

CURRICULUM VITAE

NAME: Jia Li

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CITIZENSHIP: U.S.A.

EDUCATION:

Ph.D., Department of Mathematics, University of Tennessee, August, 1987
M.S., Department of Mathematics, Huazhong University of Science and Technology,
September, 1981

CURRENT RESEARCH INTERESTS AND SPECIALIZATIONS:

Dynamical Systems, Differential Equations, Difference Equations, Mathematical Modeling, Population Dynamics, Dynamics of Infectious Diseases, Mathematical Ecology, Mathematical Epidemiology, and Mathematical Ecotoxicology

PROFESSIONAL EXPERIENCE:

2005 – present	Department Chairman Department of Mathematical Sciences, University of Alabama in Huntsville
2000 – present	Professor Department of Mathematical Sciences, University of Alabama in Huntsville
1992 – 2011	Consultant/Affiliate Mathematical Modeling and Analysis Group, Theoretical Division, Los Alamos National Laboratory
2001 Spring	Visiting Professor Department of Applied Mathematics, Xian Jiaotong University, Xian, China
1995 – 2000	Associate Professor Department of Mathematical Sciences, University of Alabama in Huntsville
1990 – 1995	Assistant Professor Department of Mathematical Sciences, University of Alabama in Huntsville
1996 Summer	Visiting Associate Professor Biometrics Unit, Cornell University
1994 Summer	Visiting Assistant Professor Biometrics Unit and Center for Applied Mathematics, Cornell University
1993	Visiting Scientist Mathematical Science Institute, Cornell University
1993	Visiting Assistant Professor Biometrics Unit and Center for Applied Mathematics, Cornell University

1989 – 1991	Postdoctoral Fellow Center for Nonlinear Studies and Theoretical Division, Los Alamos National Laboratory
1988 – 1989	Visiting Assistant Professor Department of Mathematics, University of Arizona
1987 – 1988	Postdoctoral Research Associate and Visiting Assistant Professor Department of Mathematics, University of Tennessee at Knoxville
1984 – 1987	Research Assistant and Teaching Assistant Department of Mathematics, University of Tennessee at Knoxville
1982 – 1983	Instructor Mathematics Department, Huazhong University of Science and Technology, Wuhan, China

PROFESSIONAL ACTIVITIES

- Associate Editor, *Annals of Differential Equations*
- Associate Editor, *Journal of Biological Dynamics*
- Associate Editor, *Journal of Mathematics and Computer Science*
- Associate Editor, *Mathematical Biosciences and Engineering*

PUBLICATIONS:

1. (1983) Stability of motion of a class of dynamical systems with time-varying coefficients, (in Chinese) *J. Math. Res. Exp.*, 3: 63-70.
2. (1984) (with Ke-Qiang Gao), The criteria of the absolute stability of several classes of direct control systems, (in Chinese) *J. Huazhong Univ. Sci. Tech.*, 12: 51-58.
3. (1985) On the stability of certain time-dependent dynamical systems, *J. Math. Anal. Appl.*, 109: 207-219.
4. (1987) (with T.G. Hallam and Zhien Ma), Demographic variation and survival in discrete population models, *IMA J. Math. Appl. Med. & Biol.*, 4: 237-246.
5. (1988) Persistence and extinction in continuous age-structured population models, *Int. J. Comput. Math. Applic.*, 15: 511-523.
6. (1988) Persistence in discrete age-structured population models, *Bull. Math. Biol.*, 50: 351-366.
7. (1988) (with T.G. Hallam), Survival in continuous structured population models, *J. Math. Biol.*, 26: 421-433.
8. (1988) (with T.G. Hallam, R. Lassiter, and W. McKinney), Physiologically structured population models in risk assessment, in “*Biomathematics and Related Computational Problems*” (Luigi M. Ricciardi, ed.), Kluwer, 197-211.
9. (1989) (with J.M. Cushing), On Ebenman’s model for the dynamics of a population with competing juveniles and adults, *Bull. Math. Biol.*, 51: 687-713.
10. (1990) Dynamics of age-structured predator-prey population models, *J. Math. Anal. Appl.*, 152: 399-415.
11. (1990) (with T.G. Hallam, R. Lassiter, and W. McKinney), Determination of effects of lipophilic toxicants on dynamics of *Daphnia* populations, *Environ. Toxicol. Chem.*, 9: 597-621.

