

Curriculum Vitae

Personal

NAME: Yuanwei Qi.

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Education

Ph.D. (Mathematics) University of Oxford, UK, 1990

Thesis: The blow-up of quasi-linear parabolic equations.

M.Sc. (Mathematics) Chinese Academy of Sciences, China, 1985.

B.Sc. (Computational Mathematics) Peking University, China, 1982.

Job Description

Teaching undergraduate and graduate courses in mathematics, and doing research in mathematics by analysing nonlinear partial differential equations arising from models of chemical reactions, mathematical biology, fluid mechanics and finance.

Working Experience

2008.7- Associate Professor, Department of Mathematics, University of Central Florida

2003.7–2008.7: Assistant Professor, Department of Mathematics, University of Central Florida

2002.7-2003.6: Visiting Associate Professor, Department of Mathematics, University of California at Santa Barbara

1992.7-2002.6: University Lecturer (UK System, Tenured), Department of Mathematics, Hong Kong University of Science and Technology (HKUST), Hong Kong

1992.1-1992.6: Visiting Assistant Professor, Department of Mathematics, University of Minnesota

1990.8–1991.12: Visiting Assistant Professor, Department of Mathematics, Iowa State University

1989.9–1990.8: Post-Doctoral Research Fellow, Mathematical Institute, University of Oxford, UK

1987.9–1989.8: Teaching Fellow, Balliol College and Hertford College, University of Oxford, UK

1985.7-1986.10: Research Associate, Computing Center, Chinese Academy of Sciences, Beijing, China

Honor and Award

1. Chinese government scholarship for overseas study at University of Oxford, UK, 1986-1989.
2. Oxford University and Balliol College bursar, 1988, 1989.
3. British Council scholarship at Oxford University, 1987-1989.
4. UK SERC post-doctoral fellowship at University of Oxford, UK 1989-1990.
5. Distinguished Visiting Professor at Peking University, China 2010-2011.
6. Distinguished Chair Professor (One Hundred Overseas Talent Programm), at Shanxi University, China 2010-13.

Research Grant

1. PI: *Pattern formation of nonlinear R-D systems and applications*. By HKUST RGC Direct Allocation Grant: DAG92/93.SC18, HK \$ 30,000 for 25/11/1992-24/11/1993.
2. PI: *Partial differential equations in plasma physics and non-Newtonian flows*. By HKUST RGC Direct Allocation Grant: DAG93/94.SC27, HK \$ 30,000 for 1/12/1993-30/11/1994.
3. Co-PI: [30%] *Theoretical and experimental studies of metal binding to macro-cyclic compounds: Development of calculational methods. Design and synthesis of specific metal binding and pharmaceutical agents*. By HKUST UPGC Research Infrastructure Grant, HK \$ 694,756 for 1/1/1994-1/1/1996.
4. PI: *The large time behaviour of R-D systems and applications*. By RGC Competitive Earmarked Research Grant: HKUST630/95P, HK \$ 331,000 for 1/1/1996-08/31/1999.
5. PI: *Analytical solutions to an optimal portfolio problem*. By HKUST RGC Direct Allocation Grant: DAG97/98.SC17, HK \$ 56,755 for 01/01/1998-30/9/2000.
6. PI: *The dynamics of doubly-singular parabolic equations*. By RGC Competitive Earmarked Research Grant: HKUST6129/00P, HK \$ 287,817 for 1/09/2000-30/06/2002.
7. PI: *A multi-factor stock valuation model*. By RGC Direct Allocation Grant: DAG00.01.SC20, HK \$ 30,000 for 1/12/2000-30/11/2001.
8. PI: UCF startup fund: \$6500 for 08/2003-07/2005.
9. Senior Personnel [5%]: NSF 0803059, \$580,000 for 08/2008-07/2011.
10. PI: Shanxi Government Research Grant: RMB 1,000,000, 08/2010-07/2013.
11. PI: Shanxi Government New Initiative Grant: RMB 100,000, 01/2012-01/2015.
12. PI: NSF 1312644, \$26,290 for 05/13-08/14.
13. PI: American Mathematical Society, AMS Fan Fund China Exchange Program: \$5,000 for 06/04/2013-07/31/2015.

Research Interests

1. Analysis of Nonlinear Elliptic and Parabolic Partial Differential Equations with application to Biology, Chemical Reactions, Combustion Theory and Fluid Mechanics.
2. Scientific Computation and Mathematical Finance.

Journal Publications

The following publications are all referred.

