

**Sun Zhizhong, Professor**

Mathematics department, Southeast University, Jiulonghu Campus, Jiangning District, Nanjing, Jiangsu Province, P.R. China, 211189

Phone: 13022509760

Email: zzsun@seu.edu.cn

## **1. Biography**

Sun Zhizhong, male, was born in March 1963. Since 1990, he has taught at the School of Mathematics, Southeast University, now a professor and doctoral tutor, young and middle-aged academic leaders of "blue project" in colleges and universities in Jiangsu Province. From January 1997 to November 2013, he served as the director of the Computational Mathematics Department. From April 1998 to April 2014, he served as head coach of Southeast University's model contest. Since 1998, he has been the head of the "Numerical Analysis" course for the Master of Engineering degree program in the university.

Since 1990, he has taught at the School of Mathematics, Southeast University. In October 1990, he was a lecturer. In December 1994, he was an associate professor. In April 1998, he became a professor. He gave lectures on "Numerical Solutions to Partial Differential Equations," "Calculation Methods," "Numerical Methods for Nonlinear Development Equations," and "Numerical Analysis." The specialty is Computational Mathematics and Scientific Engineering Computation. The research direction is the differential method theory in the numerical solution of partial differential equations. He has been hosted 4 projects of the National Natural Science Foundation of China and 1 project of the Natural Science Foundation of Jiangsu Province, and participated in the completion of 2 national fund projects. Now he is hosting a project of the National Natural Science Foundation of China.

He published more than 100 research papers in domestic and international academic journals such as SIAM J. Numer. Anal., SIAM Journal on Scientific Comput., Numer. Math., Math. Comput., J. Comput. Physics, J. Scientific Comput. "Appl. Numer. Math.", "Numer. Methods Partial Differential Eqs", "J. Comput. Appl. Math.", "J. Comput. Math.", "Sci. China Math.", "Computational Mathematics". He has published 3 monographs and 6 textbooks. In September 1997, he began to direct graduate students. 28 master graduate students have been instructed and 7 graduate doctoral students have been instructed.

In 1984, he obtained a Bachelor of Science degree in Mathematics from Nanjing University. In 1987, he obtained a Master of Science in Mathematics from Nanjing University. In 1990, he obtained a Ph.D. in Science from the Computing Center of the Chinese Academy of Sciences (now the Computational Mathematics and Scientific Engineering Computing Institute).

## 2. Expert Experience

- National "Tomorrow Little Scientist" Review Expert
- National juvenile science and technology innovation contest preliminary evaluation expert
- National college entrance examination proposition expert
- National Fund Project Review Expert
- National Postdoctoral Fund Review Expert
- Over 60 Chinese and foreign scientific journal reviewers

## 3. Projects

6. Nano-scale multilayer film thermal conduction mathematical model and its high-precision numerical algorithm. Approval number: 11671081. January 2017 to December 2020. National Natural Science Foundation of China. (Host)

5. High-precision fast algorithm for space fractional partial differential equations. Approval number: 11271068. January 2013 to December 2016. Country Natural Science Fund. (Host)

4. Study on the difference method of initial-boundary value problems for fractional partial differential equations. Approval number: 10871044. January 2009 to December 2011. National Nature Science Fund. (Host)

3. Research on some higher-order difference methods for nonlinear evolution equations, approval number: 10471023. From January 2005 to December 2007. National Nature Science Fund. (Host)

2. The theory of price reduction in differential simulation of highly nonlinear strongly coupled partial differential equations. Approval number: 19801007. January 1999 to 2001 December. National Natural Science Foundation of China. (Host)

1. The price reduction method in differential simulation of highly nonlinear strongly coupled partial differential equations. Approval number: BK97004. January 1999 to 2001 December. Jiangsu Provincial Natural Science Foundation. (Host)

## 4. Honors

30. The 2015-2016 academic year "Southeast University Middle-Thailand Award Scholarship Award". Southeast University Education Foundation. June 2016.