12. (1990) (with T.G. Hallam, R. Lassiter, and W. McKinney), Modelling the effects of toxicants on fish populations, in "Proceedings of the Symposium on Fish Toxicology, Fish Physiology, and Fisheries Management" (R. Ryans, ed.), EPA/600/9-90/011: 299-320.
13. (1990) (with T.G. Hallam, R. Lassiter, and L. Suarez), Modelling individuals employing an integrated energy response: application to Daphnia, *Ecology*, 71: 938-954.
14. (1991) (with J.M. Cushing), Juvenile versus adult competition, *J. Math. Biol.*, 29: 457-473.
15. (1992) Effects of risk behavior change on the spread of AIDS epidemic, *Math. Comput. Modelling*, 16: 103-111.
16. (1992) Periodic solutions of population models in a periodically fluctuating environment, *Math. Biosci.*, 110: 17-25.
17. (1992) (with J.M. Cushing), Intra-specific competition and density dependent juvenile growth, *Bull. Math. Biol.*, 54: 503-520.
18. (1992) (with J.M. Cushing), The dynamics of a size-structured intraspecific competition model with density dependent juvenile growth rates, in "Individual-Based Models and Approaches in Ecology" (D. DeAngelis and L. Gross, eds.), Chapman & Hall, 112-125.
19. (1992) (with T.G. Hallam, R. Lassiter, and W. Mckinney), An approach for modelling populations with continuous structured models, in "Individual-Based Models and Approaches in Ecology" (D. DeAngelis and L. Gross, eds.), Chapman & Hall, 312-337.
20. (1992) (with Shigen Hu), On eventual boundedness of Lotka-Volterra ecological systems, *Nonlinear Analysis, TMA*, 18: 917-928.
21. (1994) (with J.M. Hyman and E.A. Stanley), Threshold conditions for the spread of the HIV infection in age-structured populations of homosexual men, *J. Theor. Biol.*, 166: 9-31.
22. (1995) (with J.M. Cushing), Oscillations caused by cannibalism in a size-structured population model, *Canadian Applied Math. Quart.*, 3: 155-172.
23. (1995) (with C. Castillo-Chavez and Wenzhang Huang), Dynamics of multiple pathogen strains in heterosexual epidemiological models, in "Differential Equations and Applications to Biology and Industry", (M. Martelli, K. Cooke, E. Cumberbatch, B. Tang and H. Thieme, eds.), World Scientific, 289-298.
24. (1996) (with S.N. Elaydi and V.L. Kocic), Global stability of nonlinear delay difference equations, *J. Diff. Eqns. Appl.*, 2: 87-96.
25. (1996) (with C. Castillo-Chavez and Wenzhang Huang), On the existence of stable pairing distributions, *J. Math. Biol.*, 34: 413-441.
26. (1996) (with C. Castillo-Chavez and Wenzhang Huang), Competitive exclusion in gonorrhea models and other sexually-transmitted diseases, *SIAM J. Applied Math.*, 56: 494-508.
27. (1996) (with J.M. Hyman), Preference biased models for partnership formation, *The Proceedings of the First World Congress of Nonlinear Analysts, Vol. IV*, Walter de Gruyter, Berlin, 3137-3148.
28. (1996) (with T. Kostova), Oscillations and stability due to juvenile versus adult competition, *Int. J. Comput. Math. Applic.*, 32: 57-70.
29. (1996) (with X.X. Liao), Robust interval stability, persistence, and partial stability on Lotka-Volterra systems with time-delay, *Appl. Math. Comput.*, 75: 103-115.
30. (1996) (with X.X. Liao), Asymptotic equivalence of a large scale dynamical system and its isolated subsystems, *Dynamics of Continuous, Discrete and Impulsive Systems*, 2: 133-145.
31. (1997) (with X.X. Liao), Stability on Gilpin-Ayala competition models with diffusion, *Nonlinear Analysis, TMA*, 28: 1351-1458.

32. (1997) (with C. Castillo-Chavez and Wenzhang Huang), The effects of female's susceptibility on coexistence of multiple pathogen strains of sexually transmitted diseases, *J. Math. Biol.*, 35: 503-522.
33. (1997) (with J.M. Hyman), Disease transmission models with biased partnership selection, *Appl. Numer. Math.*, 24: 379-392.
34. (1997) (with J.M. Hyman), Behavior changes in SIS STD models with selective mixing, *SIAM, J. Appl. Math.*, 57: 1082-1094.
35. (1998) (with J.M. Hyman), Modeling the effectiveness of isolation strategies in preventing STD epidemics, *SIAM, J. Appl. Math.*, 58: 912-925.
36. (1999) (with J.M. Hyman and E.A. Stanley), The differential infectivity and staged progression models for the transmission of HIV, *Math. Biosci.*, 155: 77-109.
37. (1999) (with T. Kostova and M. Friedman), Two models for competition between age classes, *Math. Biosci.*, 157: 65-89.
38. (1999) (with C. Castillo-Chavez and Wenzhang Huang), Competitive exclusion and coexistence of multiple strains in an SIS STD model, *SIAM, J. Appl. Math.*, 59: 1790-1811.
39. (2000) (with J.M. Hyman), An intuitive formulation for the reproductive number for the spread of diseases in heterogeneous population, *Math. Biosci.*, 167: 65-86.
40. (2001) (with J.M. Hyman and E.A. Stanley), The initialization and sensitivity of multigroup models for the transmission of HIV, *J. Theor. Biol.*, 208: 227-249.
41. (2002) (with R.M. Welch, Udaysankar S. Nair, T.L. Sever, D.E. Irwin, C. Cordon-Rosales, N. Padilla), Dynamic malaria models with environmental changes, in: *Proceedings of The 34th South-eastern Symposium on System Theory*, Huntsville, AL, (2002), 396-400.
42. (2003) (with J.M. Hyman and E.A. Stanley), Modeling the impact of random screening and contact tracing in reducing the spread of HIV, *Math. Biosci.*, 181: 17-54.
43. (2003) (with Zhien Ma and Jianping Liu), Stability analysis for differential infectivity epidemic models, *Nonlinear Analysis: Real World Applications*, 4: 841-856.
44. (2003) (with Zhien Ma, S.P. Blythe, and C. Castillo-Chavez), On coexistence of pathogens in a class of sexually-transmitted disease models, *J. Math. Biol.*, 47: 547-568.
45. (2004) Simple mathematical models for interacting wild and transgenic mosquito populations, *Math. Biosci.*, 189: 39-59.
46. (2004) (with Yicang Zhou, Zhien Ma, and J.M. Hyman), Epidemiological models for mutating pathogens, *SIAM, J. Appl. Math.*, 65: 1-23.
47. (2005) (with J.M. Hyman), The reproductive number for an HIV model with differential infectivity and staged progression, *Linear Algebra and its Applications*, 398: 101-116.
48. (2005) (with J.M. Hyman), Differential susceptibility epidemic models, *J. Math. Biol.*, 50: 626-644.
49. (2005) Heterogeneity in modeling of mosquito populations with transgenic mosquitoes, *J. Diff. Eqns. Appl.*, 11: 443-457.
50. (2006) (with J.M. Hyman), Differential susceptibility and differential infectivity epidemic models, *Math. Biosci. Eng.*, 3: 89-100.
51. (2007) (with J.M. Hyman), Infection-age structured epidemic models with behavior change or treatment, *J. Biol. Dynam.*, 1: 109-131.
52. (2007) (with Baojun Song and Xiaohong Wang), An extended Ricker population model with Allee effects, *J. Diff. Eqns. Appl.*, 13: 309-321.

