoto (Japan), May 31-June 1, 2012 (invited talk)
80. International Conference on Computational Science, Shanghai (China), 16-20 July 2012 (plenary talk)
81. International Workshop on Image Processing and Inverse Problems, Fuzhou (China), 14-16 December 2012 (invited talk)
82. Computational Electromagnetism and Acoustics, Oberwolfach (Germany), January 21-25 2013 (invited talk)
83. Numerical Approximation of PDEs, Gargnano del Garda (Italy), 20-22 March 2013 (invited talk)
84. Weizmann Workshop 2013 on Multilevel Computational Methods and Optimization, Lopatie Center, Weizmann Institute of Science, Rehovot (Israel), 30 April - 2 May 2013 (invited talk)
85. International Conference on Mathematical Modeling and Computation 2013, Wuhan (China), 16-19 May 2013 (plenary talk)
86. The 2nd International Conference on Interdisciplinary Applied Mathematics and Computational Mathematics, Hangzhou (China), 19-22 June, 2013 (invited talk)
87. Applied Inverse Problem Conference 2013, KAIST (Korea), 1-5 July, 2013 (Minisymposium talk)
88. DD22: International Conference on Domain Decomposition Methods, Lugano (Switzerland), 16-20 September, 2013 (Minisymposium talk)

89. The 2nd International Conference on Engineering and Computational Mathematics (ECM2013), Hong Kong (China), 16-18 December 2013 (invited talk)
90. Robust Discretization and Fast Solvers for Computable Multi-Physics Models, ICERM, Providence (USA), May 12-16, 2014
91. Workshop on Multiscale problems from Physics, Biology, and Materials Science, May 28-31, 2014
92. Sino-French Conference on Computational and Applied Mathematics, Xiamen (China), June 2-5, 2014.
93. International Workshop on Variational and Hemi-variational Inequalities, Xi'an (China), June 28-30, 2014
94. The ninth International Conferences on Scientific Computing and Applications, Xi'an (China), June 11-16, 2014
95. KSIAM 2014 Annual Meeting, Jeju (Korea), November 20-23, 2014
96. International Conference on Inverse Problems and Optimal Control, Chinese University of Hong Kong, Hong Kong, December 4-6, 2014
97. The 5th International Conference on Scientific Computing and Partial Differential Equations, Baptist University, Hong Kong, December 8-12, 2014
98. Workshop on Waves and Imaging in Random Media, ICERM, Brown University, Providence (USA), September 25-29, 2017
99. Focused Program on Scientific Computing, IAS, Hong Kong University of Science and Technology, Hong Kong (China), December 4-8, 2017

Membership

- Member of the Society for Industrial and Applied Mathematics (USA), January 1995-present
- Member of the Standing Committee of China Society of Computational Mathematics, November 1998-October 2002
- Vice president of China Society for Computational Mathematics, November 2006-November 2018
- Vice president of China Society of Mathematics, February 2008-January 2012
- Vice president of China Society for Industrial and Applied Mathematics, September 2008-August 2016

Academic administrative services

- Director of the *Institute of Computational Mathematics and Scientific/Engineering Computing, Academy of Mathematics and Systems Science, Chinese Academy of Sciences*, May 2007 - September 2017
- Director of the *State Key Laboratory on Scientific and Engineering Computing (Chinese Academy of Sciences)*, March 2006 - May 2015

- Vice Director of the *State Key Laboratory on Scientific and Engineering Computing (Chinese Academy of Sciences)*, January 2001 - March 2006
- Vice Director of the *Institute of Computational Mathematics and Scientific/Engineering Computing, Academy of Mathematics and Systems Science, Chinese Academy of Sciences*, March 2003 - April 2007