29. The Southeast University's 2014-2015 education, educating, educating, and educating activists were the activists of the Southeast University. April 2016

28. The Third Prize of the 11th Natural Science Outstanding Academic Paper Award in Nanjing. (December 2015)

Award-winning thesis: Gao Guanghua, Sun Zhizhong, Zhang Hongwei, A new fractional numerical differentiation formula to approximate the Caputo fractional derivative and its applications, Journal of Computational Physics, 259 (2014) 33–50

27. Outstanding Doctoral Dissertation Supervisor of Southeast University in 2015. June 2015.

- Doctoral Dissertation: Zhao Wei, "High-Order Difference Method for Fractional Partial Differential Equations and Its Application"
26. 2013 Journal of Computational Physics outstanding reviewers. June 2014.
25. Mathematical model and numerical implementation of media imaging , Jiangsu Provincial People's Government, Jiangsu Science and Technology Award, Third Prize, Rank 2. March 2012.
24. "Exploration and Practice of Undergraduate Mathematical Modeling Competence and Innovative Talent Cultivation" won the first prize of Jiangsu Provincial Higher Education Teaching Achievement Award, Jiangsu Province Education Hall, ranking 3. September 2011 .
23. 2010-2011 school year "Southeast University Middle School Thailand Awards Teaching Award". Southeast University Education Foundation. June 2011.
22. "Exploration and Practice of Undergraduate Mathematical Modeling Competence and Innovative Talent Cultivation" won the first prize in teaching achievement at Southeast University, rank 3. Southeast University. May 2011.
21. 2008-2009 academic year "Xu Guoping Lin Jianzhong Award". Southeast University Education Foundation. June 2009
20. Young academic leaders of the "blue project" in colleges and universities in Jiangsu Province. year 2006.
19. China Academy of Computational Mathematics 2011 Outstanding Youth Dissertation Contest Awards Instructor  
Award-winning thesis: Liao Honglin, Sun Zhizhong, Shi Hansheng , Error estimate of fourth-order compact scheme for linear Schrödinger Equations. SIAM J. Numer. Anal. 47 (2010), no. 6, 4381--4401.
18. Excellent master's thesis supervisor at Southeast University. August 2008.  
Master's thesis: Cao Haiyan, "Second-order difference scheme for asymmetrically strongly coupled reaction-diffusion system "
17. Outstanding master thesis supervisor of Jiangsu Province. October 2009.  
Master's thesis: Xu Pei-pei "The simulation of finite difference methods for two types of nonlinear partial differential equations"
16. 2004-2005 school year "Lin Jianzhong Award". Southeast University Education Foundation. June 2005.
15. The second prize for outstanding teaching materials of Southeast University in 2004 (ranking 2). Textbook Name: "Calculation Method and Practice". Dec 2004.
14. 2004 Jiangsu Provincial Teaching Achievement Award (ranked 6). Award-winning results: Carry out mathematical modeling activities to promote science and engineering mathematics curriculum system reform. Feb 2005
13. 2004 Southeast University Teaching Achievement Award Grand Prize (rank 3 ). Award-winning results: Carry out mathematical modeling activities to promote science and engineering mathematics curriculum system reform. Nov 2004.
12. Outstanding first prize in teaching work of Southeast University in 2003. Sep 2003.
11. 2003 Outstanding Graduate teaching award Southeast University (ranked 1). Textbook Name: "Numerical Analysis".

10. Jiangsu Postgraduate Training Innovative Projects for Excellent Postgraduate Studies (rank 1 ). Course Name: Numerical Analysis. Jiangsu Provincial Degree Committee, Jiangsu Provincial Department of Education. Dec 2002.
9. Undergraduates of Jiangsu Province cultivated an excellent project group for innovative engineering (ranking 4 ). Course Name: "Engineering Mathematics Group". Jiangsu Provincial Degree Committee , Jiangsu Provincial Department of Education. June 2002.
8. Excellent instructor for the National College Student Mathematical Modeling Contest . The National Mathematical Modeling Competition for Undergraduate Students Organizing Committee. December 2001.
7. The "Calculation Method and Practice" textbook was rated as the national best-selling book in 2001. China Book Publishing Industry Association. December 2001.
6. 1999-2000 school year "Southeast University - Huawei Award ". Southeast University Education Foundation. June 2000.
5. Excellent coach of the Jiangsu Division in the National Mathematical Modeling Contest for College Students in 1999. Jiangsu Provincial Education Commission. December 1999.
4. Outstanding Second Prize in teaching work of South East University in 1998. Sep 1998.
3. Outstanding Third Prize in Teaching Work for Southeast University in 1996. Sep 1996.
2. Yileda Elite Young Teacher Award 1995-1996. Southeast University Education Foundation. June 1996.
1. 1995 Special Award for Teaching Excellence in Southeast University (ranking 3). Sep 1995.