53. (2008) (with Fred Brauer) Continuous-time age-structured models in population dynamics and epidemiology, In “Mathematical Epidemiology”, (Fred Brauer, Pauline van den Driessche, and Jianhong Wu, Eds.), Springer, Berlin, 205-227.
54. (2008) Differential equations models for interacting wild and transgenic mosquito populations, *J. Biol. Dynam.*, 2: 241-258.
55. (2008) Malaria models with partial immunity in humans, *Math. Biosci. Eng.*, 5: 789-801.
56. (2009) (with J.M. Hyman), Epidemic models with differential susceptibility and staged progression and their dynamics, *Math. Biosci. Eng.*, 6: 321-332.
57. (2009) Simple stage-structured models for wild and transgenic mosquito populations, *J. Diff. Eqns. Appl.*, 17: 327-347.
58. (2009) (with Zhien Ma), *Dynamical Modeling and Analysis of Epidemics*, (Zhien Ma and Jia Li Eds.), World Scientific Publishing, Singapore (ISBN 978-981-279-749-0).
59. (2009) (with Zhien Ma), Basic knowledge and modeling on epidemic dynamics, In “Dynamical Modeling and Analysis of Epidemics”, (Zhien Ma and Jia Li Eds.), World Scientific Publishing, Singapore, 1-82.
60. (2010) Modeling of mosquitoes with dominant or recessive transgenes and Allee effects, *Math. Biosci. Eng.*, 7: 101-123.
61. (2011) Malaria model with stage-structured mosquitoes, *Math. Biosci. Eng.*, 8: 753-768.
62. (2011) (with Junliang Lu), Dynamics of stage-structured discrete mosquito population models, *J. Appl. Anal. Compt.*, 1: 53-67.
63. (2011) Modeling of transgenic mosquitoes and impact on malaria transmission, *J. Biol. Dynam.*, 5: 474-494.
64. (2012) Discrete-time models with mosquitoes carrying genetically-modified bacteria, *Math. Biosci.*, 240: 35-44.
65. (2012) (with Shangbing Ai and Junliang Lu), Mosquito-stage-structured malaria models and their global dynamics, *SIAM, J. Appl. Math.*, 72: 1223-1237.
66. (2013) Simple discrete-time malarial models, *J. Diff. Eqns. Appl.*, 19: 649-666.
67. (2013) (with A. K. Misra and Anupama Sharma), A mathematical model for control of vector borne diseases through media campaigns, *Discrete and Continuous Dynamical Systems, Series B*, 18: 1909-1927.
68. (2013) (With Cuihong Yang), Dynamics of interactive mosquito populations with two transgenes, *J. Biol. Sys.*, 21: 1340003,1-21.
69. (2014) Stage-structured models for interacting wild and sterile mosquitoes, *Journal of Shanghai Normal University (Natural Science.Mathematics)*, 43: 511-522.
70. (2014) (with Liming Cai and Shangbing Ai), Dynamics of mosquitoes populations with different strategies for releasing sterile mosquitoes, *SIAM, J. Appl. Math.*, 74: 1786-1809.
71. (2015) (with Zhiling Yuan), Modeling releases of sterile mosquitoes with different strategies, *J. Biol. Dynam.*, 9: 1-14.
72. (2015) (with Xuejuan Lu, Lulu Hui, and Shengqiang Liu), A mathematical model for HTLV-I infection with two time delays, *Math. Biosci. Eng.*, 12: 431-449.
73. (2016) (with Liming Cai and Yang Li), Stage-structured wild and sterile mosquito population models and their dynamics, *J. Biol. Dynam.*, <http://dx.doi.org/10.1080/17513758.2016.1159740>.

74. (2016) (with Mingzhan Huang and Xinyu Song), Modeling and analysis of impulsive releases of sterile mosquitoes, (submitted).

PRESENTATIONS:

Invited Talks:

- “Nonautonomous discrete population models”, Second Autumn Course on Mathematical Ecology at Trieste, Italy, November, 1986.
- “Dynamics from an individual model to a physiologically structured population model”, Combined Midwest-Southeast Differential Equations Conference at Nashville, Tennessee, October, 1987.
- “Functional differential equations in age-structured AIDS epidemic models”, AMS/SIAM Meeting at Albuquerque, New Mexico, April 1990.
- “Effects of risk behavior change on the spread of the AIDS epidemic”, Symposium/Workshop Populations, Communities, and Ecosystems: An Individual Perspective at Knoxville, Tennessee, May 1990.
- “Age-structured AIDS epidemic models and the thresholds”, CNLS Tea Talk at The Center for Nonlinear Studies, Los Alamos National Laboratory, New Mexico, May 1990.
- “Models for biased partnership formation”, World Congress of Nonlinear Analysts at Tampa, Florida, August 1992.
- “A new model for biased partnership formation in mathematical epidemiology”, Seminar at The Center for Nonlinear Studies, Los Alamos National Laboratory, New Mexico, July 1992.
- “Dynamics of a size-structured cannibalistic population model with a dynamically modeled resource”, Mathematical Ecology Workshop, Field Institute for Research in Mathematical Sciences, Waterloo, Canada, May, 1993.
- “Exclusion or coexistence of viral strains in an S-I-S STD model”, AMS meeting at Claremont, California, November, 1993.
- “Competitive exclusion, or coexistence of pathogen strains in sexually transmitted disease models”, Colloquium at Mathematics Department of University of Tennessee, Knoxville, Tennessee, March, 1994.
- “Do pathogen strains have more chances to coexist if bisexual men are involved?” International Conference on Differential Equations and Applications to Biology and to Industry, Claremont, California, June, 1994.
- “Coexistence and coevolution of pathogen strains in sexually transmitted disease models”, Majors’ Colloquium at Department of Mathematics, Trinity University, San Antonio, Texas, February, 1995.
- “Dynamics of pathogen strains in sexually transmitted disease models”, Seminar at Institute of Mathematics, Bulgarian Academy of Sciences, Sofia, Bulgaria, March, 1995.
- “Periodic solutions in discrete intra-specific competition models with age structure”, AMS South-eastern Meeting, Baton Rouge, Louisiana, April 1996.
- “Applications of dynamical systems in biology”, Shanghai Jiaotong University, China, May, 1997.
- “Mathematical modeling of sexually-transmitted diseases”, Huazhong University of Science and Technology, China, May, 1997.
- “Mathematical modeling of sexually-transmitted diseases”, Xian Jiaotong University, China, June, 1997.
- “Effects of sexual behavior changes on the transmission of sexually-transmitted diseases”, Xian Jiaotong University, China, June, 1997.

