

LONG CHEN

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Academic Experience

- **Assistant Professor** Jul. 2007 – present
Department of Mathematics, University of California at Irvine, Irvine, CA
- **Postdoctoral Fellow** Sep. 2006 – Jun. 2007
Department of Mathematics, University of Maryland, College Park, MD
- **Postdoctoral Fellow** Sep. 2005 - Aug. 2006
Department of Mathematics, University of California, San Diego, La Jolla, CA
- **Research or Teaching Assistant** Aug. 2000 - Aug. 2005
Department of Mathematics, Pennsylvania State University, University Park, PA

Education

- **Ph.D Applied Mathematics** Aug. 2000 - Dec. 2005
Pennsylvania State University, University Park, PA, USA
- **M.S Mathematics** Sep. 1997 – Jul. 2000
Peking University, Beijing, CHINA
- **B.S Mathematics** Sep. 1993 - Jul. 1997
Nanjing University, Nanjing, CHINA

Research Funding

- Start-up funds
Physical Sciences Dean's Office, University of California, Irvine
- NSF grant (PI) DMS-0811272 \$149,999.00
Sept 2008 - Aug 2011

Research Interest

- Numerical Approximation of Partial Differential Equations
- Theory and Application of Adaptive Finite Element Methods
- Design and Analysis of Multigrid Methods
- Grid Generation and Computational Geometry

Award

- 2005 Alumni Association Dissertation Award (\$5,000) of Pennsylvania State University

Publication

• Paper

1. L. Chen and J. Xu. Optimal Delaunay triangulations. *Journal of Computational Mathematics*, 22(2):299–308, 2004.
2. L. Chen. Mesh smoothing schemes based on optimal Delaunay triangulations. In *13th International Meshing Roundtable*, pages 109–120, Williamsburg, VA, 2004. Sandia National Laboratories.
3. L. Chen, P. Sun, and J. Xu. Multilevel homotopic adaptive finite element methods for convection dominated problems. In *The Proceedings for 15th Conferences for Domain Decomposition Methods*, Lecture Notes in Computational Science and Engineering 40, pages 459–468. Springer, 2004.
4. L. Chen. New analysis of the sphere covering problems and optimal polytope approximation of convex bodies. *Journal of Approximation Theory*, 133(1):134–145, 2005.
5. L. Chen and J. Xu. An optimal streamline diffusion finite element method for a singularly perturbed problem. In *AMS Contemporary Mathematics Series: Recent Advances in Adaptive Computation*, volume 383, pages 236–246, Hangzhou, 2005.
6. L. Chen. Superconvergence of tetrahedral linear finite elements. *International Journal of Numerical Analysis and Modeling*, 3(3):273–282, 2006.
7. J. Jiang, S. Shu, Y. Huang, and L. Chen. A Mesh Adaptive Mesh Method for Two Dimensional Heat Conduction Equations with Three Temperatures. *Chinese Journal of Computational Physics*, 24(1):19–28, 2007.
8. L. Chen, P. Sun, and J. Xu. Optimal anisotropic simplicial meshes for minimizing interpolation errors in L^p -norm. *Mathematics of Computation*, 76(257):179–204, 2007.
9. L. Chen, M.J. Holst, and J. Xu. The Finite Element Approximation of the Nonlinear Poisson-Boltzmann Equation. *SIAM Journal on Numerical Analysis*, 45(6): 2298–2320, 2007.
10. L. Chen and J. Xu. Stability and accuracy of adapted finite element methods for singularly perturbed problems. *Numerische Mathematik*, 109(2): 167–191, 2008.
11. L. Chen, Y. Wang, and J. Wu. Stability of a streamline diffusion finite element method for turning point problems. *Journal of Computational and Applied Mathematics*, 220: 712–724, 2008.
12. L. Chen. On minimizing the linear interpolation error of convex quadratic functions and the optimal simplex. *East Journal of Approximation*, East Journal on Approximations, 14(3), 271–284, 2008.
13. L. Chen, M.J. Holst, and J. Xu. Convergence and optimality of adaptive mixed finite element methods. *Mathematics of Computation*, Article in Press, DOI: 10.1090/S0025-5718-08-02155-8, 2008.
14. L. Chen and H. Li. Superconvergence of Gradient Recovery Schemes on graded meshes for corner singularities. Accepted by *Journal of Computational Mathematics*. 2008.

Submitted Paper/Technical Report

15. L. Chen. A New Class of High Order Finite Volume Methods for Second Order Elliptic equations. Submitted. 2008.
16. L. Chen and C-S. Zhang. A coarsening algorithm and multilevel methods on adaptive grids by newest vertex bisection. Submitted, 2007.
17. L. Chen. Short bisection implementation in MATLAB. *Research Notes*, 2006.
18. L. Chen and M.J. Holst. Efficient Mesh Optimization Schemes based on Optimal Delaunay Triangulations. *Technical Report*, University of California, San Diego, 2006.