1. C. Budd and Yuanwei Qi. The existence of bounded solutions of a semilinear elliptic equation, *Journal of Differential Equations*, **82** (1989), 207-218. (refereed Journal paper, ISI)
2. C. Budd and Yuanwei Qi. The existence and non-existence of L-solutions of Kasso problems with modified source terms, *Proceedings of The Royal Society of Edinburgh*, **113A** (1989), 347-356. (refereed Journal paper, ISI)
3. Yuanwei Qi and J. Sun. Conditionally positive definite matrices and their applications to the algorithms of multivariate interpolations, *Computational Mathematics* (Chinese), **4** (1989), 386-393.
4. Yuanwei Qi. The Asymptotics of blow-up solutions to a degenerate parabolic equation, *Journal of Applied Mathematics and Physics (Z. Angew Math Phys)*, **42** (1991), 488-496. (refereed Journal paper, ISI)
5. Yuanwei Qi. The global feature of unbounded solutions to a nonlinear parabolic equation, *Journal of Differential Equations*, **99** (1992), 139-152. (refereed Journal paper, ISI)
6. Yuanwei Qi. On the equation $u_t = \Delta u^\alpha + u^\beta$, *Proceedings of The Royal Society of Edinburgh*, **123A** (1993), 373-390. (refereed Journal paper, ISI)
7. Yuanwei Qi and H. Levine. The critical exponents of degenerate parabolic systems, *Journal of Applied Mathematics and Physics (Z. Angew Math Phys)*, **44** (1993), 249-265. (refereed Journal paper, ISI)
8. Yuanwei Qi. Global existence and uniqueness of a R-D system via invariant solutions, *Non-linear Analysis, Theory, Methods and Application*, Pergamon, **23** (1994), 1277-1291. (refereed Journal paper, ISI)
9. Yuanwei Qi. The self-similar solutions to a fast-diffusion equation, *Journal of Applied Mathematics and Physics (Z. Angew Math Phys)*, **45** (1994), 914-932. (refereed Journal paper, ISI)
10. Yuanwei Qi. The critical exponents of degenerate parabolic equations, *Sciences in China, Ser. A*, **38** (1995), 1153-1162. (refereed Journal paper, ISI)
11. Yuanwei Qi. The existence of moving boundary solution of a porous media equation with a source term, *Advances in Mathematical Sciences and Applications*, Gakkōtoshō, **6** (1996), 197-215. (refereed Journal paper)
12. Yuanwei Qi. The existence of similarity solutions to a quasilinear parabolic equation, *Differential and Integral Equations*, **9** (1996), 599-606. (refereed Journal paper)

13. Yuanwei Qi. The degeneracy of a fast diffusion equation and stability, *SIAM Journal of Mathematical Analysis*, **27** (1996), 476-485. (refereed Journal paper, ISI)
14. Yuanwei Qi. Existence and non-existence of a fast-diffusion equation in R^n , *Journal of Differential Equations*, **136** (1997), 378-393. (refereed Journal paper, ISI)
15. Yuanwei Qi. The global existence and non-uniqueness of a nonlinear degenerate parabolic equation, *Nonlinear Analysis, Theory, Methods and Applications*, **31** (1998) 117-136. (refereed Journal paper, ISI)
16. Yuanwei Qi. The critical exponents of parabolic equations and blow-up in R^n , *Proc. Roy Soc. Edinburgh, Ser. A*, **128** (1998), 123-136. (refereed Journal paper, ISI)
17. Yuanwei Qi. The existence and non-existence theorems for ground states of nonlinear elliptic systems, *Communications in Partial Differential Equations*, **23** (1998), 1749-1780. (refereed Journal paper, ISI)
18. Yuanwei Qi and M. X. Wang. The global existence and finite time extinction of a quasilinear parabolic equation, *Advances in Differential Equations*, **4** (1999), 731-753. (refereed Journal paper)
19. X. B. Pan and Yuanwei Qi. Asymptotics of minimizers of variational problems involving curl functional, *Journal of Mathematical Physics*, **41** (2000), 533-563. (refereed Journal paper, ISI)
20. Yuanwei Qi and M. X. Wang. Singular solutions of doubly singular parabolic equations with absorption, *Electronic Journal of Differential Equations*, No. 67 (2000), 1-22. (refereed Journal paper)
21. Yuanwei Qi. The non-existence of singular solutions to nonlinear elliptic systems, *Differential and Integral Equations*, **14** (2001), 769-784. (refereed Journal paper)
22. Yuanwei Qi and M. X. Wang. The self-similar profiles of generalized KPZ equation, *Pacific Journal of Mathematics*, **201** (2001), 223-240. (refereed Journal paper, ISI)
23. Yuanwei Qi. The existence and non-existence of positive solutions of elliptic systems in R^N , *Methods and Applications of Analysis*, **8**, 557-568 (2001).
24. Yuanwei Qi. The existence of ground states to a weakly-coupled elliptic system, *Nonlinear Analysis, Theory, Methods and Applications*, **48** (2002), 905-925. (refereed Journal paper, ISI)
25. Yuanwei Qi and M. X. Wang. Critical exponents of quasilinear parabolic equations, *Journal of Mathematical Analysis and Applications*, **267** (2002), 264-280. (refereed Journal paper, ISI)
26. X.F. Chen, Yuanwei Qi and M. X. Wang. Self-similar singular solutions of a p-Laplacian evolution equation with absorption, *Journal of Differential Equations*, **190** (2003), 1-15. (refereed Journal paper, ISI)
27. Y. Li and Yuanwei Qi. The global dynamics of isothermal chemical systems with critical nonlinearity, *Nonlinearity* **16** (2003), 1057-1074. (refereed Journal paper, ISI)

