# Curriculum Vitae

## Dr. Tong Li

### Personal Information


1. Position: Professor of Mathematics
2. Affiliation: Department of Mathematics, University of Iowa, Iowa City, IA 52242
3. Phone: 319-335-3342, Fax: 319-335-0627, E-mail: tong-li@uiowa.edu


### Educational Background

1. Courant Institute, New York University, Mathematics, Ph. D., 1992.
2. Courant Institute, New York University, Mathematics, M. S. , 1990.
3. Peking University, Beijing, China, Mathematics, M. S. 1986.
4. Peking University, Beijing, China, Mathematics, B. A. 1983.

### Academic Experience

1. 2008-current, Professor in Mathematics, University of Iowa.
2. 1999-2008, Associate Professor in Mathematics, University of Iowa.
3. 2010-2013, Visiting Professor, Shanghai Jiaotong University, Shanghai, China.
4. 2008-2011, Visiting Professor, Xi'An Jiaotong University, Xi'An, China.
5. 2009-2012, Visiting Professor, Capital Normal University, Beijing, China.
6. Fall, 2008, Member of the Institute for Mathematics and its Applications, University of Minnesota.
7. Fall, 2008, Member of the Mathematical Biosciences Institute(MBI), The Ohio State University.
8. 2002, Spring, Visiting Member of the Institute for Advanced Study, Princeton, NJ.
9. 2000-current, A Faculty Member of Program in Applied Mathematical and Computational Sciences, University of Iowa.
10. 1993-1999, Assistant Professor in Mathematics, University of Iowa.
11. 1995-1997, Visiting Assistant Professor in Mathematics, UCLA.
12. 1992-1993, Visiting Member of the Institute for Advanced Study, Princeton, NJ.

### Research Interests

Nonlinear Partial Differential Equations, Shock Wave Theory, Detonation Theory, Traffic Flows, Water Waves, Mathematical Biology, Numerical Analysis.

**Publications**

1. Tong Li, Qualitative Analysis of some PDE Models of Traffic Flow, accepted for publication on July 3, 2013 on *Networks and Heterogeneous Media*.

2. T. Li and Zhi-An Wang, Steadily propagating waves of a chemotaxis model, *Mathematical Biosciences*, **240**(2012), 161-168.

3. T. Li, R.H. Pan and K. Zhao, Global dynamics of a hyperbolic-parabolic model arising from chemotaxis, *SIAM J. Appl. Math.*, **72**(2012), 417-443.

4. Dong Li and Tong Li, Shock formation in a traffic flow model with arrhenius look-ahead dynamics, *Networks and Heterogeneous Media*, **6**(2011), 681-694.

5. Tong Li and Kun Zhao, Global existence and long-time behavior of entropy weak solutions to a quasilinear hyperbolic blood flow model, *Networks and Heterogeneous Media*, **6**(2011), 625-646.

6. Lina Wang, Yaping Wu and Tong Li, Exponential Stability of Large-Amplitude Traveling Fronts for Quasi-linear Relaxation Systems with Diffusion, *Physica D*, **240**(2011), 971-983.

7. Dong Li, Tong Li and Kun Zhao, On a hyperbolic-parabolic system modeling chemotaxis, *Mathematical models and methods in applied sciences*, **21**(2011), No. 8, 1631-1650.

8. Tong Li and Zhi-An Wang, Asymptotic nonlinear stability of traveling waves to conservation laws arising from chemotaxis, *J. Diff. Eqn.*, **250**(2011), 1310-1333.

9. Tong Li and Kun Zhao, On a quasilinear hyperbolic system in blood flow modeling, *Discrete and Continuous Dynamical Systems-B*, **16**(2011), No. 1, 333-344.

10. Tong Li and Zhi-An Wang, Nonlinear Stability of Large Amplitude Viscous Shock Waves of a Generalized Hyperbolic-parabolic System Arising in Chemotaxis, *Mathematical models and methods in applied sciences*, **20**(2010), 1967-1998.