## 5. Publication list

### 2017

124. Cui-cui Ji, Zhi-zhong Sun, An unconditionally stable and high-order convergent difference scheme for Stokes' first problem for a heated generalized second grade fluid with fractional derivative, Numerical Mathematics: Theory, Methods and Applications.2017
123. Zhaopeng Hao, G. Lin, Zhi-Zhong Sun, A high-order difference scheme for the fractional sub-diffusion equation, International Journal of Computer Mathematics, DOI: 10.1080/00207160.2015.1109642. , online: 18 Oct 2015
122. Guang-hua Gao, Zhi-zhong Sun, Two difference schemes for solving the one-dimensional time distributed-order fractional wave equations, Numer Algor, DOI 10.1007/s11075-016-0167-y
121. Hong Sun, Zhi-zhong Sun, Weizhong Dai, A second-order finite difference scheme for solving the dual-phase-lagging equation in a double-layered nanoscale thin film, Numer Methods Partial Differential Eq33: 142–173
120. Zhao-peng Hao, Zhi-zhong Sun, A Linearized High-Order Difference Scheme for the Fractional Ginzburg–Landau Equation, Numer Methods Partial Differential Eq 33: 105–124

### 2016

119. Guang-hua Gao, Zhi-zhong Sun, Two Alternating Direction Implicit Difference Schemes for Solving the Two-Dimensional Time Distributed-Order Wave Equations, J Sci Comput, 69(2016)(2), 506-531
118. MR3499434 Du, Rui; Hao, Zhao-peng; Sun, Zhi-zhong, Lubich second-order methods for distributed-order time-fractional differential equations with smooth solutions. East Asian J. Appl. Math. 6 (2016), no. 2, 131–151.
117. MR3481764 Sun, Hong; Sun, Zhi-Zhong; Gao, Guang-Hua, Some temporal second order difference schemes for fractional wave equations. Numer. Methods Partial Differential Equations 32 (2016), no. 3, 970–1001.
116. MR3466107 Sun, Hong; Sun, Zhi-zhong; Gao, Guang-hua, Some high order difference schemes for the space and time fractional Bloch-Torrey equations. Appl. Math. Comput. 281 (2016), 356–380.

- 115.MR3454482 Ren, Jincheng; Sun, Zhi-zhong; Dai, Weizhong, New approximations for solving the Caputo-type fractional partial differential equations. *Appl. Math. Model.* 40 (2016), no. 4, 2625–2636.
114. MR3456974 Gao, Guang-hua; Sun, Zhi-zhong, Two alternating direction implicit difference schemes for two-dimensional distributed-order fractional diffusion equations. *J. Sci. Comput.* 66 (2016), no. 3, 1281–1312.
- 113.MR3456968 Ji, Cui-cui; Sun, Zhi-zhong; Hao, Zhao-peng, Numerical algorithms with high spatial accuracy for the fourth-order fractional sub-diffusion equations with the first Dirichlet boundary conditions. *J. Sci. Comput.* 66 (2016), no. 3, 1148–1174.
112. MR3454223 Gao, Guang-hua; Sun, Zhi-zhong, Two unconditionally stable and convergent difference schemes with the extrapolation method for the one-dimensional distributed-order differential equations. *Numer. Methods Partial Differential Equations* 32 (2016), no. 2, 591–615.
- 111.MR3437705 Hao, Zhaopeng; Fan, Kai; Cao, Wanrong; Sun, Zhizhong, A finite difference scheme for semilinear space-fractional diffusion equations with time delay. *Appl. Math. Comput.* 275 (2016), 238–254.