28. X.F. Chen, Yuanwei Qi and M. X. Wang. Large time behaviour of a quasilinear parabolic equation with absorption, *SIAM Math. Anal.*, **35** (2003), 123-134. (refereed Journal paper, ISI)
29. Yuanwei Qi and Xudong Liu. Universal Self-similarity of porous media equation with absorption: the critical exponent case, *Journal of Differential Equations*, **198** (2004), 442-463. (refereed Journal paper, ISI)
30. Yuanwei Qi, Z. J. Wang and with M. X. Wang. Existence and nonexistence of global solutions of fast-slow diffusion systems with nonlinear boundary conditions, *Proc. Roy Edinburg, Ser A*, **134**, (2004), 1199-1217. (refereed Journal paper, ISI)
31. X.F. Chen, Yuanwei Qi and M. X. Wang. Classification of singular solutions of porous medium equations with absorption, *Proc. Roy Edinburg, Ser A*, **135**, (2005), 563-584. (refereed Journal paper, ISI)
32. Yuanwei Qi. Focusing solutions of porous medium equations with reaction, *Nonlinear Analysis, TMA* , **62**, (2005), 1207-1224. (refereed Journal paper, ISI)
33. X.F. Chen, Yuanwei Qi and M. X. Wang. Steady States of a strongly coupled prey-predator model, *Discrete and Continuous Dynamical Systems, Suppl*, (2005), 173-180. (refereed Journal paper, ISI)
34. Yuanwei Qi. Anomalous exponents and RG methods for nonlinear diffusion equations in R^n , *Discrete and Continuous Dynamical Systems, Suppl*, (2005), 738-745. (refereed Journal paper, ISI)
35. Yuanwei Qi. Dynamics and universality of an isothermal combustion problem in 2D, *Rev Math Phys*, **18**, (2006), 285-310. (refereed Journal paper)
36. C. C. Liu, Yuan Wei Qi and J. X. Yin. Regularity of solutions of the Cahn-Hilliard equation with non-constant mobility, *Acta Math. Sin. (Engl. Ser.)* **22**, (2006), 1139–1150. (refereed Journal paper, ISI)
37. Yuanwei Qi. The development of travelling waves in cubic auto-catalysis with different rates of diffusion, *Physica D*, **226**, (2007), 129–135 (refereed Journal paper, ISI)
38. X. F. Chen and Yuanwei Qi. Sharp estimate on minimum travelling wave speed of reaction diffusion systems modelling auto-catalysis, *SIAM Math. Anal.*, **39** (2007), 437–448. (refereed Journal paper, ISI)
39. X.F. Chen, Yuanwei Qi and M. X. Wang. Classification of singular solutions of p-Laplacian equations with absorption, *Trans. AMS* **359** (2007), 5653-5668. (refereed Journal paper, ISI)
40. Yuanwei Qi. The Global self-similarity of a chemical reaction system with Critical Non-linearity, *Proc. Roy Edinburg, Ser A* **137** (2007), 867-883. (refereed Journal paper, ISI)
41. X. F. Chen, Yuanwei Qi and M. X. Wang. A strongly coupled predator-prey system with non-monotonic functional response, *Nonlinear Analysis, TMA*, **67** (2007), 1966-1979. (refereed Journal paper, ISI)

42. X. F. Chen and Yuanwei Qi. Propagation of local disturbances in reaction diffusion systems modelling quadratic auto-catalysis, *SIAM Appl. Math*, **69** (2008), 273–282. (refereed Journal paper ISI)
43. Yuanwei Qi. Existence of positive solutions to an elliptic system with coupled nonlinearity, *Applicable Anal.*, **87** (2008), 385–400. (refereed Journal paper, ISI)
44. X. F. Chen and Yuanwei Qi. Travelling waves of auto-catalytic chemical reaction of general order-an elliptic approach, *Journal of Differential Equations*, **246** (2009), 3038-3057. (refereed Journal paper ISI)
45. Yuanwei Qi. Travelling fronts of reaction diffusion systems modeling auto-catalysis. *Discrete and Continuous Dynamical Systems*, **suppl.** (2009), 622-629. (refereed Journal paper ISI)
46. Li, Xin Kai; Luo, Yingshe; Qi, Yuanwei; Zhang, Rong. On non-Newtonian lubrication with the upper convected Maxwell model. *Appl. Math. Model* **35** (2011), 2309-2323. (refereed Journal paper ISI)
47. Yuanwei Qi and G. R. Liu. The existence and non-existence of traveling front in high order auto-catalysis chemical reaction. *Sciences in China, Ser A*, **55** (2012), 1761-1768. (refereed Journal paper ISI)
48. G. R. Liu and Yuanwei Qi. Existence and non-existence of traveling waves of a reaction-diffusion system. *Journal of Mathematical Analysis and Applications*, **40** (2013), 130-139. (refereed Journal paper ISI)
49. G. R. Liu and Yuanwei Qi. Sign-changing solutions of a quasilinear heat equation with a source term. *Discrete and Continuous Dynamical Systems, Ser. B*, **18** (2013), 1389-1414. (refereed Journal paper ISI)
50. Yuanwei Qi. Existence and non-existence of traveling waves for an isothermal chemical system with decay. *Journal of Differential Equations*, **258** (2015), 669-695. (refereed Journal paper ISI)
51. Yuanwei Q. Traveling waves solutions to general isothermal diffusion systems. *Nonlinear Analysis, Real World Applications*, **26** (2015), 1-18. (refereed Journal paper ISI)
52. X. F. Chen, Yuanwei Qi and Y. J. Zhang. Existence of traveling waves of Auto-Catalytic systems with decay. *Journal of Differential Equations* **260** (2016), 7982-7999. (refereed Journal paper ISI)
53. Yuanwei Qi and Yi Zhu. The study of global stability of a diffusive Holling-Tanner predator-prey model. *Applied Mathematics Letters*, **57** (2016), 132-138. (refereed Journal paper ISI)
54. Yuanwei Qi and Yi Zhu. Computational study of traveling waves solutions of isothermal chemical systems. *Communications in Computational Physics*, **19** (2016), 1461-1472. (refereed Journal paper ISI)
55. Yuanwei Qi. The traveling wave of Auto-Catalytic systems-monotone and multi-peak solutions. *J. Math. Study*, **49** (2016), 149-168. (refereed Journal paper ISI)
56. Yuanwei Qi and Yi Zhu. Global stability of Lesile-type predator-prey model. *Methods and Applications of Analysis*, **23** (2016), 259-268. (refereed Journal paper ISI)

