CURRICULUM VITAE

Zhiming Chen, Professor
Institute of Computational Mathematics
Academy of Mathematics and System Sciences
Chinese Academy of Sciences (CAS)
Beijing 100190, China
Email: zmchen@lsec.cc.ac.cn
http://lsec.cc.ac.cn/~zmchen

Research Interests

• Numerical analysis and scientific computing (Finite element method; adaptivity and a posteriori error analysis; numerical homogenization; perfectly matched layer; reverse time migration)
• 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, CAS, Beijing (China), July 1989
• PhD in Mathematics, University of Augsburg, Augsburg (Germany), February 1992

Professional experience

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

Prizes and honors

• K.C.Wong Science Research Prize, Chinese Academy of Sciences (1994)

- China NSF Outstanding Young Scientist Grant (2000)
- Feng Kang Prize on Scientific Computing (2001)
- Invited Speaker, International Congress of Mathematicians (2006)
- The China Second National Natural Science Prize (2009)
- Shiing S. Chern Mathematics Award, Chinese Mathematical Society (2015)
- Academician, Chinese Academy of Sciences (2017)
- CSIAM Fellow (2020)
- SIAM Fellow (2022)
- Fellow of Operations Research Society of China (2022)

Selected Publications

1. Zhiming Chen, *Mixed finite element methods for a dynamical Ginzburg-Landau model in superconductivity,* Numer. Math. 76 (1997), 323-353.

2. Zhiming Chen and Jun Zou, *Finite element methods and their convergence for elliptic and parabolic interface problems,* Numer. Math. 79 (1998), 175-202.

3. Zhiming Chen and Jun Zou, *An augmented Lagrangian method for identifying discontinuous parameters in elliptic systems,* SIAM J. Control and Optimization 37 (1999), 892-910.

4. Zhiming Chen and Ricardo H. Nochetto, *Residual type a posteriori error estimates for elliptic obstacle problems,* Numer. Math. 84 (2000), 524-548.

5. Zhiming Chen, Qiang Du and Jun Zou, *Finite element methods with matching and non-matching meshes for Maxwell equations with discontinuous coefficients,* SIAM J. Numer. Anal. 37 (2000), 1524-1570.

6. Zhiming Chen and Thomas Y. Hou, *A mixed multiscale finite element method for elliptic problems with oscillating coefficients,* Math. Comp. 72 (2002), 541-576.

7. Zhiming Chen and Xingye Yue, *Numerical homogenization of well singularities in the flow transport through heterogeneous porous media,* Multiscale Modeling and Simulation 1 (2003), 260-303.

8. Zhiming Chen and Haijun Wu, *An adaptive finite element method with perfectly matched absorbing layers for the wave scattering by periodic structures,* SIAM J. Numer. Anal. 41 (2003), 799-826.

9. Zhiming Chen and Jia Feng, *An adaptive finite element method with reliable and efficient error control for linear parabolic problems,* Math. Comp. 73 (2004), 1163-1197.

10. Zhiming Chen and Xueze Liu, *An adaptive perfectly matched layer technique for time-harmonic scattering problems,* SIAM J. Numer. Anal. 43 (2005), 645-671.

11. Zhiming Chen and Guanghua Ji, *Sharp L^1 a posteriori error analysis for nonlinear convection-diffusion problems,* Math. Comp. 75 (2006), 43-71.

12. Weiying Zheng, Zhiming Chen and Long Wang, *An adaptive finite element method for the H-ψ formulation of time-dependent eddy current problems,* Numer. Math. 103 (2006), 667-689.

13. Zhiming Chen, Long Wang and Weiying Zheng, *An adaptive multilevel method for time-harmonic Maxwell equations with singularities,* SIAM J. Sci. Comput. 29 (2007), 118-138.

