

# Curriculum Vitae

## Personal data

Name                    Li Chen  
Date of Birth         March 9, 1973  
Place of Birth        Shenyang, Liaoning, China  
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## Education

09/1991—07/1995, Department of Mathematics, Liaoning University, B.S.;  
09/1995—07/1998, Institute of Mathematics, Jilin University, M.S.;  
09/1998—06/2001, Institute of Mathematics, Jilin University, Ph.D.

## Working Experience

06/2001—01/2003, Academy of Mathematics and System Science, Chinese Academy of Science, Post Dr.;  
01/2003—06/2003, Department of Mathematics, Mainz University, Research assistant;  
06/2004—06/2005, Department of Mathematics, Mainz University, Research assistant;  
07/2003—12/2005, Department of Mathematical Science, Tsinghua University, Assistant Professor  
12/2005—, Department of Mathematical Science, Tsinghua University, Associate Professor  
09/2007—06/2008, Department of Mathematics, Harvard University, Visiting Fellow  
01, 09-12/ 2011, Math Mods of EU, Visiting professor.

## Research interests

- Quantum hydrodynamic models in semiconductor simulation;
- Fluid dynamic models in semiconductor and plasma physics;
- Strong cross diffusion parabolic system;
- Mean field limit of many body Schrödinger problem;

- Parabolic Monge-Ampere equation and related curvature flows.

## Projects

- Quantum Transport Equations: Kinetic, Relativistic, and Diffusive Phenomena, NSFC No. 11011130029 (2010.1-2012.12), Main Participant;
- Partial differential equations in quantum mechanics, NSFC No. 10871112 (2009.1-2011.12), Project Manager;
- Nonequilibrium statistical mechanics, NSFC No. 10571101 (2006.1-2008.12), Main Participant;
- Quantum hydrodynamic models in applied sciences, NSFC No. 10401019 (2005.1-2007.12)Project Manager;
- Mathematical theory of strong cross diffusion parabolic system, Scientific Research Foundation for the Returned Overseas Chinese Scholars, State Education Ministry (2006.1-2007.12),Project Manager;

## Professional Experience

17/11/2002-22/11/2002, Visitor of Professor A. Juengel, Institute of Mathematics, Mainz University, Mainz, Germany.

01/11/2002-04/11/2002, Visitor of Professor P. Marckwich, Institute of Mathematics, Vienna University, Vienna, Austria.

24/09/2002–17/11/2002, Visitor of Professor G. Warnecke, Institute of Analysis and Numerics, Otto-von-Guericke-University Magdeburg, Germany.

27/11/2004–03/12/2004, Visitor of Professor Yue-Jun Peng, Universit/e Blaise Pascal, Clermont, France.

22/02/2005–28/02/2005, Visitor of Professor A. Tesei, University of Rome “La Sapienza”, Rome, Italy.

01/03/2005–04/03/2005, Visitor of Professor P. Macarti, University of L’Aquila, L’Aquila, Italy.

25/04/2005–30/04/2005, Visitor of Professor J.A. Carrillo, Universitat Autònoma de Barcelona, Spain.

25/05/2005–31/05/2005, Visitor of Professor M. Dreher, University of Konstanz, Germany.

09/05/2007—08/08/2007, Visitor of IMS, Chinese University of Hongkong.

28/10/2007—30/10/2007, Visitor of Professor C. Gui, University of Connecticut, U.S.

05/12/2007—05/12/2007, Visitor of Professor T. Luo, Worcester Polytechnic Institute, U.S.

09/02/2008—13/02/2008, Visitor of Professor R. Pan, Georgia Institute of Technology, U.S.

03/04/2008—06/04/2008, Visitor of Professor X. Xu, Mississippi State University, U.S.

09/04/2008—11/04/2008, Visitor of Professor J. Smoller, University of Michigan, U.S.

06/07/2008—13/07/2008, Visitor of Professor H.T.Yau, National Taiwan university, Taiwan.

10/02/2009—14/02/2009, Visitor of Professor A. Juengel, TU Vienna, Austria.

15/02/2009—08/03/2009, Visitor of Professor M. Dreher, University of Konstanz, Germany.

12/01/2010—09/02/2010, Visitor of Professor M. Dreher, University of Konstanz, Germany.

31/10/2010—06/11/2010, Visitor of Professor A. Juengel, TU Vienna, Austria.

06/11/2010—13/11/2010, Visitor of Professor H. Siedentop, Munich University, Germany.