57. Z. Zheng, Yuanwei Qi and S. L. Zhou. Blow-up of p-Laplacian evolution equations with variable source power. *Sciences in China, Ser A*, **60** (2017), 469-490. (refereed Journal paper ISI)
58. Yuanwei Qi and Yi Zhu. Traveling wave of Gray-Scott systems – existence, multiplicity and stability. in press in *J. Biological Dynamics* (2017), available online: <http://dx.doi.org/10.1080/17513758.2017.1308566>. (refereed Journal paper ISI)
59. X. F. Chen, Guirong Liu and Yuanwei Qi. The existence of minimum speed of traveling wave solutions to a non-KPP isothermal diffusion system. in press in *Journal of Differential Equations* (2017), available online, DOI: 10.1016/j.jde.2017.03.023. (refereed Journal paper ISI)
60. Z. Zheng, X. F. Chen, Yuanwei Qi and S. L. Zhou. Complete classification of ground state to a weakly-coupled elliptic system. Submitted.
61. Z. Zheng, X. F. Chen, Yuanwei Qi and S. L. Zhou. Existence of Traveling Waves of General Gray-Scott Models. Submitted to *Journal of Dynamics and Differential Equations*
62. X. F. Chen, X. Lai, Yuanwei Qi, C. Qin and Y. J. Zhang. Multiple-Peak Traveling Waves of the Gray-Scott Model, Submitted.
63. Yuanwei Qi. The Traveling Wave of Auto-Catalytic Systems–The Limiting Cases. Submitted to *Communications in Applied Analysis*.

Conference Proceedings

64. Yuanwei Qi. The existence and asymptotic behaviour of similarity solutions to a quasilinear parabolic equation, *Proceedings of Nonlinear Diffusion Equations and Their Equilibrium States 3*, ed. by N. Loyds et al., *Progress in Nonlinear Differential Equations and Their Applications, Vol. 7*, Birkhäuser, (1993) 451-469 (referred).
65. Yuanwei Qi. How to form a pattern, *Proceedings of Conference on Scientific and Engineering Computation for Young Chinese Scientists*, (1994), World Scientific, 58-62 (referred).
66. Yuanwei Qi. A unified approach towards nonlinear parabolic equations with strong reaction in R^n , *Pitman Research Note on Nonlinear Partial Differential Equations*, **386** (1998), 109-119 (referred).
67. Yuanwei Qi. Blow-up of quasilinear parabolic equations in R^n –A unified approach, *Topology Methods, Variational Methods and Their Applications—ICM 2002 Satellite Conference on Nonlinear Functional Analysis*, edited by H. Brezis, K.C. Chang, S.J. Li and P. Rabinowitz (2003), 185-192 (referred).

The following papers are available as preprints:

68. Yuanwei Qi. Optimal Consumption and portfolio rule of growth portfolio for two non-geometric Brownian Motion processes, Working Paper.
69. Yuanwei Qi. Non-myopic Portfolio Rule with Asymptotic “Normal” Price Level Hypothesis, Working Paper.

Short Term Visiting

Department of Mathematics, National University of Singapore in April, 1994.

Mathematical Institute, Oxford University in June, 1994.

Computing Center, Chinese Academy of Sciences, Beijing in August, 1994; July, 1995; July, 1996; July-August 2002, June, 2005, June-August 2008.

Department of Mathematics, Zhejiang University, China in June, 1995.

Department of Mathematics, University of Penn. State, US in January-May, 1996.

Institute of Mathematics, Chinese Academy of Sciences, Beijing in August 1997.

Department of Mathematics, University of British Columbia, Canada in July, 1998.

Department of Applied Mathematics, Tsinghua University, China in August, 1999.

Pacific Institute of Mathematics, University of British Columbia, Canada in August, 2001.

Morningside Center, Chinese Academy of Sciences, Beijing in June-July 2008 and May 2009.

Institute of Mathematics, Shanxi University, Shanxi, China in July-August, 2008; May 2009 and June-July 2010.

School of Mathematics, Peking University, Beijing, in June-July, 2010; in September, 2010-January, 2011 and in June-July, 2013.