- “Dynamics of behavior changes in sexually-transmitted diseases”, International Conference on Deterministic and Stochastic modelling of Biointeraction, Sofia, Bulgaria, August, 1997, (Plenary lecture).
- “Mathematical modeling in infectious diseases and sexually-transmitted-diseases”, Math Club, Department of Mathematical Sciences, UAH, Huntsville, November, 1997.
- “Dynamics of behavior changes in sexually-transmitted diseases”, Tenth Annual University of Alabama System Applied Mathematics Meeting, Huntsville, November, 1997.
- “Universal formula for the reproductive number?”, Colloquium at Department of Ecology and Evolutionary Biology and Department of Mathematics, University of Tennessee, Knoxville, February, 1998.
- “Partnership formation and behavior change”, Colloquium at Department of Mathematics, Universidad Nacional Autonoma de Mexico, Mexico City, Mexico, May 1998.
- “Juveniles versus adult competition”, Seminar at The Centro Internacional de Ciencias, Cuernavaca, Mexico, June, 1998.
- “M-matrix theory”, Short course at The Centro Internacional de Ciencias, Cuernavaca, Mexico, June, 1998.
- “The reproductive number”, Short course at The Centro Internacional de Ciencias, Cuernavaca, Mexico, June, 1998.
- “ R_0 for models with more heterogeneous structure”, Alcalá First International Conference on Mathematical Ecology, Alcalá de Henares (Madrid), Spain, September, 1998.
- “The reproductive number for more structured epidemiological models”, Colloquium at Department of Mathematical Sciences, University of Memphis, Memphis, March, 1999.
- “The spread of simple epidemics described by transport equations”, Colloquium at Department of Mathematics and The Program of Applied Mathematical and Computational Sciences, University of Iowa, Iowa City, May, 1999.
- “Epidemiology of influenza and the mathematical modeling”, Colloquium at Department of Mathematical Sciences, UAH, Huntsville, March, 2000.
- “Dynamics of AIDS models with differential infectivity and stage progression”, AMS Southeastern Meeting, Lafayette, April 2000.
- “Epidemic thresholds in disease transmission models”, Summer Program Lecture, Los Alamos National Laboratory, Los Alamos, June 2000.
- “Mathematical modeling for infectious diseases”, Lecture at “Southern China Mathematical Modeling Workshop”, South China University of Technology, Guangzhou, China, July, 2000.
- “Understanding the formulation of the reproductive number”, Lecture at “2000 Xian Summer Course on Mathematical Biology”, Xian Jiaotong University, Xian, China, July-August, 2000.
- “Pairing formation in sexually-transmitted disease models”, Lecture at “2000 Xian Summer Course on Mathematical Biology”, Xian Jiaotong University, Xian, China, July-August, 2000.
- “Epidemiology of influenza and the mathematical modeling”, Lecture at “2000 Xian Summer Course on Mathematical Biology”, Xian Jiaotong University, Xian, China, July-August, 2000.
- “M-matrix theory and the reproductive number”, Lecture at “2000 Xian Summer Course on Mathematical Biology”, Xian Jiaotong University, Xian, China, July-August, 2000.
- “Dynamic mathematical models for influenza”, Lecture at “2000 Xian Summer Course on Mathematical Biology”, Xian Jiaotong University, Xian, China, July-August, 2000.

- “Mathematical modeling of influenza epidemics”, Colloquium at Department of Mathematics and The Program of Applied Mathematical and Computational Sciences, University of Iowa, Iowa City, February, 2001.
- “Mathematical modeling of multiple viral strains and their mutations”, LabTea talk at Department of Ecology and Evolutionary Biology, Princeton University, Princeton, February, 2001.
- “Stability analysis for certain epidemiological models”, Colloquium at Department of Applied Mathematics, Xian Jiaotong University, Xian, China, March, 2001.
- “Mathematical modeling for malaria”, Colloquium at Department of Applied Mathematics, Xian Jiaotong University, Xian, China, March, 2001.
- “HIV transmission and the mathematical modeling”, Colloquium at AIDS Prevention Center of China, Beijing, China, April, 2001.
- “Two-pathogen-strain epidemiological model with mutation and their Hopf bifurcation”, Colloquium at Chinese Academy of Science, Beijing, China, April, 2001.
- “Dynamic models of AIDS/HIV”, Colloquium at Northern China Institute of Technology, Taiyuan, China, May, 2001.
- “Dynamic epidemiological models with pathogen mutation”, Fourteenth Annual University of Alabama System Applied Mathematics Meeting, Tuscaloosa, October, 2001.
- “Dynamic malaria models with environmental changes”, 34th Southeastern Symposium on System Theory, Huntsville, March, 2002.
- “Mathematical modeling of genetically altered mosquitoes”, The 7th International Conference on Difference Equations and Applications and A Satellite Conference of ICM 2002, Changsha, August, 2002.
- “Structured epidemiological models and the reproductive number”, Colloquium at Department of Mathematics, Southern Methodist University, Dallas, October, 2002.
- “M-matrices and their applications in Mathematical Biology”, Colloquium at The Mathematical and Theoretical Biology Institute at Cornell University, June, 2003.
- “Structured epidemic models with behavior changes”, The MTBI/CNLS Conference on Computational and Mathematical Approaches to Homeland Security, Public Health Policy and Control: Challenges Posed by Emerging and Reemerging Diseases, Los Alamos National Laboratory, Los Alamos, June, 2003.
- “Formulation of the reproductive number”, Mathematical Epidemiology Tutorial 2003, The MTBI/CNLS Conference on Computational and Mathematical Approaches to Homeland Security, Public Health Policy and Control: Challenges Posed by Emerging and Reemerging Diseases, Los Alamos National Laboratory, Los Alamos, July, 2003.
- “Behavior change in structured epidemic models”, Colloquium at Department of Mathematics, University of Southern California, Los Angeles, October, 2003.
- “Mathematical modeling of vector-borne diseases and early warning system”, Colloquium at Department of Mathematical Sciences, Shanghai Jiaotong University, Shanghai, China, May, 2004.
- “Mathematical modeling of malaria, effects of environmental changes, early warning system, and genetically-altered mosquitoes”, Colloquium at Department of Applied Mathematics, Xian Jiaotong University, Xian, China, May, 2004.
- “Age-structured models in population dynamics and epidemiology” I-II, Lectures at PIMS-MITACS-MSRI Special Program on Infectious Diseases Summer School, Banff, Canada, June, 2004.
- “Age-structured models in population dynamics and epidemiology” I-II, Lectures at the Mathematical and Theoretical Biology Institute Summer School, Los Alamos National Laboratory, Los Alamos, July, 2004.