## Invited talks

- 28/07/2011-30/07/2011, Guangzhou, China.
- 14/02/2011-18/02/2011, Chinese-German workshop: Analysis of Partial Differential Equations and Applications, Freiberg, Germany.
- 03/11/2010-05/11/2010, Dissipative System: Kinetic Theory and Semiconductor Applications, Vienna, Austria.
- 11/06/2010-14/06/2010, Fourth Workshop on Nonlinear Partial Differential Equations: Analysis, Computation and Applications, Taipei, Taiwan.
- 05/04/2010-09/04/2010, German-Chinese workshop in PDE related problems, Tianjin, P.R.China.
- 17/08/2009-20/08/2009, International conference on partial differential equations in fluid dynamics and related field, Northeast Dianli University, Jilin City, P. R. China.
- 09/08/2009-15/08/2009, Mathematical Theory and Numerical Methods for Computational Materials Simulation and Design, National University of Singapore, Singapore.

- 20/04/2009-24/04/2009, Quantum Systems and Semiconductor Devices: Analysis, Simulations, Applications, Peking University, Beijing.
- 02/03/2009-07/03/2009, German-Chinese workshop, Konstanz, Germany.
- 17/12/2008-21/12/2008, Joint Meeting of the American Mathematical Society and Shanghai Mathematical Society, Fudan University, Shanghai.
- 01/09/2008-12/09/2008, French-Chinese summer institute on Applied mathematics, Fudan University, Shanghai.

## Publications

1. J. A. Carrillo, L. Chen, J.-G. Liu and J. Wang, A Note on the Subcritical Two Dimensional Keller-Segel System, Submitted, (2011).
2. L. Chen, J.-G. Liu and J. Wang, Degenerate Keller-Segel system, Submitted, (2011).
3. S. Bian, L. Chen and M. Dreher, Boundary layer analysis in the semiclassical limit of a quantum drift diffusion model, Submitted, (2011).
4. L. Chen, Ji Oon Lee and B. Schlein, Rate of Convergence Towards Hartree Dynamics, *J. Stat. Phys.*, (2011) 144:872-903.
5. G. Ali and L. Chen, The zero-electron-mass limit in the Euler-Poisson system for both well and ill prepared initial data, *Nonlinearity*, 24 (2011), 2745-2761.
6. L. Chen, X. Chen and A. Jüngel, Semiclassical limit in a simplified quantum energy-transport model for semiconductors, KRM 4-4 December 2011 dedicated to Professor Naoufel Ben Abdallah.
7. L. Chen and Ji Oon Lee, Rate of convergence in nonlinear Hartree dynamics with factorized initial data, *J. Math. Phys.* 52, 052108, (2011).
8. L. Chen and M. Dreher, Viscous quantum hydrodynamics and parameter-elliptic systems. *Math. Meth. Appl. Sci.*, 34, (2011), 520-531.
9. X. Chen, L. Chen and C. Sun, A six order parabolic system in semiconductors, *Chin. Ann. Math. Ser. B* 32 (2011), no. 2, 265-278.
10. L. Chen and M. Dreher, Quantum semiconductor models, *Partial Differential Equations and Spectral Theory, Series: Operator Theory: Advances and Applications*, (2011), 1-72.

11. L. Chen, X. Chen and C. Zhang, Vanishing electron mass limit in the bipolar Euler-Poisson system. *Nonlinear Anal. Real World Appl.* 12 (2011), no. 2, 1002-1012.
12. L. Chen, The zero-electron-mass limit in the hydrodynamic model (Euler-Poisson system), Some problems on nonlinear hyperbolic equations and applications, Series in Contemporary Applied Mathematics CAM15, , Higher Education Press, 2010.
13. G. Ali, L. Chen, A. Jüngel, and Y.-J. Peng. The zero-electron-mass limit in the hydrodynamic model for plasmas. *Nonlin. Anal.* 72 (2010), 4415-4427.
14. X. Chen, L. Chen, H. Jian, Existence, Semiclassical Limit and Long-time Behavior of Weak Solution to Quantum Drift-diffusion Model, *Nonlinear Analysis Series B: Real World Applications*, 10 (2009) 1321-1342.
15. X. Chen, L. Chen, The bipolar quantum drift-diffusion model, *Acta Mathematica Sinica, English Series*, Vol. 25, No. 4, (2009), 617-638.
16. Q. Ju, L. Chen, Semiclassical limit for bipolar quantum drift-diffusion model, *Acta Mathematica Scientia.* (2009) ,29B(2):285-293.
17. X. Chen, L. Chen, H. Jian, The Dirichlet problem of Quantum Drift-diffusion Model, *Nonlinear Anal. Series A: Theory, Methods and Applications*, 69 (2008), 3084–3092.
18. L. Chen, Q. Ju, The semiclassical limit in the quantum drift-diffusion equations with isentropic pressure, *Chin. Ann. Math.* 29B(4), (2008) , 369-384.
19. L. Chen, X. Chen, Dirichlet-Neumann problem for unipolar isentropic quantum drift-diffusion model, *Tsinghua Science and Technology*, V. 13(4), (2008), 560-569.
20. X. Chen, L. Chen, Initial time layer problem for quantum drift-diffusion model, *J. Math. Anal. Appl.* 343 (2008), no. 1, 64–80.
21. X. Chen, L. Chen, H. Jian, The Existence and Long-Time Behavior of Weak Solution to Bipolar Quantum Drift-Diffusion Model, *Chinese Annals of Mathematics-Series B*, V. 28, No. 6,(2007),651-664.
22. L. Chen, M. Dreher, The viscous model of quantum hydrodynamics in several dimensions, *Mathematical Models and Methods in Applied Sciences*, Vol. 17, No. 7 (2007) 1065-1093.