Institute of Mathematical Sciences, Chinese University of Hong Kong, Hong Kong, in February-March 2011.

Department of Mathematics, Hong Kong University of Science and Technology, Hong Kong, in March-May 2011.

School of Mathematics, Shanghai Jiaotong University, Shanghai, in May 2012.

Computing Center, Chinese Academy of Sciences, Beijing, in July 2013, October 2013 and July 2015.

Institute of Mathematical Sciences, Chinese University of Hong Kong, Hong Kong, in December 2014.

Center for PDE at East China Normal University, Shanghai, China in July 2015.

School of Mathematics, Peking University, Beijing, in May-June 2016.

Invited Talks

Giving an invited talk at the **Tenth Conference on Differential Equations** in Dundee, Scotland in July, 1988.

Giving an invited talk at the conference **Finite-time Blow-up and Extinction for Parabolic and Other Equations** in Edinburgh, Scotland in May-June 1989.

Giving an invited talk at the workshop **Similarity Solutions of Differential Equations** in University of Pittsburgh, USA in April, 1991.

Giving an invited talk at the international conference **Scientific and Engineering Computing** in Beijing, China in August, 1993.

Giving an invited talk at the **Second European Conference on Elliptic and Parabolic Problems** in France in June, 1994.

Giving an invited talk at the workshop **Super-conductivity** in Suchou, China in June, 1995.

Giving an invited talk at **The First Pan-China Conference on Differential Equations** in Kunming, China in May-June 1997.

Giving an invited talk at conference **Nonlinear Partial Differential Equations** in Hangzhou, China June 1998.

Giving an invited talk at the conference **Partial Differential Equations in Fluid Mechanics** in Hangzhou, China in June, 1999.

Giving an invited talk at the **The Pacific Rim Dynamical Systems Conference** in Hawaii, USA in August, 2000.

Giving an invited talk at the **AMS-HKMS** joint meeting in Hong Kong, China in December, 2000.

Giving an invited talk at the **International Conference in PDEs** in Yellow Mountain, China in June, 2001.

Giving an invited talk at the workshop **Phase Transition** in Pacific Institute of Mathematics, UBC, Canada in August, 2001.

Giving an invited talk at the conference **Topology Methods, Variational Methods and Their Applications**, organized by H. Brezis, K.C. Chang, S.J. Li and P. Rabinowitz in Taiyuan, China in August, 2002.

Giving an invited talk at the **American Mathematical Society (AMS) Annual Meeting** in Tucson, AZ in January, 2004.

Giving an invited talk at the **Fifth AIMS International Conference on Dynamical System and Differential Equations** in Pomona, CA in June, 2004.

Giving an invited talk at the **AMS Annual Meeting** in Atlanta, GA in January, 2005.

Giving a **Colloquium Talk** in Department of Mathematics, University of Kentucky in March, 2005.

Giving an invited talk at the **First International Conference on Recent Advances in Bifurcation Theory and Applications of Dynamical Systems** in Jinhua, China in June, 2005

Giving an invited talk at the **HuaZhong International Conference on Nonlinear Partial Differential Equations** in Zhangjiajie, China in July 2005.

Giving a **Colloquium Talk** in Institute of Mathematical Sciences, Chinese University of Hong Kong in July, 2005.

Giving a **Colloquium Talk** in Department of Mathematics, University of Iowa in April, 2006.

Giving an invited talk at **AMS Sectional Meeting** at Storrs, Connecticut, in October, 2006.

Giving an invited talk at **AMS Annual Meeting** at San Diego, CA in Jan 2008.

Giving an invited talk at **Seventh AIMS International Conference on Dynamical System and Differential Equations** in Arlington, TX in May, 2008.

Giving an invited talk at **AMS Sectional Meeting** in Boca Raton, FL in October, 2009.

Giving an invited talk at **SIAM conference Analysis of Partial Differential Equations** in Miami, FL in December, 2009.

Giving a **Colloquium Talk** in Department of Mathematics, University of Connecticut, CT in March 2010.

Giving an invited talk at 7th **East China Conference on Partial Differential Equations** in Wuhan, China in July, 2010.

Giving a **Colloquium Talk** in Department of Mathematics, Beijing Normal University, China in July, 2010.

Giving an invited talk at **Workshop on Kinetic and Fluids** in Peking University, Beijing, China in July, 2010.

Giving a **Colloquium Talk** in Institute of Mathematics, Nankai University, China in September, 2010.

Giving a **Colloquium Talk** in Department of Mathematics, ZhengZhou University, ZhengZhou, China in October, 2010.

Giving a **Colloquium Talk** in Department of Mathematics, Chongqing University, Chongqing, China in November, 2010.

Giving a **Colloquium Talk** in Department of Mathematics, Capital Normal University, Beijing, China in November, 2010.

Giving a **Colloquium Talk** in Department of Mathematics, Tsinghua University, Beijing, China in November, 2010.

Giving a **Colloquium Talk** in Department of Mathematics, Peking University, Beijing, China in December, 2010.

Giving a **Colloquium Talk** in Academy of Mathematics and System Sciences, Chinese Academy of Sciences, Beijing, China in December, 2010.