11. Lei Yu, Tong Li and Zhong-Ke Shi, The effect of diffusion in a new viscous continuum model, *Physics Letters*, Section A: General, Atomic and Solid State Physics, **374**(2010), issue 23, 2346-2355.

12. Lei Yu, Tong Li and Zhong-Ke Shi, Density Waves in a Traffic Flow Model with Reactive-time Delay, *Physica A*, Statistical Mechanics and its Applications, **389**(2010), issue 13, 2607-2616.

13. Tong Li and Zhi-An Wang, Nonlinear Stability of Traveling Waves to a Hyperbolic-parabolic System Modeling Chemotaxis, *SIAM J. Appl. Math.*, **70**(2009), 1522-1541.

14. Tong Li and Suncica Canic, Critical Thresholds in a Quasilinear Hyperbolic Model of Blood Flow, *Networks and Heterogeneous Media*, **4**(2009), 527-536.

15. Tong Li and Hailiang Liu, Critical Thresholds in Hyperbolic Relaxation Systems, *J. Diff. Eqns.*, **247**(2009), 33-48.

16. Tong Li and Hailiang Liu, Critical Thresholds in a Relaxation System with Resonance of Characteristic Speeds, *Discrete and Continuous Dynamical Systems - Series A*, **24**(2009), 511-521.

17. Tong Li and Yaping Wu, Linear and Nonlinear Exponential Stability of Traveling Waves for Hyperbolic Systems with Relaxation, *Comm. Math. Sci.*, **7**(2009), 571-593.

18. Tong Li, Y. Li and H. Hethcote, Periodic Traveling Waves in SIRS Endemic Models, *Mathematical and Computer Modelling*, **49**(2009), 393-401. Available online at:

    http://dx.doi.org/10.1016/j.mcm.2008.07.033.

19. Tong Li, Stability of Traveling Waves in Quasi-Linear Hyperbolic Systems with Relaxation and Diffusion, *SIAM J. Math. Anal.*, **40**(2008), 1058-1075. Available online:

    URL: http://link.aip.org/link/?SJM/40/1058.

20. Tong Li and Hailiang Liu, Critical Thresholds in a Relaxation Model for Traffic Flows, *Indiana Univ. Math. J.*, **57**(2008), 1409-1431.

21. Tong Li, Instability and formation of clustering solutions of traffic flow, *Bulletin of the Institute of Mathematics*, Academia Sinica (New Series), **2**(2007), 281-295.

22. Tong Li, Nonlinear Dynamics of Traffic Flow, *Proceedings of the Second International Multisymposium on Computer and Computational Sciences,* pp. 550-560, IEEE Computer Society, 2007.

23. Tong Li, Stability of CJ Detonations with a Two-Step Reaction Model, *HYP2004 Conference Proceedings II*, 157-164, Edited by F. Asakura, S. Kawashima, A. Matsumura, S. Nishibata, K. Nishihara, Yokohama Publishers, Inc., Japan, 2006.

24. Tong Li, Nonlinear dynamics of traffic jams, *Physica D*, **207**(2005), 41-51.

25. Tong Li and Hailiang Liu, Stability of a traffic flow model with nonconvex relaxation, *Comm. Math. Sci.*, **3**(2005), 101-118.

26. Tong Li, Modelling Traffic Flow with a Time-Dependent Fundamental Diagram, *Math. Methods Appl. Sci.*, **27**(2004), pp. 583-601.

27. Tong Li, Global Solutions of Nonconcave Hyperbolic Conservation Laws with Relaxation Arising from Traffic Flow, *J. Diff. Eqns.*, **190**(2003), 131-149.

28. Tong Li, Mathematical Modelling of Traffic Flows, in *Hyperbolic Problems: Theory, Numerics, Applications, Proceedings of the Ninth International Conference on Hyperbolic Problems*, pp. 695-704, Edited by T. Y. Hou and E. Tadmor, Springer, 2003.

29. Tong Li, Well-posedness Theory of An Inhomogeneous Traffic Flow Model, *Discrete and Continuous Dynamical Systems*, Series B, **2**(2002), 401-414.