## 2015

- 110.MR3445740 Cui, Jin; Sun, Zhi Zhong; Wu, Hong Wei, A highly accurate and conservative difference scheme for the solution of a nonlinear Schrödinger equation. (Chinese) *Numer. Math. J. Chinese Univ.* 37 (2015), no. 1, 31–52.
109. MR3426141 Cao, HaiYan; Sun, ZhiZhong, Two finite difference schemes for the phase field crystal equation. *Sci. China Math.* 58 (2015), no. 11, 2435–2454.
108. MR3401915 Du, Rui; Sun, Zhi-zhong; Gao, Guang-hua, A second-order linearized three-level backward Euler scheme for a class of nonlinear expitaxial growth model. *Int. J. Comput. Math.* 92 (2015), no. 11, 2290–2309.
107. MR3403708 Sun, Hong; Du, Rui; Dai, Weizhong; Sun, Zhi-zhong, A high order accurate numerical method for solving two-dimensional dual-phase-lagging equation with temperature jump boundary condition in nanoheat conduction. *Numer. Methods Partial Differential Equations* 31 (2015), no. 6, 1742–1768.
106. MR3396820 Ji, Cui-cui; Sun, Zhi-zhong The high-order compact numerical algorithms for the two-dimensional fractional sub-diffusion equation. *Appl. Math. Comput.* 269 (2015), 775–791.
105. MR3395290 Ren, Jincheng; Sun, Zhi-Zhong, Efficient numerical solution of the multi-term time fractional diffusion-wave equation. *East Asian J. Appl. Math.* 5 (2015), no. 1, 1–28.
104. MR3374554 Gao, Guang-hua; Sun, Hai-wei; Sun, Zhi-zhong, Some high-order difference schemes for the distributed-order differential equations. *J. Comput. Phys.* 298 (2015), 337–359.
103. MR3377846 Ji, Cui-cui; Sun, Zhi-zhong A high-order compact finite difference scheme for the fractional sub-diffusion equation. *J. Sci. Comput.* 64 (2015), no. 3, 959–985.
102. MR3342466 Zhao, Xuan; Sun, Zhi-zhong; Karniadakis, George Em, Second-order approximations for variable order fractional derivatives: algorithms and applications. *J. Comput. Phys.* 293 (2015), 184–200.
101. MR3332297 Hao, Zhao-Peng; Sun, Zhi-Zhong; Cao, Wan-Rong, A three-level linearized compact difference scheme for the Ginzburg-Landau equation. *Numer. Methods Partial Differential Equations* 31 (2015), no. 3, 876–899.
100. MR3331808 Gao, Guang-hua; Sun, Zhi-zhong Two, alternating direction implicit difference schemes with the extrapolation method for the two-dimensional distributed-order differential equations. *Comput. Math. Appl.* 69 (2015), no. 9, 926–948.
99. MR3317085 Sun, Hong; Sun, Zhi-zhong, On two linearized difference schemes for Burgers' equation. *Int. J. Comput. Math.* 92 (2015), no. 6, 1160–1179.
98. MR3316069 Ren, Jincheng; Sun, Zhi-zhong, Maximum norm error analysis of difference schemes for fractional diffusion equations. *Appl. Math. Comput.* 256 (2015), 299–314.

97. MR3304331 Zhao, Xuan; Sun, Zhi-Zhong, Compact Crank-Nicolson schemes for a class of fractional Cattaneo equation in inhomogeneous medium. *J. Sci. Comput.* 62 (2015), no. 3, 747–771.
96. MR3281995 Hao, Zhao-peng; Sun, Zhi-zhong; Cao, Wan-rong, A fourth-order approximation of fractional derivatives with its applications. *J. Comput. Phys.* 281 (2015), 787–805.
95. MR3290959 Qiao, Zhonghua; Sun, Zhi-Zhong; Zhang, Zhengru, Stability and convergence of second-order schemes for the nonlinear epitaxial growth model without slope selection. *Math. Comp.* 84 (2015), no. 292, 653–674.
94. MR3273149 Gao, Guang-Hua; Sun, Hai-Wei; Sun, Zhi-Zhong, Stability and convergence of finite difference schemes for a class of time-fractional sub-diffusion equations based on certain superconvergence. *J. Comput. Phys.* 280 (2015), 510–528.

