UNIVERSITY OF MIAMI
Curriculum Vita

PERSONAL

1.   **Date:** January 25, 2023

2.   **Name:** Robert Stephen Cantrell

3.   **Home Phone:** (305) 253-1780

4.   **Office Phone:** (305) 284-2348

5.   **Address:** 7230 S.W. 124th Street, Miami, Florida 33156

6.   **Current Academic Rank:** Professor

7.   **Primary Department:** Mathematics

8.   **Secondary or Joint Appointment:**

9.   **Citizenship:** U.S.A.

10.   **Visa Type (if non-citizen):**

HIGHER EDUCATION

11. **Institutional (institution; degree; date conferred):**

University of Utah, Mathematics......Ph.D., 1981.
        Thesis: " Multiparameter Bifurcation Problems: A Degree Theoretic Approach".
        Advisor: Klaus Schmitt

Furman University, Mathematics, summa cum laude......B.S., 1976

12.   **Non-Institutional (description; dates):**

13.   **Certification, licensure (describe; board or agency; dates):**

EXPERIENCE

14.   **Academic (institutions; rank/status; dates):**

(Institution)	(rank/status)	(dates)
University of Miami	Professor	1992-
University of Miami	Director, IMSA (Institute of the Mathematical Sciences of the Americas)	2019- 2022
University of Miami	Founding Director and Senior Chief Liaison Officer, IMSA (Institute of the Mathematical Sciences of the Americas)	2023-
University of Miami	Director ITME (Institute for Theoretical and Mathematical Ecology)	2007- 2022
University of Miami	Chair, Department of Mathematics	2015-
Renmin University of China	Top Level Foreign Expert	2015-2017
University of Miami	Associate Professor	1987-1992
University of Miami	Assistant Professor	1982-1987
Southwest Texas State University	Assistant Professor	1981-1982

15. **Non - Academic (employers; title; responsibilities dates):**

16. **Military (branch; rank; responsibilities dates):**

PUBLICATIONS [author(s) (in actual precedence of authorship); title; Publisher or journal name; date (current year first); page numbers]

17. **Books published:**

1.   Spatial Ecology via Reaction-Diffusion Equations (with Chris Cosner), John Wiley and Sons Computational and Mathematical Biology Series, John Wiley and Sons, Chichester, U.K., October 2003, 411 pages.

2.   Spatial Ecology (co-edited with Chris Cosner and Shigui Ruan), Chapman Hall/CRC Press, Boca Raton, FL, October 2009, 362 pages.

18. **Juried journal articles:**
(All co-authorships are considered equal in mathematics and are listed alphabetically).

1. Effects of dispersal rates in a two-stage reaction-diffusion system (with Chris Cosner and Rachidi Salako), Journal of Mathematical Biology, to appear.

2. Linking mathematical models and trap data to infer the proliferation, abundance and control of

Aedes aegypti (With Jing Chen, Xi Huo, Andre B.B. Wilke, John C. Beier, Chalmers Vasquez, Willaim Petrie, Chris Cosner, and Shigui Ruan) Acta Tropica 239 (2023) 106837

3. Ideal free dispersal in integro-difference models (with Chris Cosner and Ying Zhou), Journal of Mathematical Biology **85** (2022), 1-39.

4. What's in a resource gradient? Comparing alternate cues for foraging in dynamic environments via movement, perception and memory (with William Fagan, Cole Saborio, Tyler Hoffman, Eliezer Gurarie and Chris Cosner), Theoretical Ecology (2022) **15**, 267-282.

5. On the evolution of slow dispersal in multi-species communities (with Adrian Lam), SIAM Journal on Mathematical Analysis **53** (2021), 4933-4964.

6. Memories of migrations past: sociality and cognition in dynamic, seasonal environments (with Eliezer Gurarie, Sriya Potluri, Chris Cosner, and William Fagan), (Gurarie lead author), Frontiers in Ecology and Evolution, 9:74290 (2021). Doi:10.3389/fevo.2021.742920

7. Competitive exclusion in phytoplankton communities in a eutrophic water column (with King-Yeung Lam), Discrete and Continuous Dynamical Systems B **26** (2021), 1783-1795..

8. Ideal free dispersal under general spatial heterogeneity and time periodicity (with Chris Cosner and King-Yeung Lam), SIAM Journal on Applied Mathematics **81** (2021), 789-813.

