温州大学数理学院
浙江温州，325035
Emai：nmzhang@wzu.edu.cn

张乃敏（博士，教授）

教育背景

2000 年 9 月 -2003 年 6 月　博士研究生，复旦大学数学研究所，理学博士

1994 年 9 月 -1997 年 6 月　硕士研究生，辽宁师大数学系,理学硕士

1990 年 9 月 -1994 年 6 月　本科生，上饶师范学院数学系,理学学士

经历

工作经历

2010 年 12 月 -现在　教授，硕士生导师 温州大学数理学院

2005 年 9 月 -2010 年 11 月　副教授，硕士生导师 温州大学数学学院

1997 年 9 月 -2000 年 8 月　助教/讲师，大连大学数学系

2003 年 9 月 -2005 年 8 月　博士后，大连理工大学数学系

学术交流经历

2009 年 2 月 -2009 年 8 月　访问学者， 台湾中山大学

教学经历

2005 年 9 月 -至今　讲授课程

- ○ 计算方法
- ○ 数学模型
- ○ 矩阵计算
- ○ 数值分析
- ○ 微分方程
- ○ 神经网络基础
- ○ 数值代数
- ○ 高等数学

研究方向

1 数值代数
2 神经网络计算

主持和参与项目

1. 国家自然科学基金面上项目：动量项学习算法的确定型收敛性及应用研究(主持)。
2. 浙江省自然科学基金资助项目：广义定常迭代与奇异预处理子的研究及其应用(主持)。
3. 浙江省自然科学基金资助项目：神经网络中带动量项学习算法的收敛性分析及其在数值代数中的应用(主持)。
4. 浙江省自然科学基金资助项目：大规模奇异线性方程组的数值算法的研究(主持)。

论文

1. Naimin Zhang and Yimin Wei, Perturbation bounds for the generalized inverses $A_{T,S}^{(2)}$ with application to constrained linear system, Applied Mathematics and Computation, 142(2003)63-78.
2. Yimin Wei and Naimin Zhang, Condition number related with generalized inverse $A_{T,S}^{(2)}$ and constrained linear systems, Journal of Computational and Applied Mathematics, 157(2003)57-72.
3. Yimin Wei and Naimin Zhang, A note on the representation and approximation of the outer inverse $A_{T,S}^{(2)}$ of a matrix A, Applied Mathematics and Computation, 147(2004)837-841.
4. Yimin Wei and Naimin Zhang, Further note on constrained preconditioning for nonsymmetric indefinite matrices, Applied Mathematics and Computation, 152(2004)43-46.
5. Naimin Zhang, Structured perturbations in singular case, Proceedings of the Sixth International Conference on Matrix Theory and its Applications in China, Journal of Natural Science of Heilongjiang University, 21(4)(2004)76-78.
6. Naimin Zhang and Yimin Wei, Solving EP singular linear systems, International Journal of Computer Mathematics, 81(11)(2004)1395-1405.
7. Wei Wu, Zhengxue Li, Guori Feng, Naimin Zhang, Dong Nan, Zhiqiong Shao, Jie Yang, Liqing Zhang, Yuesheng Xu, Recent developments on convergence of online gradient

methods for neural network training, ISNN(1)2004, Lecture Notes in Computer Science 3173(2004) 235-238.

8. Naimin Zhang and Yimin Wei, A note on solving EP inconsistent linear systems, Applied Mathematics and Computation, 169(2005)8-15.
9. Naimin Zhang, Wei Wu, and Gaofeng Zheng, Convergence of gradient method with momentum for two-layer feedforward neural networks, IEEE Transactions on Neural Networks, 17(2)(2006)522-525.
10. Wei Wu, Liqing Zhang, and Naimin Zhang, Online gradient method with a penalty term for BP neural networks, Proceedings of the Seventh China-Japan Seminar on Numerical Mathematics, Edited by Zhongci Shi and Hisashi Okamoto, Science Press, Beijing, 2006, pp.179-192.
11. Naimin Zhang, Deterministic convergence of an online gradient method with momentum, ICIC 2006, Lecture Notes in Computer Science, 4113(2006) 94-105.
12. Yimin Wei, Naimin Zhang, Michael K. Ng, and Wei XU, Tikhonov Regularization for Weighted Total Least Squares Problems, Applied Mathematics Letters, 20(2007)82-87.
13. Xiaoke Cui, Yimin Wei, and Naimin Zhang, Quotient Convergence and Multi-splitting Methods for Solving Singular Linear Equations, Calcolo, 44(2007)21-31.
14. Wei Wu, Naimin Zhang, Zhengxue Li, Long Li, Yan Liu, Convergence of gradient method with momentum for back-propagation neural networks, Journal of Computational Mathematics, 26(4)(2008)613-623.
15. Naimin Zhang and Yimin Wei,A note on the perturbation of an outer inverse, Calcolo, 45(2008)263-273.
16. Lijing Lin, Yimin Wei, and Naimin Zhang, Convergence and Quotient Convergence of Iterative Methods for Solving Singular Linear Equations with Index One, Linear Algebra and its Applications, 430(2009)1665-1674.
17. Naimin Zhang , An online gradient method with momentum for two-layer feedforward neural networks, Applied Mathematics and Computation, 212(2009)488-498.
18. Naimin Zhang and Yimin Wei, On the convergence of general stationary iterative

methods for range-Hermitian singular linear systems, Numerical Linear Algebra with Applications, 17(2010)139-154.