## 2014

93. MR3285901 Zhao, Xuan; Sun, Zhi-zhong; Hao, Zhao-peng, A fourth-order compact ADI scheme for two-dimensional nonlinear space fractional Schrödinger equation. *SIAM J. Sci. Comput.* 36 (2014), no. 6, A2865–A2886.
92. MR3233674 Ren, Jincheng; Sun, Zhi-zhong, Efficient and stable numerical methods for multi-term time fractional sub-diffusion equations. *East Asian J. Appl. Math.* 4 (2014), no. 3, 242–266.
91. MR3216765 Cao, Hai-Yan; Sun, Zhi-Zhong; Zhao, Xuan, A second-order three-level difference scheme for a magneto-thermo-elasticity model. *Adv. Appl. Math. Mech.* 6 (2014), no. 3, 281–298.
90. MR3200277 Sun, Zhi-Zhong; Dai, Weizhong, A new higher-order accurate numerical method for solving heat conduction in a double-layered film with the Neumann boundary condition. *Numer. Methods Partial Differential Equations* 30(2014), no. 4, 1291–1314.
89. MR3173143 Zhang, Ya-nan; Sun, Zhi-zhong; Liao, Hong-lin, Finite difference methods for the time fractional diffusion equation on non-uniform meshes. *J. Comput. Phys.* 265 (2014), 195–210.
88. MR3163970 Cao, Hai-Yan; Sun, Zhi-Zhong; Gao, Guang-Hua, A three-level linearized finite difference scheme for the Camassa-Holm equation. *Numer. Methods Partial Differential Equations* 30 (2014), no. 2, 451–471.
87. MR3167729 Zhang, Ya-nan; Sun, Zhi-zhong, Error analysis of a compact ADI scheme for the 2D fractional subdiffusion equation. *J. Sci. Comput.* 59 (2014), no. 1, 104–128.
86. MR3148558 Gao, Guang-hua; Sun, Zhi-zhong; Zhang, Hong-wei, A new fractional numerical differentiation formula to approximate the Caputo fractional derivative and its applications. *J. Comput. Phys.* 259 (2014), 33–50.
85. MR3149407 Ren, Jincheng; Sun, Zhi-zhong; Cao, Hai-yan, A numerical method for solving the nonlinear Fermi-Pasta-Ulam problem. *Numer. Methods Partial Differential Equations* 30 (2014), no. 1, 187–207.

## 2013

84. MR3171843 Liao, Hong-Lin; Sun, Zhi-Zhong, A two-level compact ADI method for solving second-order wave equations. *Int. J. Comput. Math.* 90 (2013), no. 7, 1471–1488.
83. MR3092317 Zhang, Ya-nan; Sun, Zhi-zhong; Wang, Ting-chun, Convergence analysis of a linearized Crank-Nicolson scheme for the two-dimensional complex Ginzburg-Landau equation. *Numer. Methods Partial Differential Equations* 29 (2013), no. 5, 1487–1503.
82. MR3092316 Gao, Guang-Hua; Sun, Zhi-Zhong, Compact difference schemes for heat equation with Neumann boundary conditions (II). *Numer. Methods Partial Differential Equations* 29 (2013), no. 5, 1459–1486.

81. MR3097430 Zhu, You-lan; Wu, Xiaonan; Chern, I-Liang; Sun, Zhi-zhong, Derivative securities and difference methods. Second edition. Springer Finance. Springer, New York, 2013. xxii+647 pp. ISBN: 978-1-4614-7305-3; 978-1-4614-7306-0

80. MR3071181 Ren, Jincheng; Sun, Zhi-zhong, Numerical algorithm with high spatial accuracy for the fractional diffusion-wave equation with Neumann boundary conditions. *J. Sci. Comput.* 56 (2013), no. 2, 381–408.

79. MR3020065 Gao, Guang-hua; Sun, Zhi-zhong The finite difference approximation for a class of fractional sub-diffusion equations on a space unbounded domain. *J. Comput. Phys.* 236 (2013), 443–460.