9. Persistence for a two-stage reaction-diffusion system (with Chris Cosner and Salome Martinez), MDPI Mathematics 2020, **8**, 396; doi:10.3390/math8030396.

10. Populations with individual variation in dispersal in heterogeneous environments: dynamics and competition with simply diffusing populations (with Chris Cosner and Xiao Yu), *Science China* **63** (2020), 441-464, https://doi.org/10.1007/s11425-019-1623-2

11. The total dispersal kernel: A review and future directions (with Haldre Rogers, Noelle Beckman, Florian Hartig, Jeremy S. Johnson, Gesine Pufal, Katriona Shea, Damaris Zurell, James M. Bullock, Bette Loiselle, Liba Pejchar, Onja Razafindratsima, Manette Sandor, Eugene W. Schupp, Christopher Strickland, and Jenny Zambrano) (Rogers lead author), *AoB Plants*, **11** (2019) doi: 10.1093/aobpla/plz042.

12. Improved foraging by switching between diffusion and advection: benefits from movement that depends on spatial context (with William F. Fagan, Tyler Hoffman, Daisy Dahiya, Eliezer Gurarie and Chirs Cosner) (Fagan lead author), *Theoretical Ecology*, published online 2019, https://doi.org/10.1007/s12080-019-00434-w. **13** (2020) 127-136.

13. Advancing an interdisciplinary framework to study seed dispersal ecology (with N.G. Beckman,

C.E. Aslan, H.R. Rogers, O. Kagan, J.M. Bullock, F. Hartig, J. Hille Ris Lambers, Y. Zhou, D. Zurell,, J.F. Brodie, E. M. Bruna, R. Decker, E.O. Effrom, E.C. Fricke, K. Gurski, A. Hastings, J. Johnson, B.A. Loiselle, M.N. Miriti, M.G. Neubert, L. Pejchar, J.R. Poulsen, O. H. Razafindratsima, M. Sandor, S.J. Schreiber, R.S. Snell, C. Strickland, and J. Zambrano) (Beckman lead author), *AoB Plants* **11** (2019) doi: 10.1093/aobpla/plz048

14. Rapid changes in seed dispersal traits may modify plant responses to global change (with Jeremy S. Johnson, Chris Cosner, Florian Hartig, Alan Hastings, Haldre Rogers, Eugene W. Schuppp, Katriona Shea, Brittany J. Teller, Xiao Yu, Damaris Zurell, and Gesine Pufal) (Johnson lead author), *AoB Plants* **11** (2019) doi: 10.1093/aobpla/plz020 .

15. Evolutionary stable movement strategies in reaction-diffusion models with edge behavior (with Gabriel Macial, Chris Cosner, and Frithjof Lutscher) (Macial lead author), *Journal of Mathematical Biology*, (2019), https://doi.org/10.1007/s00285-019-01339-2, **80** (2020), 61-92. (special issue in honor of Alan Hastings' 65th birthday)

16. Employing plant functional groups to advance seed dispersal ecology and conservation (with C.E. Aslan, N. G. Beckman, H. R. Rogers, J. Bronstein, D. Zurell, F. Hartig, K. Shea, L, Pejchar, M. G. Neubert, J. R. Poulsen, J. Hille Ris Lambers, M.N. Miriti, B. A. Loiselle, E. Effrom, J. Zambrano, E. Schupp, G. Pufal, J. Johnson, J. Bullock, J. F. Brodie, E.M. Bruna, R. Decker, E. Fricke, K. Gurski, A. Hastings, O.Kogan, O. Razafindratsima, M. Sandor, S. J. Schreiber, R. S. Snell, C. Strickland, and Y. Zhou) (Aslan lead author), *AoB Plants* **11** (2019) doi: 10.1093/aobpla/plz006.

17. Evolution of dispersal in spatial population models with multiple timescales (with Chris Cosner, Mark Lewis, and Yuan Lou), Journal of Mathematical Biology, published online November 2018. **80** (2020), 3-37 (special issue in honor of Alan Hastings' 65th birthday)

18. Evolutionary stability of ideal free dispersal under spatial heterogeneity and time periodicity (with Chris Cosner), Mathematical Biosciences, Mathematical Biosciences **305** (2018), 71-76.