- “Mathematical modeling of malaria, early warning system, and genetically-altered mosquitoes”, Colloquium at Livermore National Laboratory, Livermore, September, 2004.
- “Epidemic models with differential susceptibility and infectivity”, Colloquium at Xian Jiaotong University, Xian, China, May, 2005.
- “Mathematical modeling of malaria, effects of environmental changes, early warning system, and genetically-altered mosquitoes”, Colloquium at Xian Jiaotong University, Xian, China, May, 2005.
- “Discrete- and continuous-time transgenic mosquito models”, Colloquia at Shanghai Jiaotong University and Institute of Applied Mathematics, Shanghai Normal University, Shanghai, China, May, 2005.
- “Age-structured populations and epidemic modeling”, Lectures at the Summer Program of the Mathematical and Theoretical Biology Institute, Arizona State University, Los Alamos, June, 2005.
- “Discrete- and continuous-time transgenic mosquito population models”, Colloquium at the Summer Program of the Mathematical and Theoretical Biology Institute, Arizona State University, Los Alamos, July, 2005.
- “An extended Ricker population model with the Allee effects”, AMS Annual Meeting, San Antonio, January, 2006.
- “Modeling of interactive wild and transgenic mosquito populations with Allee effects”, International Conference on Difference Equation, Special Functions and Applications, Kyoto, Japan, July, 2006.
- “Mathematical modeling of interacting mosquitoes with transgenes”, Colloquium at Department of Mathematical Sciences, University of Alabama in Huntsville, Huntsville, February, 2007.
- “Mathematical modeling of malaria and transmission vectors”, Colloquium at Department of Mathematics, Shanghai Normal University, Shanghai, May, 2007.
- “Mathematical modeling of interacting mosquitoes with transgenes - Fighting malaria transmission”, Conference on Functional Differential Equations, Xiangtan University, Xiangtan, May, 2007.
- “Research questions in Mathematical Biology”, Colloquium at Department of Mathematics, Kunming University of Science and Technology, Kunming, May, 2007.
- “Studies of Mathematical Epidemiology”, Colloquium at Department of Mathematics, Yunnan University, Kunming, May, 2007.
- “Infection-age structured epidemic models with behavior change”, Second International Conference on Recent Advances in Applied Dynamical Systems, Jinhua, June, 2007.
- “Mathematical modeling of interacting mosquitoes with transgenes”, Colloquium at Department of Mathematics, Huazhong University of Science and Technology, Wuhan, June, 2007.
- “Simple mathematical models of two-sex interacting wild and transgenic mosquitoes”, International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, Tucson, October, 2007.
- “Continuous-time mathematical modeling of transgenes mosquitoes in preventing malaria transmission populations”, 7th MSU - UAB Conference on Differential Equations & Computational Simulations, Birmingham, November, 2007.
- “Mathematical modeling of malaria with partial immunity”, AMS 2007 Fall Southeastern Meeting, Murfreesboro, November, 2007.
- “Malaria model with stage-structured mosquitoes”, Canada-China Conference on the Impact of Climate Change on Vector-borne and Waterborne Diseases, Nanjing, May, 2008.
- “Mathematical modeling of vector-borne diseases”, Colloquium at Department of Mathematics, Huazhong Normal University, Wuhan, May, 2008.

- “Stage-structured population models of mosquitoes with transgenes”, 2008 International Workshop on Dynamical Systems and Nonlinear Waves, Zhejiang Normal University, Jinhua, June, 2008.
- “Modeling of impact of climate change and transgenes on malaria transmission with stage-structured mosquito populations”, 2008 International Workshop on Dynamical Systems and Nonlinear Waves, Zhejiang Normal University, Jinhua, June, 2008.
- “Mathematical modeling of malaria transmissions control”, Colloquium at School of Mathematics and Computer Science, Guilin University of Electronic Technology, Guilin, June, 2008.
- “Mathematical modeling of infectious diseases transmission dynamics”, Colloquium at Department of Mathematics, Yunnan Normal University, Kunming, June, 2008.
- “Modeling of impact of climate change and transgenes on malaria transmission with stage-structured mosquito populations”, Colloquium at Department of Mathematics, Kunming University of Science and Technology, Kunming, June, 2008.
- “Modeling of malaria transmission with stage-structured mosquito populations”, Colloquium at Shanghai Jiaotong University, Shanghai, June, 2008.
- “Impact of environmental changes and transgenic mosquitoes on malaria transmission”, Colloquium at Shanghai Normal University, Shanghai, June, 2008.
- “Simple malaria transmission models with stage-structured mosquito populations and backward bifurcation”, AMS 2008 Fall Southeastern Meeting, Huntsville, October, 2008.
- “Modeling the impact of climate change and mosquito transgenes on malaria transmission”, Colloquium at Department of Mathematics, University of Louisville, Louisville, December, 2008.
- “Modeling the impact of climate changes on malaria transmission with stage-structured mosquito populations, and backward bifurcation”, International Conference on Differential Equations and Applications in Ecology and Epidemiology, Purdue University, West Lafayette, December, 2008.
- “Modeling the impact of climate change and mosquito transgenes on malaria transmission”, Colloquium at Department of Applied Mathematics, Illinois Institute of Technology, Chicago, December, 2008.
- “Mathematical modeling of transgenic mosquitoes in preventing malaria transmission”, Colloquium at Department of Mathematical Sciences, Middle Tennessee State University, Murfreesboro, March, 2009.
- “Mathematical modeling of mosquitoes with dominant or recessive transgenes and Allee effects”, Colloquium at College of Science, Zhejiang Normal University, Jinhua, April, 2009.
- “Impact of climate changes on malaria transmission with stage-structured mosquito populations and backward bifurcation”, Colloquium at College of Science, Zhejiang Normal University, Jinhua, April, 2009.
- “Mathematical modeling of transgenic mosquitoes and impact on malaria transmission”, Colloquium at College of Science, Zhejiang University of Electronic Technology, Hangzhou, May, 2009.
- “Mathematical modeling of transgenic mosquitoes and impact on malaria transmission”, Colloquium at College of Science, China Jiliang University, Hangzhou, May, 2009.
- “Mathematical modeling of mosquitoes with transgenes - Fighting malaria transmission”, Colloquium at College of Science, Shanghai University of Science and Technology, Shanghai, May, 2009.
- “Mathematical modeling of mosquitoes and fighting malaria transmission”, International Workshop on Dynamical Systems and Related Problems, Shanghai, May, 2009.
- “Mathematical modeling of transgenic mosquitoes and Allee effects”, Colloquium at Department of Applied Mathematics, Xian Jiaotong University, Xian, May, 2009.