Giving a **Colloquium Talk** in Department of Mathematics, University of Pittsburgh, PA in February, 2011.

Giving a **Colloquium Talk** in Institute of Mathematical Sciences, Chinese University of Hong Kong in March, 2011.

Giving a **Colloquium Talk** in Department of Mathematics, Baptist University of Hong Kong in April, 2011.

Giving an invited talk at **The First International Conference on Dynamical Systems and Modern Applied Mathematics** in Xi'an, China in June, 2011.

Giving an invited talk at 8th **East China Conference on Partial Differential Equations** in Xi'an, China in July, 2011.

Giving an invited talk at **AMS Sectional Meeting** in Washington DC in March, 2012.

Giving a **Colloquium Talk** in Department of Applied Mathematics, University of Western Ontario, Canada in April, 2012.

Giving a **Colloquium Talk** in Department of Mathematics, Shanghai Jiaotong University, Shanghai, in May 2012.

Giving an invited talk at **International Workshop on Nonlinear Elliptic and Parabolic Partial Differential Equations** in Shanghai Tongji University in June 2012.

Giving a **Colloquium Talk** in Department of Mathematics, Ningbo University, Ningbo, China, in June 2012.

Giving a **Colloquium Talk** in Academy of Mathematics and System Sciences, Chinese Academy of Sciences, Beijing, China in October, 2013.

Giving an invited talk at the conference **New Mathematical Developments Arising from Ecology, Epidemiology and Environmental Science** in Peking University, in October 2013.

Giving a **Applied and Computational Mathematics Colloquium Talk** in Department of Mathematics, UC Irvine in November, 2013.

Giving an invited talk at the conference **International Conference on PDEs and Calculus of Variations** in Central Normal University in Wuhan, China in May 2014.

Giving an invited talk at **10th AIMS International Conference on Dynamical System and Differential Equations** in Madrid, Spain in July, 2014.

Giving a **Computational and Applied Mathematics Colloquium Talk** in Department of Mathematics, University of Purdue in November, 2014.

Giving an invited talk at **Complex Systems and Dynamics** in Taiyuan, China in December, 2014.

Giving a **Colloquium Talk** in Academy of Mathematics and System Sciences, Chinese Academy of Sciences, Beijing, China in December, 2014.

Giving an invited talk at Workshop **Theoretical, Numerical and Experimental Studies of Nonlinear Dispersive Water Waves** in Sanya, China in July 2015.

Giving a **Colloquium Talk** in Academy of Mathematics and System Sciences, Chinese Academy of Sciences, Beijing, China in July 2015.

Giving a **Colloquium Talk** in Renmin University, Beijing, China in July 2015.

Giving an **invited talk** at **Summer Workshop on PDEs** in Shanghai Jiaotong University, Shanghai, China in July 2015.

Giving a **Colloquium Talk** in Beijing Technology University, Beijing, China in July 2015.

Giving a **Colloquium Talk** in York University, Toronto, Canada in October 2015.

Giving an **invited talk** at **Mathematical Modeling and Analysis of Populations in Biological Systems** in Western University, Canada in October 2015.

Giving an **invited talk** at **International Conference on Nonlinear Analysis** in China Central Normal University, Wuhan, China in May 2016.

Giving a **Colloquium Talk** in Chongqing University, Chongqing, China in May 2016.

Giving a **Colloquium Talk** in Capital Normal University, Beijing, China in May 2016.

Giving a **Colloquium Talk** in Beijing Technology University, Beijing, China in June 2016.

Giving an invited talk at **Eleventh AIMS International Conference on Dynamical System and Differential Equations** in Orlando, FL in July 2016.

Giving an invited talk at **36th Southeastern-Atlantic Regional Conference on Differential Equations** in Florida Gulf Coast University, Fort Myers, FL in November 2016.

Giving a **Colloquium Talk** in McGill University, Montreal, Canada in March 2017.

Current and Past Graduate Students Supervision

I am the sole supervisor of following students unless otherwise stated.

Current Students

- Ms. Panpan Chen, Ph.D, Department of Mathematics, UCF.
- Mr. Jordan D'Abruzzo, Ph.D, Department of Mathematics, UCF.
- Mr. Majid Noroozi, Ph.D, Department of Mathematics, UCF.

Past Students

- Dr. Yi Zhu, Ph.D Degree awarded in October 2016 in UCF.
- Dr. Zhi Zheng, Ph.D, 2014.9-2015.8 in UCF, Visiting Student from Peking University, China, Ph.D Degree awarded in June 2016 in Peking University.
- Mr. Yiling Dong, Ph.D, 2012.4-2013.5 in UCF (co-supervisor)
- Ms. Erika Blanken, M.Sc Degree Awarded in May 2008 in UCF.
- Mr. Chow Sai Hung, M.Phil Degree awarded in June 2002 in Hong Kong University of Sciences and Technology, Hong Kong.

- Miss. Chan Wing Wai, M.Sc Degree awarded in June 2002 in Hong Kong University of Sciences and Technology, Hong Kong.

Post-Doc Supervision

- Dr. Guirong Liu, 2011.6-2012.5 in UCF (now in Shanxi University, China).

