

## VITA

### **Bingtuan Li**

Department of Mathematics  
University of Louisville  
Louisville, KY 40292

Office phone: (502) 852-6149  
Fax: (502) 852-7132  
E-mail: bing.li@louisville.edu

## EDUCATION

Arizona State University,	1993-98,	Ph.D.
Huazhong Univ. of Sci. and Tech.,	1984-87,	M.S.
Lanzhou University,	1980-84,	B.S.

## ACADEMIC EXPERIENCE

<b>Institution</b>	<b>Dates</b>	<b>Rank</b>
University of Louisville	2009-	Professor
University of Louisville	2004-2009	Associate Professor
University of Louisville	2001-2004	Assistant Professor
University of Utah	1999-2001	Instructor
IMA, University of Minnesota	1998-1999	Postdoc
Arizona State University	1993-1998	Teaching Assistant
Xian Jiaotong University	1987-1993	Instructor/Lecturer

## RESEARCH SUPPORT

NSF DMS-1951482, 2020-2023, Spreading Speeds and Non-Spreading Solutions for Spatial Population Models with Allee Effects

NSF DMS-1515875, 2016-2019, Persistence and Spreading Speeds in Multi-Species Models with A Shifting Habitat Edge

NSF DMS-1225693, 2012-2016, Collaborative Research: Spatial Spread of Stage-Structured Populations

NSF DMS-0616445, 2006-2009, Analysis of Spreading Speeds and Traveling Waves in Multi-species Models of Biological Invasions.

NSF DMS-0211614, 2002-2006, Analysis of Resource Competition Models.

Ralph E. Power Junior Faculty Enhancement Award from ORAU, 2002-2003.

## PUBLICATIONS

59. B. Li and J. Wu, Traveling waves in integro-difference equations with a shifting habitat, *Journal of Differential Equations*, 268 (2020), 4059-4078.
58. Changbing Hu, Jin Shang, Bingtuan Li, Spreading speeds for reaction-diffusion equations with a shifting habitat, *Journal of Dynamics and Differential Equations*, (2019), doi.org/10.1007/s10884-019-09796-5.
57. B. Li, Multiple invasion speeds in a two-species integro-difference competition model, *Journal of Mathematical Biology*, 76 (2018), 1975-2009.
56. G. Otto, S. Bewick, B. Li, and W. F. Fagan, How phenological variation affects species spreading speeds, *Bulletin of Mathematical Biology*, 80(2018), 1476-1513.
55. L. Sullivan, B. Li, T. Miller, M. Neubert, and A. Shaw, Density dependence in demography and dispersal generates fluctuating invasion speeds, *Proceedings of the National Academy of Sciences of the United States of America*, 114 (2017), 5053-5058.
54. S. Bewick, G. Wang, H. Younes, B. Li, and W. F. Fagan, Invasion dynamics of competing species with stage-structure, *Journal of Theoretical Biology*, 435 (2017) 12-21.
53. S. Bewick, P. Staniczenko, B. Li, D. Karig, and W. F. Fagan, Invasion speeds in microbial systems with toxin production and quorum sensing, *Journal of Theoretical Biology*, 420(2017) , 290-303.
52. B. Li, S. Bewick, M. Barnard, and W. F. Fagan, Persistence and spreading speeds of integro-difference equations with an expanding or contracting habitat, *Bulletin of Mathematical Biology*, 78 (2016), 1337-1379.
51. S. Bewick, B. Li, T. Duquette, and W. F. Fagan, How oviposition behavior determines persistence in small patches and changing climates, *American Naturalist*, 186 (2015), 237-251.
50. C. Hu and B. Li, Spatial dynamics for lattice differential equations with a shifting habitat, *Journal of Differential Equations*, 259 (2015), 1967-1989.
49. J. Shang, B. Li, and M. Barnard, Bifurcations in a discrete time model composed of Beverton-Holt function and Ricker function, *Mathematical Biosciences*, 263 (2015), 161-168.
48. C. Hu, Y. Kuang, B. Li, and H. Liu, Spreading speeds and traveling wave solutions in cooperative integral-differential systems, *Discrete and Continuous Dynamical Systems B*, 20 (2015), 1663-1684.
47. B. Li, W. F. Fagan, and K. I. Meyer, Success, failure, and spreading speeds for invasions on spatial gradients, *Journal of Mathematical Biology*, 70 (2015), 265-287.
46. B. Li, S. Bewick, J. Shang, and W. F. Fagan, Persistence and spread of a species with a shifting habitat edge, *SIAM Journal on Applied Mathematics*, 74 (2014), 1397-1417.
45. B. Li , W. F. Fagan, G. Otto, and C. Wang, Spreading speeds and traveling wave solutions in a competitive reaction-diffusion model for species persistence in a