30. Tong Li and H. M. Zhang, The Mathematical Theory of an Enhanced Nonequilibrium Traffic Flow Model, *Network and Spatial Economics, A Journal of Infrastructure Modeling and Computation*, Special Double Issue on Traffic Flow Theory, **1&2**(2001), pp. 167-177.

31. Tong Li, $L^1$ stability of conservation laws for a traffic flow model, *Electron. J. Diff. Eqns.*, **2001**(2001), No. 14, pp. 1-18.

32. Tong Li, Global Solutions And Zero Relaxation Limit For A Traffic Flow Model, *SIAM J. Appl. Math.*, **61**(2000), pp. 1042-1061.

33. Tong Li, Stability of a Transonic Profile Arising From Divergent Detonations, *Comm. in Partial Differential Equations*, **25**(2000), pp. 2087-2105.

34. Tong Li, Stability and Instability of Detonation Waves, in *Hyperbolic Problems: Theory, Numerics, Applications, Seventh International Conference in Zürich, February, 1998*, Volume II, pp. 641-650, Edited by M. Fey and R. Jeltsch, International Series of Numerical Mathematics, **Vol. 130**, Birkhäuser, 1999.

35. Tong Li, Time-Asymptotic Limit of Solutions of a Combustion Problem, *J. of Dynamics and Differential Equations*, **10**(1998), pp. 577-604.

36. Tong Li, Stability of Strong Detonation Waves and Rates of Convergence, *E. Journal of Differential Equations*, **1998**(1998), No. 9, pp. 1-17.

37. Tong Li, Rigorous Asymptotic Stability of a CJ Detonation Wave in the Limit of Small Resolved Heat Release, *Combustion Theory and Modelling*, **1**(1997), pp. 259-270.

38. Tong Li, On the Initiation Problem for a Combustion Model, *J. Diff. Eqn.*, **112**(1994), pp. 351-373.

39. Tong Li, On the Riemann Problem for a Combustion Model, *SIAM J. Math. Anal.*, **24**(1993), pp. 59-75.

**Synergistic Activities**

1. Member of the Information Technology Advisory Committee, appointed by the Faculty Senate, University of Iowa, 2012-2015.

2. Member of Association for Women in Mathematics (AWM).

3. Member of AWM Nominating Committee for 2009. The Committee's job is to find a candidate who is willing to serve as president (beginning in 2011), an uncontested office, and eight people willing to run for four positions on the Executive Committee.

4. Member of the Council on Teaching, University of Iowa, 2006-2009.

5. Member of the Council on the Status of Women, University of Iowa, 2006-2009.

6. Member of the Faculty Assembly, College of Liberal Arts and Sciences, 2008-2011.

7. Member of the Executive Committee, Department of Mathematics, University of Iowa, 2009-2011.

8. Member of the General Education Curriculum Committee, College of Liberal Arts and Sciences, University of Iowa, 2005-2009.

9. Member of UI Committee on the Celebration of Excellence and Achievement Among Women, since 2007.

10. Serve on the Selection Committee for the Distinguished Achievement Award, UI, since 2007.

11. Co-organized The Pre-AMS Workshop on PDE Problems and a Special Session at The AMS 2011 Spring Central Section Meeting at Iowa City, IA, March 17-20, 2011.

12. Co-organized The 2010 Iowa PDE Conference, University of Iowa, April 30th-May 2nd, 2010.

13. Co-organized a Minisymposium on Kinetic description, hyperbolic dynamics, and wave propagation at the SIAM conference on Analysis of Partial Differential Equations, December 7-9, 2009, Miami Florida.

14. Co-organized a conference on PDEs as part of the VIGRE activities, July 25-27, 2008, University of Iowa.

15. Member of VIGRE Planning Committee, Department of Mathematics, the University of Iowa.

16. Member of Minority Student Recruiting Committee, Department of Mathematics, University of Iowa, 1996-current.

17. Co-organized the Annual Sonia Kovalevsky High School Mathematics Day, University of Iowa, 2007-current.

18. Reviewer for *Mathematical Reviews*.