19. Modeling the importation and local transmission of vector-borne diseases in Florida: The case of Zika outbreak in 2016 (with Jing Chen, John Beier, Chris Cosner, Douglas Fuller, Yongtao Guan, G. Zhang and Shigui Ruan) (Chen lead author), Journal of Theoretical Biology **455** (2018), 342-356.

20. On a competitive system with ideal free dispersal (with Chris Cosner, Salome Martinez, and Nicolas Torres), Journal of Differential Equations **265** (2018), 3464-3493.

21. Effects of harvesting mediated by dispersal traits (with Chris Cosner), Natural Resource Modeling, 2018; e12168, 9 pages

22. Dynamics of populations with individual variation in dispersal on bounded domains (with Chris

Cosner and Xiao Yu), Journal of Biological Dynamics **12** (2018), 288-317.

23. Resident invader dynamics in infinite dimensional systems (with Chris Cosner and King-Yeung Lam), Journal of Differential Equations **263** (2017), 4565-4616

24. Evolution of natal dispersal in spatially heterogeneous environments (with Chris Cosner, Yuan Lou and Sebastian Schreiber), Mathematical Biosciences 283 (2017), 136-144.

25. Perceptual ranges, information gathering and foraging success in dynamic landscapes (with William F. Fagan, Eliezer Guarie, Sharon Bewick, Allison Howard, and Chris Cosner), The American Naturalist **189** (2017), 474-489 (Fagan lead author)

26. A tridiagonal patch model of bacteria inhabiting a nanofabricated landscape (with Brian Coomes and Yifan Sha), Mathematical Biosciences and Engineering 14 (2017), 953-973

27. A PDE model of intraguild predation with cross-diffusion (with Xinru Cao, King-Yeung Lam, and Tian Xiang), Discrete and Continuous Dynamical Systems B **22** (2017), 3653-3661

28. Modeling and control local outbreak of West Nile virus in the United States (with Jing Chen, Jicai Huang, John C. Beier, R. S. Cantrell, C. Cosner, D. L. DeAngelis, Douglas O Fuller, Guoyan Zhang and Shigui Ruan), Discrete and Continuous Dynamical Systems B **21** (2016), 2423-2449 (Chen lead author)

29. How resource phenology alters consumer population dynamics (with Sharon Bewick, Chris Cosner, and William F. Fagan), The American Naturalist **187** (2016), 151-166. (Bewick lead author)

30. Transmission dynamics of Rift Valley fever virus: Effects of live and killed vaccines on epizootic outbreaks and enzootic maintenance (with Farida Chamchod, Chris Cosner, John Beier and Shigui Ruan), Frontiers in Microbiology (Virology Section), 10.3389/fmicb2016.00061 (2016) (Chamchod lead author)

31. A model for the coupling of the Greater Bairam and local environmental factors in promoting Rift-Valley Fever epizootics in Egypt, (with Harold Gil, W.A. Qualls, Chris Cosner, Don DeAngelis, Ali Hassan, Abel Gad, Shigui Ruan and John Beier). (Gil lead author) Public Health **130** (2016), 64-71.

32. From within host dynamics to the epidemiology of infectious disease: Scientific overview and challenges, Mathematical Biosciences **270 B** (2015), 143-155 (with Juan Gutierrez, Mary Galinski, and Eberhard Voit) (Gutierrez lead author)

33. Modelling the effects of seasonality and socioeconomic impact on the transmission of Rift Valley virus (with Yanyu Xiao, John Beier, Chris Cosner, Don DeAngelis and Shigui Ruan) PLOS Neglected Tropical Diseases **9(1)** (2015) (16 pages) (Xiao lead author)

34. <u>Avoidance behavior in intraguild communities: A cross-diffusion model</u> (with Dan Ryan), Discrete and Continuous Dynamical Systems A **35** (2015), 1641-1663. (Ryan lead author).