23. L. Chen, A. Juengel, Analysis of a Parabolic Cross-Diffusion Semiconductor Model with Electron-Hole Scattering, *Comm. PDE*, 32: (2007), 127-148.
24. L. Chen, L. Hsiao, G. Warnecke, Study on a Cross Diffusion Parabolic System, *Acta Math. Appl. Sin. Engl. Ser.* 23 (2007), no. 1, 9–28.
25. L. Chen, Q. Ju, Existence of weak solution and semiclassical limit for quantum drift-diffusion model, *Zeitschrift für Angewandte Mathematik und Physik*, V. 58, No.1, (2007), 1-15.
26. L. Chen, A. Juengel, Analysis of a parabolic cross-diffusion population model without self-diffusion, *J. Diff. Eqs.*, 224 (2006), 39-59.
27. L. Chen, Mathematical analysis of a population dynamics system with strong cross-diffusion, *Hyperbolic Problems, Theory, Numerics and Applications*, Yokohama Publishers, (2006).
28. L. Chen, H. Liu, Generalized Solution of a Kind of Nonparametric Curvature Evolution with Boundary Condition, *Acta Mathematica Sinica*, V.22, No.2, (2006), 455-468.
29. L. Chen, L. Hsiao, Y. Li, Large Time Behavior and Energy Relaxation Time Limit of the Solutions to an Energy Transport Model in Semiconductors, *J. Math. Anal. and Appl.* 312 (2005), 596-619.
30. L. Chen, A. Juengel, Analysis of a multi-dimensional parabolic population model with strong cross-diffusion, *SIAM J. Math. Anal.*, V.36, No.1, (2004), 301-322.
31. L. Chen, L. Hsiao, Y. Li, Global Existence and Asymptotic Behavior to the Solutions of 1-D Lyumkis Energy Transport Model for Semiconductors, *Quart Appl. Math.* V.62, No.2, (2004), 337-358.
32. L. Chen, L. Hsiao, Y. Li, Strong Solution to a Kind of Cross Diffusion Parabolic System, *Comm. Math. Sci.* V.1, No.4, (2003), 799-808.
33. L. Chen, L. Hsiao, The Solution of Lyumkis Energy Transport Model in Semiconductor Science, *Math. Meth. Appl. Sci.* 26, (2003), 1421-1433.
34. L. Chen, L. Hsiao, Energy Transport Model in Semiconductor Science, *Acta Analysis functionalis applicata*, V.5, No.1, (2003), 35-40.
35. L. Chen, Parabolic Type Monge-Ampère Equation with Zero Initial Boundary Value, *Kumamoto J. of Math.*, V.16, (2003), 27-42.

36. L. Chen, G. Wang, Some remarks on the solution of one type of parabolic Monge-Ampère equation, (in Chinese) Chinese Ann. Math A. V.24, No.1, (2003), 33-40. (English version: Chinese Journal of Contemporary Mathematics, V.24, No.1, 2003)
37. Y. Li, L. Chen, Global Existence and Asymptotic Behavior to the solution of 1-D Energy Transport Model for Semiconductors, J. Partial Diff. Eqs. 15 (2002), 81-95.
38. L. Chen, G. Wang, S. Lian, Convex-monotone functions and generalized solution of parabolic Monge-Ampère equation, J. Diff. Eqs. 186, (2002), 558-571.
39. L. Chen, G. Wang, S. Lian, Generalized solution of the first boundary value problem for parabolic Monge-Ampère equation, J. Partial Diff. Eqs. 14 (2001), 149-162.
40. S. Lian, G. Wang, L. Chen, Remarks on a mathematical model from the theory of optimal investment, Northeast. Math. J. , 17 (2), (2001), 127-129.
41. L. Chen, Existence and uniqueness of generalized solution to parabolic Monge-Ampère equation, (in Chinese) Acta Scientiarum Naturalium Universitatis Jilinensis, No. 4, (2000), 1-9.
42. L. Chen, Interior estimates for generalized solutions of the parabolic Monge-Ampère equation, Northeast. Math. J. , 16 (4), (2000), 387-390.
43. L. Chen, G. Wang, Some remarks on one type of parabolic Monge-Ampère equation, Advances in Math.(China) 28. No. 4., (1999), 381-383.