78. MR3002185 Sun, Zhi-zhong; Zhang, Zai-bin, A linearized compact difference scheme for a class of nonlinear delay partial differential equations. *Appl. Math. Model.* 37 (2013), no. 3, 742–752.

77. MR2994309 Ren, Jincheng; Sun, Zhi-zhong; Zhao, Xuan, Compact difference scheme for the fractional sub-diffusion equation with Neumann boundary conditions. *J. Comput. Phys.* 232 (2013), 456–467.

## 2012

76. MR2981875 Qiao, Zhonghua; Sun, Zhi-zhong; Zhang, Zhengru, The stability and convergence of two linearized finite difference schemes for the nonlinear epitaxial growth model. *Numer. Methods Partial Differential Equations* 28 (2012), no. 6, 1893–1915.

75. MR2970754 Zhang, Ya-Nan; Sun, Zhi-Zhong; Zhao, Xuan, Compact alternating direction implicit scheme for the two-dimensional fractional diffusion-wave equation. *SIAM J. Numer. Anal.* 50 (2012), no. 3, 1535–1555.

74. MR2950686 Liao, Hong-Lin; Sun, Zhi-Zhong; Shi, Han-Sheng; Wang, Ting-Chun, Convergence of compact ADI method for solving linear Schrödinger equations. *Numer. Methods Partial Differential Equations* 28 (2012), no. 5, 1598–1619.

73. MR2882104 Gao, Guang-hua; Sun, Zhi-zhong; Zhang, Ya-nan, A finite difference scheme for fractional sub-diffusion equations on an unbounded domain using artificial boundary conditions. *J. Comput. Phys.* 231 (2012), no. 7, 2865–2879.

72. MR2903464 Li, Juan; Sun, ZhiZhong; Zhao, Xuan, A three level linearized compact difference scheme for the Cahn-Hilliard equation. *Sci. China Math.* 55 (2012), no. 4, 805–826.

71. MR2885601 Sun, Weiwei; Sun, Zhi-zhong Finite difference methods for a nonlinear and strongly coupled heat and moisture transport system in textile materials. *Numer. Math.* 120 (2012), no. 1, 153–187.

70. MR2870041 Sun, Zhi-zhong; Wu, Xiaonan; Zhang, Jiwei; Wang, Desheng, A linearized difference scheme for semilinear parabolic equations with nonlinear absorbing boundary conditions. *Appl. Math. Comput.* 218 (2012), no. 9, 5187–5201.

69. MR2863784 Gao, Guang-hua; Sun, Zhi-zhong, A finite difference approach for the initial-boundary value problem of the fractional Klein-Kramers equation in phase space. *Cent. Eur. J. Math.* 10 (2012), no. 1, 101–115.

## 2011

68. MR2845015 Zhang, Ya-nan; Sun, Zhi-zhong, Alternating direction implicit schemes for the two-dimensional fractional sub-diffusion equation. *J. Comput. Phys.* 230 (2011), no. 24, 8713–8728.

67. MR2853242 Zhang, Yu-lian; Sun, Zhi-zhong, A second-order linearized finite difference scheme for the generalized Fisher-Kolmogorov-Petrovskii-Piskunov equation. *Int. J. Comput. Math.* 88 (2011), no. 16, 3394–3405.

66. MR2854597 Zhang, Ya-Nan; Sun, Zhi-Zhong; Wu, Hong-Wei, Error estimates of Crank-Nicolson-type difference schemes for the subdiffusion equation. *SIAM J. Numer. Anal.* 49 (2011), no. 6, 2302–2322.

65. MR2807197 Zhang, Jiwei; Sun, Zhizhong; Wu, Xiaonan; Wang, Desheng, Analysis of high-order absorbing boundary conditions for the Schrödinger equation. *Commun. Comput. Phys.* 10 (2011), no. 3, 742–766.

64. MR2804966 Zhao, Xuan; Sun, Zhi-zhong, A box-type scheme for fractional sub-diffusion equation with Neumann boundary conditions. *J. Comput. Phys.* 230 (2011), no. 15, 6061–6074.