35. <u>A modeling approach to investigate epizootic outbreaks and enzootic maintenance of Rift Valley fever virus</u> (with Farida Chamchod, Chris Cosner, Ali Hassan, John C. Beier, and Shigui Ruan), Bulletin of Mathematical Biology **76** (2014), 2052-2072. (Chamchod lead author)

36. <u>How climate extremes - not means – define a species' geographic range boundary via a demographic tipping point</u> (with Heather J. Lynch, Marc Rhainds, Justin M. Calabrese, Chris Cosner and William F. Fagan), Ecological Monographs **84** (2014), 131-149. (Lynch lead author)

37. <u>Phenologically explicit models for studying plant-pollinator interactions under climate change</u> (with Sharon Bewick, Chris Cosner, William F. Fagan, DavidW. Inouye, and Isabela GalardaVarassin), Theoretical Ecology **7** (2014), 289-297. (Fagan lead author)

38. <u>Modeling the spatial spread of Rift Valley Fever in Egypt</u> (with Daozhou Gao, Chris Cosner, John C. Beier and Shigui Ruan), Bulletin of Mathematical Biology **75** (2013), 523-542. (Gao lead author)

39 <u>Fitness-dependent dispersal versus random dispersal</u> (with Chris Cosner, Yuan Lou, and Chao Xie), Journal of Differential Equations **254** (2013), 2905-2941.

40. <u>Evolutionary stability of ideal free dispersal strategies: A non-local dispersal model</u> (with Chris Cosner, Yuan Lou and Dan Ryan), Canadian Applied Mathematics Quarterly **20** (2012), 15-38.

41. <u>Evolutionary stability of ideal free dispersal strategies in patchy environments</u> (with Chris Cosner and Yuan Lou), J. Math. Biology **65** (2012), 943-65

42. <u>Global bifurcation of solutions for crime modeling equations</u> (with Chris Cosner and Raul Manasevich), SIAM Journal on Mathematical Analysis, **44** (2012), 1340-1358.

43. <u>Leadership, social learning, and the maintenance (or collapse) of migratory populations</u> (with Chris Cosner, William F. Fagan, Thomas Mueller, and Andrew Noble), Theoretical Ecology **5** (2012), 253-265. (Fagan lead author).

44. <u>The implications of model formulation when transitioning from spatial to landscape ecology</u> (with Chris Cosner and William F. Fagan), Mathematical Biosciences and Engineering **9**(2012), 27-60.

45. <u>Steady-state solutions of a logistic equation with nonlinear boundary conditions</u> (with Chris Cosner and Salome Martinez), Rocky Mountain Journal of Mathematics, **41**(2011), 445-455.

46. <u>Evolution of dispersal and the ideal free distribution</u> (with Chris Cosner and Yuan Lou), Mathematical Biosciences and Engineering **7**(2010), 17-36.

47. <u>The effects of human movement on the persistence of vector-borne diseases</u> (with Chris Cosner, John Beier, Daniel Impoinvil, Lev Kapitanski, Matthew Potts, Adriana Troyo, and Shigui Ruan), Journal of Theoretical Biology **258** (2009), 550-560. (Cosner lead author)

48. <u>Approximating the ideal free distribution via reaction-diffusion equations</u> (with Chris Cosner and Yuan Lou), Journal of Differential Equations **245** (2008), 3687-3703.

49. <u>Interspecific variation in critical patch size and gap-crossing ability as determinants of geographical range-size distributions </u>(with Chris Cosner, William F. Fagan and Subramanian Ramakrishnan), The American Naturalist **173** (2009), 363-375. (Faculty of 1000 Listed)

50. <u>Global bifurcation of solutions to diffusive logistic equations in bounded domains subject to nonlinear boundary conditions</u> (with Chris Cosner and Salome Martinez), Proceedings of the Royal Society of Edinburgh **139A** (2009), 45-56.

51. <u>The ideal free distribution as an evolutionarily stable strategy</u> (with Chris Cosner, Donald De Angelis and Victor Padron), Journal of Biological Dynamics **1** (2007), 249-271.

52. <u>Density dependent behavior habitat boundaries and the Allee effect</u> (with Chris Cosner). Bulletin of Mathematical Biology **69** (2007), 2339-2360.

53. <u>Movement toward better environments and the evolution of rapid diffusion </u>(with Chris Cosner and Yuan Lou), Mathematical Biosciences **204** (2006), 199-214

54. <u>Advection-mediated coexistence of competing species</u> (with Chris Cosner and Yuan Lou), Proceedings of the Royal Society of Edinburgh **137** (2007), 497-518.