- stream, *Discrete and Continuous Dynamical Systems Series B*, 19 (2014), 3267-3281.
44. Z. Jackiewicz, H. Liu, B. Li, and Y. Kuang, Numerical simulations of traveling wave solutions in a drift paradox inspired diffusive delay population model, *Mathematics and Computers in Simulation*, 96 (2014), 95-103.
  43. K. Meyer and B. Li, A Spatial Model of Plants with an Age-Structured Seed Bank and Juvenile Stage, *SIAM Journal on Applied Mathematics*, 73 (2013), 1676-1702.
  42. Y. Gao and B. Li, A ratio-dependent predator-prey system with a strong Allee effect, *Discrete and Continuous Dynamical Systems Series B*, 18 (2013), 2283-2313.
  41. C. Castillo-Chavez, B. Li, and H. Wang, Some recent developments on linear determinacy, *Mathematical Biosciences and Engineering*, 10 (2013), 1419-1436.
  40. B. Li, Traveling wave solutions in a plant population model with a seed bank, *Journal of Mathematical Biology*, 65 (2012), 855-873.
  39. M. A. Lewis and B. Li, Spreading speed, traveling waves, and minimal domain size in impulsive reaction-diffusion models, *Bulletin of Mathematical Biology*, 74 (2012), 2383-2402.
  38. B. Li, Traveling wave solutions in partially degenerate cooperative reaction-diffusion systems, *Journal of Differential Equations*, 252 (2012), 4842-4861.
  37. L. Zhang and B. Li, Traveling waves in an integro-differential competition model, *Discrete and Continuous Dynamical Systems-Series B*, 17 (2012), 417-428.
  36. L. Zhang, B. Li, and J. Shang, Stability and travelling waves for a time-delayed population system with stage structure, *Nonlinear Analysis: Real World Applications*, 13 (2012), 1429-1440.
  35. B. Li and L. Zhang, Traveling wave solutions in delayed cooperative systems, *Nonlinearity*, 24 (2011), 1759-1776 .
  34. L. R. Gibson, B. Li, and S. K. Remold, Treating cofactors can reverse the expansion of a primary disease epidemic, *BMC Infectious Diseases*, 10 (2010): 248.
  33. B. Li, M. A. Lewis, and H. F. Weinberger, Existence of traveling waves for integral recursions with nonmonotone growth functions, *Journal of Mathematical Biology*, 58 (2009), 323-338.
  32. B. Li, Some remarks on traveling wave solutions in competition models, *Discrete and Continuous Dynamical Systems Series B*, 12 (2009), 389-399.
  31. C. Castillo-Chavez, and B. Li, Spatial spread of sexually transmitted diseases within susceptible populations at demographic steady state, *Mathematical Biosciences and Engineering*, 5 (2008), 713-727.
  30. B. Li, Competition in a turbidostat for an inhibitory nutrient, *Journal of Biological Dynamics*, 2 (2008), 208-220.
  29. B. Li and H. Smith, Global dynamics of microbial competition for two resources with internal storage, *Journal of Mathematical Biology*, 55 (2007), 481-515.
  28. B. Li and Y. Kuang, Heteroclinic bifurcation in the Michaelis-Menten- type