Teaching Innovation and Experience

To be a good teacher is always my passion. I have devoted more effort in teaching after my tenure promotion in 2008, not only in graduate supervising but also in develop new graduate courses to teach.

I have fully embraced new methods of teaching using Technology in the **last five years** such as the use of the online systems of WebAssign and ALEKS for homeworks as well as quizzes and tests in various undergraduate courses. The online platform also provides me with an efficient way to communicate with students through online chat, email and message systems.

In 2015-16 academic year, I developed Video Capture lectures with Panopto system in web-course for my graduate course of MAP 5336, Ordinary Differential Equations and Applications.

In UCF I have developed a new graduate course, Mathematical Models in Biology, which is renamed Mathematical Biology and is now offered regularly.

In addition, I have re-designed and implemented the new and much improved curriculum of graduate courses of MAP 5336, Ordinary Differential Equations and Applications, and of MAP 5435, Advanced Engineering Mathematics in last two years.

For undergraduate teaching, I have served in various committees in selecting textbook for Calculus I-III and Ordinary Differential Equations and developing new curriculum.

In the 14 years in UCF, I have taught 17 different courses ranging from pre-college courses such as Intermediate Algebra and College Algebra to undergraduate courses such as Calculus, Linear Algebra, Mathematical Modeling, Ordinary Differential Equations (ODE), Applied Boundary value problems, Foundation of Discrete Mathematics, Business Calculus to graduate courses such as MAP 5336, Ordinary Differential Equations and Applications; MAP 5435, Advanced Engineering Mathematics; MAA 5416, Foundation of Analysis; MAP 5937 Mathematical Models in Biology; MAP 6356 Partial Differential Equations (PDE).

I have also taught **11 independent study and/or Directed Research** courses to 5 different graduate students, 10 of them in last five years. The activities are not given any teaching credit by the department but are absolutely necessary for the training of graduate students.

The UCF teaching experience supplements and enriches my university teaching career of 27 years I taught more than 20 different courses ranging from undergraduate courses such as Calculus, Linear Algebra, ODE, PDE, Real Analysis to graduate courses such as ODE, PDE, Real Analysis, Foundation of Analysis, Mathematical Biology, Advanced Engineering Mathematics and Mathematical Finance.

Courses Taught in UCF

In spring 2017, I am teaching one session of MAT1033C (Intermediate Algebra, a GAA course), two graduate courses, MAP 5336 (Ordinary Differential Equations and Applications) and MAP 5435 (Advanced Engineering Mathematics).

In fall 2016, I taught one session of MAP 2302 (Ordinary Differential Equations I) and one session of Honor MAC 2311 (CAL I).

In spring 2016, I taught one session of MAT1033C (Intermediate Algebra, a GAA course) and a graduate course MAP 5336 (Ordinary Differential Equations and Applications).

In fall 2015, I taught one session of MAT1033C (Intermediate Algebra, a GAA course) and a graduate course MAP 6356 (Partial Differential Equations).

In summer 2015, I taught one session of MAC1105 (College Algebra, a GAA course) and one session of MAC 2312 (CAL II).

In spring 2015, I taught one session of MAP 2302 (Differential Equations) and one session of MAD 2104 (Foundation of Discrete Mathematics).

In fall 2014, I taught two sessions of Honor MAC 2311 (CAL I).

In spring 2014, I taught one session of MAP 2302 (Differential Equations) and one session of MAS 3105 (Matrix and Linear Algebra).

In fall 2013, I taught one session of Honor MAC 2311 (CAL I) and one session of MAP 2302 (Differential Equations).

In spring 2013, I taught one session of MAP 4103 (Mathematical Modeling) and one session of MAP 2302 (Differential Equations).

In fall 2012, I taught one session of MAP 2302 (Differential Equations) and a graduate course MAP 6356 (Partial Differential Equations).

In spring 2012, I taught two sessions of MAP 2302 (Differential Equations).

In fall of 2011, I taught one session of Mac 2312 (CAL II) and one session of Honor MAC 2311 (CAL I).

In spring of 2010, I taught one session of Mac 2313 (CAL III) and one session of Mac 2311 (CAL I).

In fall of 2009, I taught one session of Mac 2313 (CAL III) and one session of Mac 2312 (CAL II).

In spring of 2009, I taught one session of Mac 2313 (CAL III) and one session of MAP 2302 (Differential Equations).

In summer of 2009, I taught two sessions of Mac 2312 (CAL II).

In fall 2008, I taught one session of Mac 2313 (CAL III) and one session of MAP 2302 (Differential Equations).

In spring 2008, I taught one session of MAP 4364 (Applied Boundary Value Problem II) and one session of graduate class MAP 5937 (Mathematical Models in Biology).

In fall 2007, I taught one session of MAP 4363 (Applied Boundary Value Problem I), and one session of one session of Mac 2312 (CAL II).

In spring of 2007, I taught a graduate class MAA 5416, (Foundation of Analysis) in UCF.

In fall 2006, I taught one sessions of Mac 2311 (CAL I), one session of Mac 2311H (Honor CAL I) and one sessions of MAP 2302 (Differential Equations) in UCF.

In summer 2006, I taught one sessions of MAC 2312 (CAL II).