55. <u>On the effects of nonlinear boundary conditions in diffusive logistic equations on bounded domains </u>(with Chris Cosner), Journal of Differential Equations **231** (2006), 768-804

56. <u>Edge-linked dynamics and the scale-dependence of competitive dominance</u> (with Chris Cosner and William Fagan), Mathematical Biosciences and Engineering **4** (2005), 833-868.

57. <u>Persistence of fish populations in time and space as a key to sustainable fisheries </u> (with Donald B. Olson, Chris Cosner and Alan Hastings), Bulletin of Marine Science **76** (2005), 213-232.

58. <u>Multiple reversals of competitive dominance in ecological reserves via external habitat degradation</u> (with Chris Cosner and Yuan Lou), Journal of Dynamics and Differential Equations, **16** (2004), 973-1010

59. <u>Deriving reaction-diffusion models in ecology from interacting particle systems</u> (with Chris

Cosner), Journal of Mathematical Biology **48** (2004), 187-217.

60. <u>Intraspecific interference and consumer-resource dynamics</u> (with Chris Cosner and Shigui Ruan), Discrete and Continuous Dynamical Systems B **4** (2004), 527-546.

61. <u>Habitat edges and predator-prey interactions: effects on critical patch size</u> (with Chris Cosner and William F. Fagan), Mathematical Biosciences **175** (2002), pp 31-55.

62. <u>Conditional persistence in logistic models via nonlinear diffusion</u> (with Chris Cosner), Proceedings of the Royal Society of Edinburgh 1**32A** (2002), pp 267-281.

63. Spatial <u>heterogeneity and critical patch size: area effects via diffusion in closed environments</u> (with Chris Cosner), Journal of Theoretical Biology **209** (2001), pp 161-171

64. <u>How predator incursions affect critical patch size: the role of the functional response</u> (with Chris Cosner and William Fagan), The American Naturalist **158** (2001), pp 368-375.

65. <u>Effects of domain size on the persistence of populations in a diffusive food chain model with DeAngelis-Beddington functional response</u> (with Chris Cosner), Natural Resource Modeling, **14** (2001), pp. 335-367.

66. *Brucellosis,* <u>botflies and brainworms: the impact of edge habitats on pathogen transmission and species extinction</u> (with Chris Cosner and William F. Fagan), Journal of Mathematical Biology, **42** (2001), pp.95-119.

67. <u>On the dynamics of predator-prey models with the Beddington-DeAngelis functional response,</u> (with Chris Cosner) Journal of Mathematical Analysis and Applications, **257** (2001), pp. 206-222.

68. <u>Upper and lower solutions for a homogeneous Dirichlet problem with nonlinear diffusion and the principle of linearized stability</u> (with Chris Cosner), Rocky Mountain Journal of Mathematics, **30** (2000), pp. 1229-1236.

69. <u>A comparison of foraging strategies in a patchy environment</u> (with Chris Cosner), Mathematical Biosciences **160** (1999), pp. 25-46.

70. <u>Diffusion models for population dynamics incorporating individual behavior at boundaries: applications to refuge design</u> (with Chris Cosner), Theoretical Population Biology **55** (1999) pp.189-207.

71. <u>How habitat edges change species interactions: a synthesis of data and theory</u> (with Chris Cosner and William F. Fagan),The American Naturalist **153** (1999), pp.165-182. (Fagan lead author)

72. <u>Skew Brownian motion: a model for diffusion with interfaces.</u> (with Chris Cosner),

Proceedings of the International Conference on Mathematical Models in the Medical and Health Sciences, Vanderbilt University Press (1998), pp. 73-78.

73. Competitive reversals inside ecological reserves: the role of external habitat degradation (with Chris Cosner and William F. Fagan), Journal of Mathematical Biology **37** (1998), pp. 491-533.

74. On the effects of spatial heterogeneity on the persistence of interacting species (with Chris Cosner), Journal of Mathematical Biology **37** (1998), pp103-145

75. Practical persistence in diffusive food chain models (with Chris Cosner), Natural Resource Modeling **11** (1998), pp. 21-34.

76. Permanence of three competitors in seasonal ecological models with spatial heterogeneity (with Eric Avila), Canadian Applied Mathematics Quarterly **5** (1997), pp. 1-24.