- ratio-dependent predator-prey system, *SIAM Journal on Applied Mathematics*, 67 (2007), 1453-1465.
27. H. F. Weinberger, M. A. Lewis, and B. Li, Anomalous spreading speeds of cooperative recursion systems, *Journal of Mathematical Biology*, 55 (2007), 207-222.
  26. S. M. Baer, B. Li, and H. L. Smith, Multiple limit cycles in the standard model of three species competition for three essential resources, *Journal of Mathematical Biology*, 52 (2006), 745-760.
  25. B. Li, H. F. Weinberger, and M. A. Lewis, Spreading speeds as slowest wave speeds for cooperative systems, *Mathematical Biosciences*, 196 (2005), 82-98.
  24. P. de Leenheer, B. Li, and H. L. Smith, Competition in the chemostat: some remarks. *Canadian Applied Mathematics Quarterly*, 11 (2003), 229-248.
  23. B. Li and H. L. Smith, Periodic coexistence of four species competing for three essential resources, *Mathematical Biosciences*, 184 (2003), 115-135.
  22. H. L. Smith and B. Li, Competition for essential resources: A brief review, *Fields Institute Communications*, 36 (2003), 213-227.
  21. H. F. Weinberger, M. A. Lewis, and B. Li, Analysis of linear conjecture for spread in cooperative models, *Journal of Mathematical Biology*, 45 (2002), 183-218.
  20. M. A. Lewis, B. Li, and H. F. Weinberger, Spreading speeds and the linear conjecture for two species competition model, *Journal of Mathematical Biology*, 45 (2002), 219-233.
  19. B. Li and H. L. Smith, How many species can two essential resources support? *SIAM Journal on Applied Mathematics*, 62 (2001), 336-366
  18. B. Li, Periodic coexistence in the chemostat with three species competing for three essential resources, *Mathematical Biosciences*, 174 (2001), 27-40.
  17. J. Li, Y. Kuang, and B. Li, Analysis of IVGTT glucose-insulin interaction models with time delay, *Discrete and Continuous Dynamical Systems Series B*, 1 (2001), 103-124.
  16. B. Li, G. K. Wolkowicz, and Y. Kuang, Global asymptotic behavior of a chemostat model with two perfectly complementary resources and distributed delay, *SIAM Journal on Applied Mathematics*, 60 (2000), 2058-2086.
  15. B. Li and Y. Kuang, Simple food chain in a chemostat with distinct removal rates, *Journal of Mathematics Analysis and Applications*, 242 (2000), 75-92.
  14. B. Li and R. Siegel, Global analysis of a model pulsing drug delivery oscillator, *Chaos*, 10 (2000), 682-690.
  13. B. Li, Global asymptotic behavior of the chemostat: general response functions and differential death rates, *SIAM Journal on Applied Mathematics*, 59 (1999), 411-422.
  12. B. Li, Y. Kuang and H. L. Smith, Analysis of a model of plasmid-bearing and plasmid-free competition in chemostat, *Canadian Applied Mathematics Quarterly*, 7 (1999), 251-281.
  11. K. Cooke, Y. Kuang, and B. Li, Analysis of an antiviral immune response model with time delay, *Canadian Applied Mathematics Quarterly*, 6 (1998),

321–354.

10. B. Li, Multiple integral average conditions for oscillation of delay differential equations, *Journal of Mathematics Analysis and Applications*, 219 (1998), 165-178.
9. B. Li and Y. Kuang, Sharp Conditions for oscillation in some nonautonomous delay differential equations, *Nonlinear Analysis, Theory, Methods, and Applications*, 29 (1997), 1265-1276.
8. B. Li, Discrete oscillation, *Journal of Difference equations and applications*, 2 (1996), 389-399.
7. B. Li, Oscillations of delay differential equations with variable coefficients, *Journal of Mathematics Analysis and Applications*, 192 (1996), 312-321.
6. B. Li, Oscillation of first order delay differential equations, *Proceedings of American Mathematical Society*, 124 (1996), 3729-3737.
5. B. Li, Oscillations of delay differential equations with variable coefficients, *J. Math. Anal. Appl.*, 192 (1995), 312-321.
4. B. Li, Estimation of the bounds of nonoscillatory solutions to second-order nonhomogeneous equations, *Xian Jiaotong Daxue Xuebao*, 26 (1992), 33-34.
3. B. Li, An estimate for the distance between adjacent zeros of solutions to first-order differential equations with delays, *Acta Math. Appl. Sinica*, 13 (1990), 467-472.
2. B. Li, Oscillation problems for second-order linear equations, *J. Huazhong Univ. Sci. Tech.* 17 (1989), 151-154.
1. B. Li, Boundedness and oscillation of solutions to the equation  $y''(x) + p(x)y(x) = f(x)$ , *Math. Appl.*, 1 (1988), 93-96.

## GRADUATE STUDENT SUPERVISION

Kimberly Meyer, Ph.D., May 2012  
Chunwei Wang, Ph.D., December 2013  
Quancheng Meng, Ph.D., December 2015  
Jin Shang, Ph.D., December 2016  
Garrett Otto, Ph.D., December 2017  
Timothy Pervenecki, Ph.D., August 2019