63. MR2763137 Liao, Hong-lin; Sun, Zhi-zhong, Maximum norm error estimates of efficient difference schemes for second-order wave equations. *J. Comput. Appl. Math.* 235 (2011), no. 8, 2217–2233.

62. MR2745445 Gao, Guang-hua; Sun, Zhi-zhong, A compact finite difference scheme for the fractional sub-diffusion equations. *J. Comput. Phys.* 230 (2011), no. 3, 586–595.

## 2010

61. MR2789023 Wang, Jialing; Sun, Zhizhong, A second order difference scheme for one-dimensional Stefan problem. *Nanjing Daxue Xuebao Shuxue Bannian Kan* 27 (2010), no. 2, 218–229.

60. MR2759616 Zhang, Zai Bin; Sun, Zhi Zhong, A Crank-Nicolson scheme for a class of delay nonlinear parabolic differential equations. (Chinese) *J. Numer. Methods Comput. Appl.* 31 (2010), no. 2, 131–140.

59. MR2651618 Du, R.; Cao, W. R.; Sun, Z. Z., A compact difference scheme for the fractional diffusion-wave equation. *Appl. Math. Model.* 34 (2010), no. 10, 2998–3007.

58. MR2651867 Sun, Zhi-zhong; Zhao, Dan-dan, On the  $L^\infty$  convergence of a difference scheme for coupled nonlinear Schrödinger equations. *Comput. Math. Appl.* 59 (2010), no. 10, 3286–3300.

57. MR2645212 Cao, Wan-Rong; Sun, Zhi-Zhong, Maximum norm error estimates of the Crank-Nicolson scheme for solving a linear moving boundary problem. *J. Comput. Appl. Math.* 234 (2010), no. 8, 2578–2586.

56. MR2585191 Liao, Hong-Lin; Sun, Zhi-Zhong; Shi, Han-Sheng, Error estimate of fourth-order compact scheme for linear Schrödinger equations. *SIAM J. Numer. Anal.* 47 (2010), no. 6, 4381–4401.

55. MR2588905 Liao, Hong-Lin; Sun, Zhi-Zhong, Maximum norm error bounds of ADI and compact ADI methods for solving parabolic equations. *Numer. Methods Partial Differential Equations* 26 (2010), no. 1, 37–60.

## 2009

54. MR2566651 Liao, Hong-Lin; Shi, Han-Sheng; Sun, Zhi-Zhong, Corrected explicit-implicit domain decomposition algorithms for two-dimensional semilinear parabolic equations. *Sci. China Ser. A* 52 (2009), no. 11, 2362–2388.

53. MR2561552 Sun, Zhi-Zhong, Compact difference schemes for heat equation with Neumann boundary conditions. *Numer. Methods Partial Differential Equations* 25 (2009), no. 6, 1320–1341.

52. MR2493405 Sun, Zhi-Zhong; Wu, Xiao-Nan A difference scheme for Burgers equation in an unbounded domain. *Appl. Math. Comput.* 209 (2009), no. 2, 285–304.

51. MR2478579 Ye, Chao-rong; Sun, Zhi-zhong, A linearized compact difference scheme for an one-dimensional parabolic inverse problem. *Appl. Math. Model.* 33 (2009), no. 3, 1521–1528.

50. MR2473684 Xu, Pei-Pei; Sun, Zhi-Zhong A second-order accurate difference scheme for the two-dimensional Burgers' system. *Numer. Methods Partial Differential Equations* 25 (2009), no. 1, 172–194.

## 2008

49. MR2191510 Wang, Jialing; Sun, Zhizhong, A finite difference method for the heat equation with a nonlinear boundary condition. *Numer. Math. J. Chinese Univ.* 30 (2008), no. 4, 289–309.

48. MR2371360 Han, Houde; Sun, Zhi-zhong; Wu, Xiao-nan, Convergence of a difference scheme for the heat equation in a long strip by artificial boundary conditions. *Numer. Methods Partial Differential Equations* 24 (2008), no. 1, 272–295.

47. MR2371345 Cao, Hai-yan; Sun, Zhi-zhong, A second-order linearized difference scheme for a strongly coupled reaction-diffusion system. *Numer. Methods Partial Differential Equations* 24 (2008), no. 1, 9–23.