77. On competition mediated coexistence (with James Ward, Jr.), SIAM Journal on Applied Mathematics **57** (1997), pp. 1311-1327.

78. Bounds on trajectories in diffusive predator-prey models (with Chris Cosner), Proceedings of the 4th International Conference on Mathematical Population Dynamics, in Advances in Mathematical Population Dynamics: Molecules, Cells and Man, World Scientific Publishing, (1997), pp. 733-746.

79. Spatially explicit models for the population dynamics of a species colonizing an island (with Chris Cosner and Vivian Huston), Mathematical Biosciences **136** (1996), pp. 65-107.

80. Models for predator-prey systems at multiple scales (with Chris Cosner), SIAM Review **38** (1996), pp. 256-286.

81. Ecological models, permanence and spatial heterogeneity (with Chris Cosner and Vivian Hutson), Rocky Mountain Journal of Mathematics **26** (1996), pp. 1-35.

82. Antibifurcation and the n-species Lotka-Volterra competition model with diffusion, Differential and Integral Equations **9** (1996), pp. 305-322.

83. Practical persistence in ecological models via comparison methods (with Chris Cosner), Proceedings of the Royal Society of Edinburgh **126A** (1996), pp. 247-272.

84. Insular biogeographic theory and diffusion models in population dynamics (with Chris Cosner), Theoretical Population Biology **45** (1994), pp. 117-202.

85. Permanence in ecological systems with diffusion (with Chris Cosner and Vivian Hutson), Proceedings of the Royal Society of Edinburgh **123A** (1993), pp. 533-559.

86. Should a park be an island? (with Chris Cosner), SIAM Journal on Applied Mathematics **53**

(1993), pp. 219-252.

87. <u>Permanence in some diffusive Lotka-Volterra models for three interacting species</u> (with Chris Cosner and Vivian Hutson), Dynamic Systems **2** (1993), pp. 505-530.

88. <u>On solutions to coupled multiparameter nonlinear Sturm-Liouville boundary value problems whose state components have a specified nodal structure</u>, Resultate der Mathematik **22** (1992), pp.470-488.

89. <u>A switch in nodal structure in coupled systems of nonlinear Sturm-Liouville boundary value problems</u>, Rocky Mountain Journal of Mathematics **21** (1991), pp. 1009-1028.

90. <u>Diffusive logistic equations with indefinite weights: population models in disrupted environments II</u> (with Chris Cosner), SIAM Journal on Mathematical Analysis **22** (1991), pp. 1043-1064.

91. <u>The effects of spatial heterogeneity in population dynamics</u> (with Chris Cosner), Journal of Mathematical Biology **29** (1991), pp.315-338.

92. <u>Parameter ranges for the existence of solutions whose state components have specified nodal structure in coupled multiparameter systems of nonlinear Sturm-Liouville boundary value problems</u>, Proceedings of the Royal Society of Edinburgh **119A** (1991), pp. 347-365.

93. <u>On eigenfunctions with sign definite components in weakly coupled linear elliptic systems</u> (with Chris Cosner) Journal of Mathematical Analysis and Applications **140** (1989), pp. 310-23.

94. <u>Diffusive logistic equations with indefinite weights: population models in disrupted environments</u> (with Chris Cosner), Proceedings of the Royal Society of Edinburgh **112** (1989), pp. 293-318.

95. <u>Global preservation of nodal structure in coupled systems of nonlinear Sturm-Liouville boundary value problems</u>, Proceedings of the American Mathematical Society **107** (1989), pp. 633-644.

96. <u>On the uniqueness and stability of positive solutions in the Lotka-Volterra competition model with diffusion</u> (with Chris Cosner), Houston Journal of Mathematics **15** (1989), pp. 341-361.

97. <u>On the simplicity and uniqueness of positive eigenvalues admitting positive eigenfunctions for weakly coupled elliptic systems</u>, Rocky Mountain Journal of Mathematics **18** (1988), pp. 269-275.

98. <u>On the convex case in the positone problem for elliptic systems</u> (with Chris Cosner), Nonlinear Analysis: Theory, Methods, and Applications **12** (1988), pp. 827-853.

99. <u>On the generalized spectrum for second-order elliptic systems</u>, (with Chris Cosner), Transactions of the American Mathematical Society **303** (1987), pp. 345-363.