19. Naimin Zhang , A note on preconditioned GMRES for solving singular linear systems, BIT Numerical Mathematics, 50 (2010) 207－220.
20. Junrong Cheng and Naimin Zhang, Convergence analysis for double splitting methods for solving singular positive semidefinite linear systems, Proceedings of the Ninth International Conference on Matrix Theory and its Applications, Shanghai, PR China, Vol. 2, (2010) 142-147.
21. Naimin Zhang, Momentum algorithms in neural networks and the applications in numerical algebra, Proceedings of 2nd International Conference on Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC), IEEE Computer Society, pp. 2192 - 2195, 2011.
22. Haifeng Ma and Naimin Zhang, A note on block-diagonally preconditioned PIU methods for singular saddle point problems, International Journal of Computer Mathematics, 88(16)(2011) 3448-3457.
23. Zhen Chao and Naimin Zhang, Some convergence conditions for P-regular splitting for solving non-Hermitian linear systems, 2012 International Conference on Computational Problem-Solving, ICCP 2012, IEEE Computer Society, pp. 174-177, 2012.
24. Naimin Zhang and Pan Shen, Constraint preconditioners for solving singular saddle point problems, Journal of Computational and Applied Mathematics, 238(2013)116-125.
25. Zhen Chao, Naimin Zhang, and Pan Shen, Convergence of P-regular splitting iterative methods for non-Hermitian positive semidefinite linear systems, International Journal of Computer Mathematics, 90(3)(2013) 630-640.
26. Naimin Zhang, Semistability of Steepest Descent with Momentum for Quadratic Functions, Neural Computation, 25(5) (2013) 1277－1301.
27. Lijuan Zhou and Naimin Zhang, GMSSOR methods for solving singular augmented systems, Proceedings-2013 International Conference on Computational and Information Sciences, ICCIS 2013, IEEE Computer Society, pp. 926-929, 2013.

28. Naimin Zhang, Tzon-Tzer Lu, and Yimin Wei, Semi-convergence analysis of Uzawa methods for singular saddle point problems, Journal of Computational and Applied Mathematics, 255 (2014) 334 – 345.
29. Zhen Chao, Naimin Zhang, and Yunzeng Lu, Optimal parameters of the generalized symmetric SOR method for augmented systems, Journal of Computational and Applied Mathematics, 266 (2014) 52 – 60.
30. Yuan Chen and Naimin Zhang, A note on the generalization of parameterized inexact Uzawa method for singular saddle point problems, Applied Mathematics and Computation, 235 (2014) 318 – 322.
31. Zhen Chao and Naimin Zhang, A generalized preconditioned HSS method for singular saddle point problems, Numerical Algorithms, 66 (2014) 203 – 221.
32. Zhen Chao, Naimin Zhang, and Guoliang Chen, Brief derivation for optimal iteration parameters in GSOR method, Communication on Applied Mathematics and Computation,28 (2014) 134 – 139.
33. Lijuan Zhou and Naimin Zhang, Semi-convergence analysis of GMSSOR methods for singular saddle point problems, Computers and Mathematics with Applications, 68 (2014) 596 – 605.
34. Naimin Zhang, A study on the optimal double parameters for steepest descent with momentum, Neural Computation, 27(4) (2015) 982 – 1004.
35. Naimin Zhang, On parameter acceleration methods for saddle point problems, Journal of Computational and Applied Mathematics, 288 (2015) 169 – 179.
36. Yanhui Bi, Naimin Zhang and Lijuan Zhou, On the optimal parameters of GMSSOR method for saddle point problems, Applied Mathematics Letters, 55 (2016) 54 – 62.
37. Yueyan Lv and Naimin Zhang, A note on parameterized preconditioned method for singular saddlepoint problems, Journal of Applied Mathematics and Physics, 4(2016) 608-613.
38. Jing Li and Naimin Zhang, A triple-parameter modified SSOR method for solving singular saddle point problems, BIT Numerical Mathematics, 56 (2016) 501 – 521.
39. Lijun Liu, Xiaodan Wei, and Naimin Zhang, Global stability of a network-based

SIRS epidemic model with nonmonotone incidence rate, Physica A: Statistical Mechanics and its Applications, 515 (2019) 587 - 599.

40. Xun Zhang and Naimin Zhang, A Study on the Convergence of Gradient Method with Momentum for Sigma-Pi-Sigma Neural Networks, Journal of Applied Mathematics and Physics, 6(2018) 880-887.

指导硕士生

2007 级　陆云增，孟宪亮
2008 级　程俊荣，马海凤
2009 级　申盼
2010 级　晁震，王芳
2011 级　韦友桂，周利娟
2012 级　陈媛
2013 级　李静，吕月燕
2014 级　徐朋勃
2015 级　张迅
2016 级　张婷，杨凤
2017 级　王帅丽，邹乐乐
2018 级　袁翔，赖珊珊
2019 级　隆雪琴，洪琳依