14. Zhiming Chen, *Convergence of the time-domain perfectly matched layer method for acoustic problems,* International Journal of Numerical Analysis and Modeling, 6 (2009), 124-146

15. Junqing Chen, Zhiming Chen, Tao Cui and Linbo Zhang, *An adaptive finite element method for the eddy current model with circuit/field couplings,* SIAM J. Sci. Computing, 32 (2010), 1020-1042.

16. Zhiming Chen and Weiying Zheng, *Convergence of the uniaxial perfectly matched layer method for time-harmonic scattering problems in two-layered media,* SIAM J. Numer. Anal. 48 (2010), 2158-2185.

17. Zhiming Chen and Xinming Wu, *Long-time stability and convergence of the uniaxial perfectly matched layer method for time-domain acoustic scattering problems,* SIAM J. Numer. Anal. 50 (2012), 2632-2655.

18. Zhiming Chen and Xueshuang Xiang, *A source transfer domain decomposition method for Helmholtz equations in unbounded domain,* SIAM J. Numer. Anal. 51 (2013), 2331-2356.

19. Junqing Chen, Zhiming Chen and Guanghui Huang, *Reverse time migration for extended obstacles: acoustic waves,* Inverse Problems 29 (2013) 085005 (17pp).

20. Junqing Chen, Zhiming Chen and Guanghui Huang, *Reverse time migration for extended obstacles: electromagnetic waves,* Inverse Problems 29 (2013) 085006 (17pp) .

21. Zhiming Chen and Guanghui Huang, *Reverse time migration for reconstructing extended obstacles in the half space,* Inverse Problems 31 (2015) 055007 (19pp).

22. Zhiming Chen, Xueshuang Xiang and Xiaohui Zhang, *Convergence of the PML method for elastic wave scattering problems,* Math. Comp. 85 (2016), 2687-2714.

23. Zhiming Chen and Guanghui Huang, *A direct imaging method for electromagnetic scattering data without phase information,* SIAM J. Imaging Sci. 9 (2016), 1273-1297.

24. Zhiming Chen and Guanghui Huang, *Phaseless imaging by reverse time migration: acoustic waves,* Numer. Math. Theor. Meth. Appl. 10 (2017), 1-21.

25. Zhiming Chen, Rui Tuo and Wenlong Zhang, *Stochastic convergence of a nonconforming finite element method for the thin plate spline smoother for observational data*, SIAM J. Numer. Anal. 56 (2018), 635-659.

26. Zhiming Chen and Shiqi Zhou, *A direct imaging method for half-space inverse elastic scattering problems*, Inverse Problems 35 (2019), 075004 (33pp)

27. Zhiming Chen, Ke Li and Xueshuang Xiang, *An adaptive high-order unfitted finite element method for elliptic interface problems,* Numer. Math. 149 (2021), 507-548.

28. Zhiming Chen and Yong Liu, *An arbitrarily high order unfitted finite element method for elliptic interface problems with automatic mesh generation*, J. Comput. Phys. 491 (2023) 112384 (24pp)

Editorships

• Chinese Annals of Mathematics (Series B) Associate editor, January 2022-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-December 2023
• Journal of Korean Society for Industrial and Applied Mathematics, Associate Editor-in-Chief, January 2016-present

- Mathematics of Computation, Associate editor, February 2007-January 2018
- Numerical Mathematics: Theory, Methods and Applications, Editor-in-Chief, January 2008-December 2016
- Numerische Mathematik, Associate editor, June 2016-present
- SIAM Journal on Numerical Analysis, Associate editor, January 2005-present
- Sciences on China (Series A), Associate editor, January 2003-December 2022
- Vietnam Journal of Mathematics, Associate editor, January 2013-present

Membership

- Member of the Society for Industrial and Applied Mathematics (USA), January 1995-present
- Vice president of China Society for Computational Mathematics, November 2006-July 2019
- 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*, April 2007 - October 2017
- Director of the *State Key Laboratory on Scientific and Engineering Computing (Chinese Academy of Sciences)*, January 2006 - November 2015