Yongfeng Li

Yongfeng Li
Institute of Mathematics And its Applications, (IMA), University of Minnesota
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Education:

Georgia Institute of Technology(GT), Atlanta, Georgia
Ph.D in Mathematics December 2008
Major: Dynamical Systems, Minor: ECE & Physics
Dissertation: Nonlinear Oscillations and Control in the BZ Chemical Reaction.
Advisor: Yingfei Yi

National University of Singapore(NUS), Singapore
M.S. in Computational Science October 2002
Major: Scientific Computing

Jilin University(JLU), Changchun, Jilin, China
M.S. in Applied Mathematics July 1999
Major: Operational Research and Control Theory
Award: Wang Xianghao Scholarship in 1997-1998
Distinguished Graduate Student & Student Leader Award
B.S. in Pure Mathematics July 1997
Award: Second Prize of 1995 CUMCM[1] in Jilin, China
Scholarship of first and second prizes in 1993-1997
Distinguished Student & Student Leader Awards
Graduation with Honor in 1997

Research:

Current Research in the **IMA**

- Nonlinear dynamics and nonequilibrium thermodynamics.
- Cellular Signal transduction.
- Epidemic disease model.
- Bifurcation in the Couette-Taylor flow.

Georgia Institute of Technology

- Weak KAM theorem with time-dependent Lagrangian.
- Nonlinear oscillations in Belousov-Zhabotinsky chemical reaction.
- Application of model reference control to biological system(SIRS disease models).
- Period function of planar dynamical systems.

National University of Singapore

- Numerical method for solving equations with singularities.

Jilin University

- Controllability of a class of nonlinear systems.

[1]China Undergraduate Mathematical Contest in Modeling

Professional Experience:

University of Minnesota, **Sep 2008-August 2010**

- Postdoctoral Associate, IMA,
- Instructor, School of Mathematics, Sep 2009-August 2010

Georgia Institute of Technology, **Jan 2003-August 2008**

- Research Assistant: Mathematical analysis on SARS disease model.
- Teaching Assistant: Teaching recitation classes for undergraduates.
- Lead Instructor: Designing and teaching introductory undergraduate courses.

National University of Singapore, **July 2000-Oct 2002**

- Co-advisor for undergraduate research projects supported by Science Foundation.
- Lab Instructor for undergraduates working with Mathematica and C.

Jilin University, **July 1993-July 1999**

- Teaching Assistant.
- Chair of Graduate Student Committee of the Institute of Mathematics in JLU.
- Co-chair of Undergraduate Student Committee of the Department of Mathematics in JLU.

Teaching Experience

1. **School of Mathematics, University of Minnesota, 2008-2010**

Fall 2009	MATH1272	Calculus II	Lead Instructor

2. **School of Mathematics, Georgia Tech, 2003-2008**

Spring 2008	Math 1502KB	Calculus II for Biology	Lead Instructor
Fall 2007	Math 1501	Calculus I	Teaching Assistant
Summer 2007	Math 2403	Differential Equations	Lead Instructor
Spring 2007	Math 1502	Calculus II	Teaching Assistant
	Math 2401	Calculus III	Teaching Assistant
Fall 2006	Math 1512	Honor Calculus II	Teaching Assistant
	Math 1522	Linear Algebra for Calculus	Lead Instructor
Summer 2006	Math 2401	Calculus III	Lead Instructor
Spring 2006	Math 2605	Calculus III for Computer Science	Lead Instructor
Fall 2005	Math 2401	Calculus III	Lead Instructor
Summer 2005	Math 2403	Differential Equations	Lead Instructor
Spring 2005	Math 2401	Calculus III	Teaching Assistant
Fall 2004	Math 2401	Calculus III	Lead Instructor
Summer 2004	Math 2403	Differential Equations	Lead Instructor
Spring 2004	Math 2403	Differential Equations	Teaching Assistant
Fall 2003	Math 2403	Differential Equations	Teaching Assistant
Summer 2003	Math 2401	Calculus III	Teaching Assistant

3. **Department of Mathematics, Jilin University, 1997-1999**

1997-1999	Calculus and Linear Algebra	Teaching Assistant

Publications:

(1) Y.F. Li, H. Qian and Y. Yi, Oscillations and Multiscale Dynamics in a Closed Chemical Reaction System: Second Law of Thermodynamics and Temporal Complexity, J. Chem. Phys, **129**, 15, (2008) 154505.