## 2007

46. MR2458062 Sun, Zhi Zhong; Wu, Jing Yu, Numerical simulation of a class of coupled parabolic equations in geoscience. (Chinese) *Acta Math. Appl. Sin.* 30 (2007), no. 6, 1097–1116.
45. MR2341459 Liu, Jianming; Sun, Zhizhong Finite difference method for reaction-diffusion equation with nonlocal boundary conditions. *Numer. Math. J. Chin. Univ. (Engl. Ser.)* 16 (2007), no. 2, 97–111.
44. MR2327108 Ye, Chao-rong; Sun, Zhi-zhong, On the stability and convergence of a difference scheme for an one-dimensional parabolic inverse problem. *Appl. Math. Comput.* 188 (2007), no. 1, 214–225.
43. MR2289464 Li, Wei-Dong; Sun, Zhi-Zhong; Zhao, Lei, An analysis for a high-order difference scheme for numerical solution to  $u_t = A(x,t)u_{xx} + F(x,t,u,u_t,u_x)$ . *Numer. Methods Partial Differential Equations* 23 (2007), no. 2, 484–498.
42. MR2289238 Li, Fu-le; Sun, Zhi-zhong, A finite difference scheme for solving the Timoshenko beam equations with boundary feedback. *J. Comput. Appl. Math.* 200 (2007), no. 2, 606–627.
41. MR2275459 Sun, Zhi-zhong; Zhao, Lei; Li, Fu-Le, A difference scheme for a parabolic system modelling the thermoelastic contacts of two rods. *Numer. Methods Partial Differential Equations* 23 (2007), no. 1, 1–37.

## 2006

40. MR2293268 Jiang, Mingjie; Sun, Zhizhong, Second-order difference scheme for a nonlinear model of wood drying process. *J. Southeast Univ. (English Ed.)* 22 (2006), no. 4, 582–588.
39. MR2274961 Sun, Zhi-zhong, The stability and convergence of an explicit difference scheme for the Schrödinger equation on an infinite domain by using artificial boundary conditions. *J. Comput. Phys.* 219 (2006), no. 2, 879–898.
38. MR2255656 Li, Xue Ling; Sun, Zhi Zhong, A compact alternate direct implicit difference method for reaction-diffusion equations with variable coefficients. (Chinese) *Numer. Math. J. Chinese Univ.* 28 (2006), no. 1, 83–95.
37. MR2230278 Li, Wei-Dong; Sun, Zhi-Zhong, An analysis for a high-order difference scheme for numerical solution to  $u_{xx} = F(x,t,u,u_t,u_x)$ . *Numer. Methods Partial Differential Equations* 22 (2006), no. 4, 897–919.
36. MR2212235 Zhao, Lei; Sun, Zhi-zhong; Liu, Jian-ming Numerical solution to a one-dimensional thermoplastic problem with unilateral constraint. *Numer. Methods Partial Differential Equations* 22 (2006), no. 3, 744–760.
35. MR2208677 Sun, Zhi-zhong; Wu, Xiaonan, The stability and convergence of a difference scheme for the Schrödinger equation on an infinite domain by using artificial boundary conditions. *J. Comput. Phys.* 214 (2006), no. 1, 209–223.
34. MR2200938 Sun, Zhi-zhong; Wu, Xiaonan, A fully discrete difference scheme for a diffusion-wave system. *Appl. Numer. Math.* 56 (2006), no. 2, 193–209.

## 2005

33. MR2164750 Sun, Zhi Zhong; Li, Xue Ling, A compact alternating direction implicit difference method for reaction diffusion equations. (Chinese) *Math. Numer. Sin.* 27 (2005), no. 2, 209–224.

## 2004

32. MR2066740 Wu, Xiaonan; Sun, Zhi-Zhong, Convergence of difference scheme for heat equation in unbounded domains using artificial boundary conditions. *Appl. Numer. Math.* 50 (2004), no. 2, 261–277.
31. MR2051113 Sun, Zhi-zhong; Zhu, You-lan, A second order accurate difference scheme for the heat equation with concentrated capacity. *Numer. Math.* 97 (2004), no. 2, 379–395.
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