In spring 2006, I taught one session of MAC 2233 (Concepts of Calculus) and one session of MAP 6356 (a graduate PDE course) in UCF.

In fall 2005, I taught one session of MAC 2312 (CAL II), and one session of MAS 3105 (Elementary Linear Algebra) in UCF.

In spring 2005, I taught one session of MAC 2312 (CAL II), and one session of MAS 3105 (Elementary Linear Algebra) in UCF.

In fall 2004 I taught one session of MAC 2311 (CAL I) in UCF.

In summer 2004, I taught one session of MAC 2312 (CAL II) in UCF.

In spring 2014, I taught one session of MAP 6356 (a graduate PDE course) in UCF.

In fall 2003, I taught one sessions of MAC 2281 (Cal. I) in UCF.

Services

I have striven to provide leadership in professional services and services to the university. I have made great effort and achieved great results since tenure promotion in 2008.

Professional Services

I am an associate editor of the journal **International Journal of Mathematics and Statistics**.

I have increased my service to various academic journals since promotion of 2008, not only the number of journals is larger but also the quality is higher. I am serving as referee to the following journals:

American Mathematical Society Proceedings
Archive of Rational Mechanics and Analysis
Communications on Pure and Applied Analysis
Discrete and Continuous Dynamics, Ser. B
Differential Equations and Nonlinear Mechanics
Electronic Journal of Differential Equations
Journal of Differential Equations
Journal of Egyptian Mathematical Society
Journal of Functional Analysis
Journal of London mathematical Society
Journal of Mathematical Analysis and Applications
Mathematical Review
Math. Z
Mathematical and Computer Modelling
Nonlinear Analysis, TMA
Pacific Journal of Mathematics
Proceedings of Royal Society of Edinburgh, Ser. A
Sciences in China, Ser. A
SIAM Journal of Mathematical Analysis

I have served on a **NSF panel** in March 2007.

I have organized, as a key member of the organizing committee of the following conferences:

1. A summer school with **more than 200** graduate students and young teachers in Taiyuan, China in July 2011.
2. A **high level** International PDE conference in Taiyuan, China in July 2012.
3. A **high level** International conference on PDE and Computation in UCF in May 2013.

These conference organizing activities are all done after my tenure promotion in 2008.

I have organized special sessions or mini-symposiums in the following national and international conferences:

1. **AMS Annual Meeting** in Tucson, AZ, Jan. 04.
2. **Fifth AIMS International Conference on Dynamical System and Differential Equations** in Pomona, CA in June, 2004
3. **AMS Annual Meeting** in Atlanta, GA in January, 2005.
4. **AMS Annual Meeting** in San Diego, CA in January, 2008.
5. **SIAM Conference on Analysis of PDE** in Miami, FL on December 7-10, 2009.
6. **Ninth AIMS International Conference on Dynamical System and Differential Equations** in Orlando, FL in July, 2012.
6. **SIAM Conference on Analysis of PDE** in Orlando, FL on December 7-10, 2013.
7. **Eleventh AIMS International Conference on Dynamical System and Differential Equations** in Orlando, FL in July, 2016.
8. **AMS Sectional Meeting**, in Orlando, Florida on September 23-24, 2017.

Services to the University, College and Department

I have increased greatly my capacity of serving university after my tenure promotion in 2008 by serving in committees at both the university level and college level.

I am now serving a two-year term as departmental representative in UCF faculty senate.

I have served on the (i) College Scholarship and Awards, and (ii) College Sabbatical Leave Committee for two years in 2012-2014.

In addition, I have served as **chair** of two important departmental committees, the *Faculty Recruit Committee* and *Colloquium Committee*.

I served on the following departmental committees:

1. *Faculty Recruit Committee* (chair 2015-16)
2. *Steering Committee*
3. *Colloquium Committee* (chair August 2016-July 2018)
4. *Senior Faculty Search Committee*
5. *Search Committee*
6. *Graduate Committee*
7. *Teaching Evaluation Committee for CPE of Assistant Professors Liu, Shuai and Zhang* (Chair)
8. *Graduate Program Committee*
9. *Mathematics Competition Committee*
10. *Math. Circle Committee*

11. *Ad-hoc Committee to explore joint program and research collaboration in mathematical sciences*
12. *Ad-hoc Committee to explore joint program and research collaboration in mathematical economics and finance*
13. *Graduate Students Recruitment and Publicity sub-committee*
14. *Text book committee of Calculus*
15. *Text book committee of Ordinary Differential Equations*

I have served as the *Advisor* to the UCF Badminton club for the last 13 years helping creating the club, recruiting club officers and organizing tournaments from 2004-Now.

I have served on the thesis committee of 3 Master students and 5 Ph.D students.

I have written and graded PDE qualifying papers consecutively for five years.

I have supervised graduate student classroom teaching at many occasions.

Services to the Community

I have done free tutorial in mathematics to some high school students in Trinity Prep School (for American Mathematics Competition) and Timber Creek High School.

I have helped, as volunteers for various activities involving mathematics and Chinese teaching in Timber Creek High School in the last 11 years.

I gave a public lecture in Mathematics in Timber Creek High School in April 2016.

I am actively involved in organizing activities in the Orlando Chinese Professional Associations for the last 14 years.