100. <u>Global higher bifurcations in coupled systems of nonlinear eigenvalue problems</u>, Proceedings of the Royal Society of Edinburgh **106A** (1987), pp. 113-120.

101. <u>On the steady-state problem for the Volterra-Lotka competition model with diffusion</u> (with Chris Cosner), Houston Journal of Mathematics **13** (1987), pp. 337-352.

102. <u>On coupled multiparameter nonlinear elliptic systems</u>, Transactions of the American Mathematical Society **294** (1986), pp. 263-285.

103. <u>On the eigenvalue problem for coupled elliptic systems</u> (with Klaus Schmitt), SIAM Journal on Mathematical Analysis **17** (1986), pp. 850-862.

104. <u>On the positone problem for elliptic systems</u> (with Chris Cosner), Indiana University Mathematics Journal **34** (1985), pp. 517-532.

105. <u>A homogeneity condition guaranteeing bifurcation in multiparameter nonlinear eigenvalue problems</u>, Nonlinear Analysis: Theory, Methods and Applications **8** (1984), pp. 159-169.

106. <u>Multiparameter bifurcation problems and topological degree</u>, Journal of Differential Equations **52** (1984), pp. 39-51.

107. <u>Multiparameter bifurcation problems for second order ordinary differential equations</u>, Rocky Mountain Journal of Mathematics **12** (1982), pp. 795-806.

19. **Other works, publications and abstracts:**

1. <u>Permanence in periodic-parabolic ecological systems with spatial heterogeneity</u> (with Eric Avila), in World Scientific Series in Applicable Analysis **4** (Dynamical Systems and Applications), World Scientific Publishing, (1995), pp. 63-76 (invited paper).

2. Review of <u>The Theory and Applications of Reaction-Diffusion Equations: Patterns and Waves</u> by Peter Grindrod, Bulletin of Mathematical Biology **59** (1997), pp. 1199-1201.

3. <u>Effects of aggregative movement on population dynamics and critical patch size</u> (with Chris Cosner), submitted.

4. "<u>Evolution of dispersal in heterogeneous landscapes</u>" (with Chris Cosner and Yuan Lou), <u>Spatial Ecology</u> (R.S. Cantrell, C. Cosner and S. Ruan, eds.), Chapman Hall/CRC Press, Boca Raton, FL 2009, pp. 213-227 (refereed survey)

20. **Other works accepted for publication:**

PROFESSIONAL

21.　**Funded Research Performed (include all grants received in the last five years, identifying the principal investigator and the amounts and dates of the awards):**

National Science Foundation Summer Research Grant
　　　#DMS88-02346 (1988-1990), Robert Stephen Cantrell and
　　　Chris Cosner, co-principal investigators, $54,500.

National Science Foundation Summer Research Grant
　　　#DMS90-02943 (1990-1993), Robert Stephen Cantrell and
　　　Chris Cosner, co-principal investigators, $164,806.

National Science Foundation Summer Research Grant
　　　#DMS93-03708 (1993-1996), Robert Stephen Cantrell and
　　　Chris Cosner, co-principal investigators, $126,000.

National Science Foundation Summer Research Grant
　　　#DMS96-25741 (1996-1999), Robert Stephen Cantrell and
　　　Chris Cosner, co-principal investigators, $150,000.

National Science Foundation Grant
　　　#INT9805564 for participant cost support for
　　　Nonlinear Differential Equations: A Meeting in Honor of
　　　Professor Alan Lazer on the Occasion of His 60th Birthday
　　　August 1998- May 1999, Robert Stephen Cantrell and Chris Cosner,
　　　Co-principal investigators, $10,000 (plus $5,000 matching fundings
　　　from College of Arts and Sciences, University of Miami).

National Science Foundation Summer Research Grant
　　　#DMS99-73017 (1999-2002), Robert Stephen Cantrell
　　　and Chris Cosner, Co-principal investigators, $130,000.

National Science Foundation Initiative on Biocomplexity Grant
　　　OCE01-19916, (2001-2006), Senior Scientist,
　　　UM Total $742,106.

National Science Foundation Summer Research
　　　Grant # DMS02-11367 (2002-2005), Robert Stephen

Cantrell and Chris Cosner, Co-principal investigators,
$213,000.