- “Modeling impact of climate changes on malaria transmission with stage-Structured mosquito populations and backward bifurcation”, Colloquium at Department of Applied Mathematics, Xian Jiaotong University, Xian, May, 2009.
- “Mathematical modeling of transgenic mosquitoes and malaria transmission”, Colloquium at College of Science, Air Force Engineering University, Xian, May, 2009.
- “Dynamics of epidemic models with differential susceptibility and staged progression”, Colloquium at College of Science, Central China Normal University, Wuhan, June, 2009.
- “Malaria modeling with transgenic mosquitoes”, Colloquium at College of Science, Central China Normal University, Wuhan, June, 2009.
- “Modeling of the impact of climate changes on malaria transmission with stage-structured mosquito populations, and backward bifurcation”, International Conference on Mathematical Biology and Annual Meeting of The Society for Mathematical Biology, Vancouver, July, 2009.
- “Fighting malaria with transgenic mosquitoes”, Math. Biol. Seminar, Arizona State University, Tempe, February, 2010.
- “Transgenic mosquitoes and fighting malaria transmission”, Colloquium, UAH, Huntsville, March, 2010.
- “Transgenic mosquitoes and the impact on malaria transmission”, AMS 2010 Fall West Meeting, Los Angeles, October, 2010.
- “Modeling of malaria transmission with stage-structured mosquito populations and backward bifurcation”, Colloquium at Department of Mathematics, Southern Illinois University, Carbondale, March, 2011.
- “Discrete-time models for the transmission of mosquito-borne diseases and their dynamics”, Fifth International Conference on Recent Advances in Applied Dynamical Systems, Shanghai, May 2011.
- “Impact of releasing transgenic mosquitoes on fighting malaria transmission”, International Workshop on Applied Dynamical Systems, Jishou, May, 2011.
- “Modeling of malaria transmission with stage-structured mosquito populations and backward bifurcation”, Colloquium at the College of Science, Central China Normal University, Wuhan, May, 2011.
- “Impact of releasing transgenic mosquitoes on fighting malaria transmission”, Colloquium at the College of Science, Zhejiang Normal University, Jinhua, June, 2011.
- “Discrete-time models for the transmission of mosquito-borne diseases and their dynamics”, Colloquium at the College of Science, Zhejiang Normal University, Jinhua, June, 2011.
- “Mathematical modeling of mosquitoes with dominant or recessive transgenes and Allee effects”, Mathematical Biology Workshop, Arizona State University, Tempe, June, 2011.
- “Discrete malaria models discrete-time malaria transmission models and their dynamics”, The Third International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, San Antonio, October, 2011.
- “Fighting malaria transmission with transgenic mosquitoes or genetically-modified bacteria”, 2012 Lewis-Parker Lecture, The 62nd Annual Conference of the Alabama Association of College Teachers of Mathematics, Athens, March, 2012.
- “Modeling of mosquitoes with transgenes or genetically-modified bacteria - Fighting malaria”, Colloquium at the Department of Mathematics and Statistics, Oakland University, Rochester, March, 2012.
- “Modeling of mosquitoes with transgenes or genetically-modified bacteria - Fighting malaria”, Colloquium at the Department of Mathematics and Statistics, Georgia State University, Atlanta, March, 2012.

- “Modeling of mosquitoes with transgenes or genetically-modified bacteria - Fighting malaria”, Colloquium at Shanghai University, Shanghai, May, 2012.
- “Simple discrete-time malaria models and their dynamics”, Colloquium at Shanghai University, Shanghai, May 2012.
- “Simple discrete-time malaria models and their dynamics”, Colloquium at Shanghai Jiaotong University, Shanghai, May 2012.
- “Mosquito-stage-structured malaria models and their dynamics”, International Workshop on Dynamical Systems and Applications, Shanghai Normal University, Shanghai, May, 2012.
- “Mosquito-stage-structured malaria models and their dynamics”, Colloquium at Central China Normal University, Wuhan, May, 2012.
- “Modeling of mosquitoes with transgenes or genetically-modified bacteria - Fighting malaria”, Colloquium at North China University, Taiyuan, May, 2012.
- “Modeling of mosquitoes with transgenes or genetically-modified bacteria - Fighting malaria”, Colloquium at Xinyang Normal University, Xinyang, May, 2012.
- “Mosquito-stage-structured malaria models and their global dynamics”, Colloquium at Xinyang Normal University, Xinyang, May, 2012.
- “Modeling of mosquitoes with transgenes or genetically-modified bacteria - fighting malaria”, Rocky Mountain Mathematics Consortium Summer School, Mathematical Modeling in Ecology and Epidemiology, Laramie, June, 2012.
- “Mosquito-stage-structured malaria models and their global dynamics”, Rocky Mountain Mathematics Consortium Summer School, Mathematical Modeling in Ecology and Epidemiology, Laramie, June, 2012.
- “Discrete-time malaria models”, Rocky Mountain Mathematics Consortium Summer School, Mathematical Modeling in Ecology and Epidemiology, Laramie, June, 2012.
- “Fighting malaria with mathematics - Modeling of mosquitoes with transgenes or genetically-modified bacteria”, Applied Mathematics Seminar at the Department of Mathematics, Tulane University, New Orleans, October, 2012.
- “Fighting malaria with mathematics – Modeling of mosquitoes with transgenes or genetically-modified bacteria”, Colloquium at the Department of Applied Mathematics, the University of Western Ontario, London, November, 2012.
- “Dynamics of mosquito populations with two transgenes”, Colloquium at Huanzhong Normal University, Wuhan, May, 2013.
- “Modeling of genetic or sterilizing approaches in fighting mosquito-borne diseases”, Colloquium at Xinyang Normal University, Xinyang, May, 2013.
- “Genetic approaches in fighting mosquito-borne diseases”, International Conference on Dynamical Systems and Numerical Analysis, Qingdao, May, 2013
- “Modeling of genetic or sterilizing approaches in fighting mosquito-borne diseases”, Colloquium at Department of Mathematics, Sun Yat-sen University, Guangzhou, May, 2013.
- “Modeling of genetic or sterilizing approaches in fighting mosquito-borne diseases”, Colloquium at the Department of Applied Mathematics, Hong Kong Polytechnic University, Hong Kong, May, 2013.
- “Modeling of genetic or sterilizing approaches in fighting mosquito-borne diseases”, Colloquium at Guangzhou University, Guangzhou, May, 2013.
- “Dynamics of mosquito populations with two transgenes”, International Conference on Theory and Methods of Dynamical Systems, Shanghai, June 2013.