19. L. Chen and C-S. Zhang. AFEM@matlab: a MATLAB package of Adaptive Finite Element Methods. *Technical Report. University of Maryland.* 2006.
20. L. Chen, R.H. Nochetto and J. Xu. Multilevel methods on graded bisection grids I: H1 system. *Technical Report. University of Maryland.* 2007.
21. L. Chen, R.H. Nochetto and J. Xu. Multilevel methods on graded bisection grids II: H(curl) and H(div) systems. *Technical Report. University of Maryland.* 2007.

Monograph

22. L. Chen. *Robust and Accurate Algorithms for Solving Anisotropic Singularities.* PhD thesis, Department of Mathematics, The Pennsylvania State University, 2005.
23. L. Chen and J. Xu. *Topics on adaptive finite element methods.* in Adaptive Computations: Theory and Algorithms, T. Tang and J. Xu, eds., Science Press, Beijing, 2007, pp. 1–31.

Presentation

- Chinese Academy of Sciences, CHINA, July 7, 2008.
- Summer School on AFEM and Multigrid, Beijing, CHINA, July 7–11, 2008.
- Foundation of Computational Mathematics, Hong Kong, CHINA, June 20, 2008.
- Mathematical Sciences Seminars and Colloquium, University of Nevada at Las Vegas, May 6, 2008.
- Applied Math Seminar, University of California, Irvine, April 21, 2008.
- Xiangtan University, CHINA, March 25, 2008.
- Graduate Seminar, University of California, Irvine, November 16, 2007.
- 10th SIAM conference on Geometric Design and Computing, San Antonio, Texas, November 4, 2007.
- Summer School on AFEM and Multigrid, Beijing, CHINA, June, 2007.
- Mathematical and Computational Sciences Division Seminar Series, National Institute of Standards and Technology (NIST), June 5, 2007.
- NSF-CBMS Regional Research Conference, University of Iowa, May 23, 2007.
- Finite Element Circus, University of Maryland, April 21, 2007.
- Numerical Analysis Seminar, University of Maryland, January 30, 2007.
- University of California, Irvine (Special Recruitment Colloquium), January 19, 2007.
- Finite Element Circus, The Pennsylvania State University, November 4, 2006.
- Academy of Mathematics and System Sciences, Chinese Academy of Sciences. July 21, 2006.
- 2006 Summer School on the Multiscale Adaptive Method, Beijing University, July 17 – 21, 2006.
- Numerical Analysis Seminar, UCSD, May 23, 2006.
- Tech Report, National Biomedical Computation Resource, UCSD, Apr. 27, 2006
- Numerical Analysis Seminar, UCSD, Oct. 11, 2005.
- 8th US National Congress on Computational Mechanics Austin, Texas, July 24-28, 2005

- Midwest Numerical Analysis Conference, May 22, 2005
- University of California, San Diego (Special Recruitment Colloquium), Jan 6, 2005
- University of Delaware, Dec 13, 2004
- Wayne State University, Dec 8, 2004
- University of Maryland, Nov 30, 2004
- Finite Element Circus. Syracuse University, Oct 15, 2004
- CAM Luncheon Seminar in Penn State, Sep 24, 2004
- 13th International Meshing Roundtable. Williamsburg, VA. Sep. 20 2004
- Peking University, China, June 21, 2004
- Superconvergence and A Posteriori Error Estimates, Changsha, China, May 31-Jun 2, 2004
- Recent Advances in Adaptive Computation, Hangzhou, China, May 24-28, 2004
- Finite Element Circus, University of Pittsburgh, April 17 2004
- Finite Element Circus. Cornell University, Nov 8, 2003
- CAM Luncheon Seminar in Penn State, Nov 14, 2003

Teaching Experience

- Math 226 C: Computational Partial Differential Equations.
Spring 2008, Department of Mathematics, University of California at Irvine.
- Math 226 B: Computational Partial Differential Equations.
Winter 2008, Department of Mathematics, University of California at Irvine.
- Math 226 A: Computational Partial Differential Equations.
Fall 2007, Department of Mathematics, University of California at Irvine.
- Math 462: Partial Differential Equations for Scientists and Engineers.
Spring 2007, Department of Mathematics. University of Maryland, College Park.
- Math 246: Differential Equations for Scientists and Engineers.
Spring 2007, Department of Mathematics. University of Maryland, College Park.
- Math 20C: Calculus and Analytic Geometry for Science and Engineering.
Winter 2006, Department of Mathematics. University of California at San Diego.
- Math 20A: Calculus for Science and Engineering.
Fall 2005, Department of Mathematics, University of California at San Diego.
- Math 230: Multivariate and Vector Calculus.
Spring 2004, Department of Mathematics, The Pennsylvania State University.
- Math 230: Multivariate and Vector Calculus.
Fall 2003, Department of Mathematics, The Pennsylvania State University.
- Teaching Assistant.
Aug. 2000 - Aug. 2002. Department of Mathematics, The Pennsylvania State University.