(2) S.N. Chow, Y.F. Li, Model Reference Control for SIRS Models, DCDS-A, **24**, 3 (2009).

(3) Y.F. Li, H. Qian and Y. Yi, Nonlinear Oscillations and Multiscale Dynamics in a closed Chemical Reaction System, *submitted*, (2009).

(4) Jeyaraman Srividhya, Yongfeng Li and Joe Pomerening, A length induced switch-like response in unidirectional signal transduction cascades is revealed, *submitted*, (2009).

(5) Yongfeng Li and Jeyaraman Srividhya, Goldbeter-Koshland Model for open signaling cascades– A mathematical study, *submitted*, (2009).

(6) Yongfeng Li, The basic reproduction number in epidemic models with time-varying demographics, *in preparation*, (2009).

(7) Yongfeng Li and Jeyaraman Srividhya, A generic model of open signaling cascade with forward activation, *in preparation*, (2009).

(8) Yongfeng Li, Iteration of operator and cellular signal transduction, *preprint*, (2009).

Grant

- *NSF travel grant (through IMA), 2008-2010*

Membereship

- *American Mathematical Society*
- *Society for Industrial and Applied Mathematics*
- *Society for Mathematical Biology*

Visiting

- *Michigan State University, April 18-24, 2009*
- *Purdue University, September 4-5, 2009*

Academic Events

1. *Mathematical and Algorithmic Challenges in Electronic Structure Theory.*
   IMA, University of Minnesota, September 29-October 3, 2008
2. *Differential Equations: Analysis, Applications & Computation,*
   A symposium in honor of Hans Weinberger's 80th Birthday.
   IMA, University of Minnesota, October 4, 2008
3. *Multi-Manifold Data Modeling and Applications.*
   IMA, University of Minnesota, Minneapolis, October 27-October 30, 2008
4. *Scientific Challenges in Solar Energy Conversion and Storage*
   IMA, University of Minnesota, November 1, 2008

5. *Coherence, Control, and Dissipation*
   IMA, University of Minnesota, March 2-6, 2009
6. *Midwest Conference on Mathematical Methods for Images and Surfaces*
   Michigan State University, April 18-19, 2009
7. *Symposium on Spatio-Temporal Reaction-Diffusion Phenomena*
   IMA, University of Minnesota, May 12, 2009
8. *24th Annual Shanks Lecture and Conference and the Atlantic Coast Symposium on the Mathematical Sciences in Biology and Biomedicine*
   Department of Mathematics, Vanderbilt University, May 18-21, 2009
9. *Science@theInterface 2009, Cellular Dynamics and Patterning*
   University of Chicago, June 5, 2009
10. *2009 SIAM Conference on Control and Its Applications*
    Denver, Colorado, July 6-8, 2009
11. *2009 SIAM Annual Meeting*
    Denver, Colorado, July 6-10, 2009
12. *International conference of Mathematical Biology and Annual Meeting of The Society for Mathematical Biology*
    University of British Columbia, Canada, July 27-30, 2009
13. *2009 Workshop for Young Researchers in Mathematical Biology*
    MBI, Ohio State University, August 24-26, 2009
14. *Flowing complex fluids: Rheological measurements and constitutive modeling*
    IMA, University of Minnesota, September 14-18, 2009.
15. *Flowing complex fluids: Fluid mechanics-interaction of microstructure and flow*
    IMA, University of Minnesota, October 12-16, 2009.
16. *VIII Americas Conference on Differential Equations, PASI 2009*
    Mexico City and Veracruz, Mexico, October 15-23, 2009
17. *Dynamics of signal transduction and of gene-protein regulatory networks*
    MBI, Ohio State University, November 2-6, 2009
18. *62nd Annual Meeting of the American Physical Society's Division of Fluid Dynamics*
    Minneapolis, Minnesota, November 22-24, 2009
19. *Microfluidics: Electrokinetic and Interfacial Phenomena*
    IMA, University of Minnesota, December 7-11, 2009.

Computer Skills:

- Operating System: Windows, Unix and Linux.
- Programming Languages: Fortran, C.
- Programming Software: Matlab, Simulink, Mathematica, Maple, AUTO, XPP, PPlane.
- Others: Latex, Excel, Word, PowerPoint, OpenOffice, Xfig