- “Modeling of genetic or sterilizing approaches in fighting mosquito-borne diseases”, Colloquium at Xian Jiaotong University, Xian, June, 2013.
- “Modeling of genetic or sterilizing approaches in fighting mosquito-borne diseases”, The Seventh International Conference on Recent Advances in Applied Dynamical Systems, Linyi, June, 2013.
- “Modeling study of sterile insect technique in fighting mosquito-borne diseases”, The Fourth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, Lubbock, October, 2013.
- “Modeling of sterilizing approaches in fighting mosquito-borne diseases”, 38th Annual SIAM South-eastern Atlantic Section Conference, Melbourne, March, 2014.
- “Mathematical models for the sterilizing approaches in fighting mosquito-borne diseases”, Colloquium at Huazhong University of Science and Technology, Wuhan, May, 2014.
- “Modeling for the interactive dynamics of wild and sterile mosquitoes”, Colloquium at Huazhong Normal University, Wuhan, May, 2014.
- “Discrete-time models for interactive wild and sterilizing mosquitoes”, Colloquium at Zhejiang Normal University, Jinhua, May, 2014.
- “Modeling for the sterilizing approaches in fighting mosquito-borne diseases”, Colloquium at Shanghai Normal University, Shanghai, May, 2014.
- “Modeling the interactive dynamics of wild and sterile mosquitoes and mathematical analysis”, 2014 International Symposium on Mathematical Biology, Guangzhou University, Guangzhou, May, 2014.
- “Dynamics of epidemic models with differential susceptibility and staged progression”, Lecture Series I, Harbin Institute of Technology, Harbin, June, 2014.
- “Structured models, pair formation, and behavior change”, Lecture Series II, Harbin Institute of Technology, Harbin, June, 2014.
- “Modeling for genetic or sterilizing approaches in fighting mosquito-borne diseases”, Lecture Series III, Harbin Institute of Technology, Harbin, June, 2014.
- “Stage-structured wild and sterile mosquito population models and their dynamics”, AMS 2015 Spring Southeastern Sectional Meeting, Huntsville, March, 2015.
- “Dynamics of wild and sterile mosquitoes models with homogeneous or stage-structured populations”, Huazhong University of Science and Technology, Wuhan, May, 2015.
- “Dynamics of wild and sterile mosquitoes models with homogeneous or stage-structured populations”, China Central Normal University, Wuhan, May, 2015.
- “Fighting malaria with mathematics modeling of mosquitoes with transgenes, genetically-modified bacteria, or sterile mosquitoes”, Jiangnan University, Wuxi, May, 2015.
- “Dynamics of wild and sterile mosquitoes models with homogeneous or stage-structured populations”, Yuncheng University, Yuncheng, May, 2015.
- “Modeling of mosquitoes with transgenes or genetically-modified bacteria - fighting malaria”, International Symposium on Differential Equations and Applications to Biological Models, Tongji University, Shanghai, May, 2015.
- “Interactive wild and sterile mosquitoes with homogeneous structured populations and their dynamics”, International Symposium on Differential Equations and Applications to Biological Models, Tongji University, Shanghai, May, 2015.
- “Stage-structured population models for wild and sterile mosquitoes and their dynamics”, The Ninth International Conference on Recent Advances in Applied Dynamical Systems, Guangzhou, June, 2015.

- “Staged-structured Models for Interactive Mosquitoes”, The Fifth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, London, West Ontario, October, 2015.

Contributed Talks:

- “Survival in discrete population models”, 11th SEAS-SIAM meeting at Athens, Georgia, March, 1987.
- “Persistence in continuous population models with several age classes”, Mathematical Ecology Conference at Charleston, South Carolina, April, 1987.
- “Persistence in a continuous age-structured population model under fluctuating environment”, Mathematical Ecology Conference at Clemson, South Carolina, April, 1988.
- “Thresholds on structured AIDS models”, Conference on Population Structure at Davis, California, September, 1989.
- “Stabilization vs destabilization in intra-specific competition”, The 8th Annual Southeastern Mathematical/Statistical Ecology Conference at Fontana, North Carolina, March, 1991.
- “Dynamics of AIDS epidemic in a two-risk-group model”, Society for Mathematical Biology Annual Meeting at Santa Fe, New Mexico, August, 1991.
- “Exclusion or coexistence of viral strains in an S-I-S STD model”, Society for Mathematical Biology Annual Meeting, Cornell University, New York, July, 1993.
- “Oscillations in juvenile versus adult competition models”, Society for Mathematical Biology Annual Meeting, Oaxtepec, Mexico, May, 1995.

FELLOWSHIPS AND AWARDS:

1984 – 1987	UTK and ORNL Science Alliance Fellowship
1987	1986/87 Academic Achievement Award of the Department of Mathematics at UTK
1989 – 1991	Los Alamos National Laboratory Postdoctoral Fellowship
1991, 94, 95, 98	NSF/EPSCoR in Alabama Grants
1992 – 2004	Los Alamos National Laboratory Summer Research Support
1994 – 1998	NSF Grant, U.S. Bulgaria Cooperative Research, (PI)
1998	UAH Foundation Outstanding Research and Creative Achievement Award
2000	Guest Professor, Xian Jiaotong University, Xian, China
2001	Honorary Professor, Northern China University, Taiyuan, China
2002	Department of Energy/University of California Contract, Advancing the Technology Base for Rapidly Responding to Biological Threats from Infectious Diseases, (PI)
2004 – 2007	NSF Equipments Grant (Co-PI)
2004 – 2009	NSF Research Grant, Modeling the Impact of Releasing Genetically Altered Mosquitoes in Preventing the Transmission, (PI)
2007	Dragoon Technologies, Inc./Formulated Questions as Mathematical Problems (PI)
2007 – 2008	NSF Conference Grant, The International Conference on Mathematical Modeling and Analysis of Population in Biological Systems, (Co-PI)

2009 – 2010	NSF Conference Grant, The 2nd International Conference on Mathematical Modeling and Analysis of Population in Biological Systems, (PI)
2011 – 2012	NSF Conference Grant, The 3rd International Conference on Mathematical Modeling and Analysis of Population in Biological Systems, (Co-PI)
2011 – 2016	NSF Research Grant, Modeling of Transgenic Mosquitoes and Genetically modified Bacteria in Preventing the Transmission of Mosquito-Borne Diseases, (PI)

CONFERENCES ORGANIZED:

- International Symposium and Young Scientists School, BIOMATH-95, August, 1995, Sofia, Bulgaria, (Programme Committee).
- The International Conference on Mathematical Biology, May 26-29, 1997, Hangzhou, China, (Organizing Committee).
- International Conference on Deterministic and Stochastic Modelling of Biointeraction, August 28-31, 1997, Sofia, Bulgaria, (Programme Committee and Organizing Committee).
- Special Session “Deterministic Mathematical Epidemiology” at International Conference on Deterministic and Stochastic Modelling of Biointeraction, August 28-31, 1997, Sofia, Bulgaria (Organizer).
- Special Session “Mathematical Modeling in Infectious Diseases” at Alcalá First International Conference on Math Ecology, September 4-8, 1998, Alcalá de Henares (Madrid), Spain (Organizer).
- The Third World Congress of Nonlinear Analysts, WCNA-2000, July 19-26, 1999, Catania, Italy, (Global Organizing Committee).
- Special Session “Nonlinear Modeling and Analysis in Epidemiology”, The Third World Congress of Nonlinear Analysts, WCNA-2000, July 19-26, 1999, Catania, Italy, (Co-Organizer).
- Second International Conference on Deterministic and Stochastic Modeling of Biointeraction, August 23-27, 2000, West Lafayette, Indiana, USA, (Programme Committee).
- Summer Workshop on Mathematical Biology, July 25 - August 14, 2000, Xian, China, (Co-Director).
- International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, October 5-7, 2007, Tucson, Arizona, USA, (Organizing Committee Chair).
- Special Session on “Differential Equations and Dynamical Systems”, AMS 2007 Fall Southeastern Meeting, November 3-4, 2007, Murfreesboro, Tennessee, USA, (Co-Organizer).
- Special Session on “Mathematical Biology: Modeling, Analysis, and Simulations”, AMS 2008 Fall Southeastern Meeting, October 24-26, 2008, Huntsville, Alabama, USA, (Co-Organizer).
- AMS 2008 Fall Southeastern Meeting, October 24-26, 2008, Huntsville, Alabama, USA, (Conference Coordinator).
- The Second International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, October 9-11, 2009, Huntsville, Alabama, USA, (Conference Coordinator and Organizing Committee Chair).
- The Third International Conference on Recent Advance in Applied Dynamical Systems, December, 2009, Guangzhou, China, (Scientific Committee).
- Casablanca International Conference and Workshop on Mathematical Biology: Analysis and Control, June 20-24, 2011, Casablanca, Morocco, (Scientific Advisory Committee).
- The Third International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, October 7-9, 2011, San Antonio, Texas, USA, (Organizing Committee).

- The 36th Annual SIAM Southeastern Atlantic Section Conference, March 24-25, 2012, Huntsville, USA, (Organizing Committee).
- The Sixth International Conference on Recent Advances in Applied Dynamical Systems, June 24-27, 2012, Guangzhou, China, (Scientific Committee).
- Special Session “Applications of Difference Equations to Biology”, The 18th International Conference on Difference Equations and Applications, July 22-27, 2012, Barcelona, Spain, (Co-Organizer).
- The Seventh International Conference on Recent Advances in Applied Dynamical Systems, June 7-10, 2013, Linyi, China, (Scientific Committee).
- The Forth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, October 4-6, 2013, Lubbock, Texas, USA, (External Advisory Committee).
- The Eighth International Conference on Recent Advances in Applied Dynamical Systems, June 1-4, 2014, Guilin, China, (Scientific Committee).
- Special Session on “New Developments in Population Dynamics and Epidemiology”, AMS 2015 Spring Southeastern Meeting, March 27-29, 2015, Huntsville, Alabama, USA, (Co-Organizer).
- AMS 2015 Spring Southeastern Meeting, March 27-29, 2015, Huntsville, Alabama, USA, (Conference Coordinator).
- The Ninth International Conference on Recent Advances in Applied Dynamical Systems, June 1-4, 2015, Guangzhou, China, (Scientific Committee).
- The Fifth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, October 3-5, 2015, London, Ontario, Canada, (Advisory Committee).
- The Tenth International Conference on Recent Advances in Applied Dynamical Systems, June 9-12, 2016, Jiangsu, China, (Scientific Committee).