National Science Foundation Summer Research
Grant # DMS02-11367 (2002-2005) Robert Stephen
Cantrell and Chris Cosner, Co-principal investigators,
Supplementary funding to conduct an REU, $56,970.
Total funding for grant, $269,970.

National Institutes of Health Grant 1-P20-RR020770-01,
Exploratory Centers for Interdisciplinary Research; (2004-2007)
Senior Scientist; John Beier, PI. Total Award $1,605,302.

National Science Foundation Summer Research
Grant # DMS 05-14839 (2005 – 2008), Robert Stephen Cantrell
and Chris Cosner, Co-principal investigators, $249,338.

National Science Foundation Summer Research
Grant # DMS 08-16068 (2008 – 2010), Robert Stephen Cantrell
and Chris Cosner, Co-principal investigators, $270,000.

National Institute of General Medical Studies (NIH) Grant # 1R01GM093345-01
(2010-2014), Senior Scientist; John Beier, PI, $2,039,559

National Science Foundation Summer Research Grant # DMS 11-18623 (2011-2015), Robert
Stephen Cantrell and Chris Cosner, Co-principal Investigators, $321,879

National Science Foundation Grant # DMS 12-05909 (2012-2013), Robert Stephen Cantrell PI,
Shigui Ruan, Yuan Lou, Suzanne Lenhart, Co-PI's, Participant support costs for
"Everything Disperses to Miami: The Role of Movement and Dispersal in Spatial Ecology,
Epidemiology and Environmental Science (held at UM December 14-16, 2012),
$15,000

National Science Foundation Grant # DMS 15-14752 (2015-2019), Robert Stephen Cantrell and
Chris Cosner, Co-principal Investigators, $507,778

Centers for Disease Control and Protection Grant Number 1U01CK000510-01 Southeastern
Regional Center of Excellence in Vector-Borne Diseases: The Gateway Program, Senior Scientist,
(University of Florida lead institution 12/30/2016 – 12/29/2021, $9,999,628, Rhoe Dinglasan, PD;
UM subcontract $ 1, 535,000, John Beier, PI.)

National Science Foundation Grant # 17-63220 (2018-2019), Robert Stephen Cantrell PI, Ludmil
Katzarkov and Phillip Griffiths Co-PI's, Participant support costs for "ICM Satellite Meeting:

APan-Hemispheric Celebration of Mathematics" (held in Miami July 26-29,2018), $35,000.

Simons Foundation Award # 618671 (2019-2024), Robert Stephen Cantrell, Director and Ludmil Katzarkov, Co-Director, Institute of the Mathematical Sciences of the Americas, $2,000,000

National Science Foundation Collaborative Grant # DMS 1853478 (2019-2022), Robert Stephen Cantrell and Chris Cosner, Co-Principal Investigators, $210,000

22. **Editorial responsibilities:**

Associate Editor for Mathematical Biosciences and Engineering

Referee for Journal of Nonlinear Analysis: Theory, Methods, and Applications.
Referee for American Mathematical Monthly.
Referee for Proceedings of the Royal Society of Edinburgh.
Reviewer for Mathematical Reviews.
Referee for Journal of Mathematical Physics.
Referee for Journal of Mathematical Analysis and Applications.
Referee for SIAM Journal of Applied Mathematics.
Referee for National Science Foundation.
Referee for Communications in Partial Differential Equations.
Referee for Journal of Differential Equations.
Referee for Journal of Differential and Integral Equations.
Referee for Proceedings of the American Mathematical Society.
Referee for Electronic Journal of Differential Equations.
Referee for Ecology.
Referee for Archive for Rational Mechanics and Analysis.
Referee for Resultate der Mathematik.
Referee for Journal of Mathematical Biology.
Referee for Bulletin of Mathematical Biology.
Referee for Computer and Mathematics with Applications.
Referee for Mathematical and Computer Modeling.
Referee for The Biotechnology and Biological Sciences Research Council, U.K.
Referee for Applied Mathematics Letters.
Referee for Ecological Modeling
Referee for Annales de L `Institut Henri Poincaré: Analyse Non Linéaire
Referee for The Applied Probability Journals
Referee for The American Naturalist
Referee for The Fields Institute Communications
Referee for Discrete and Continuous Dynamical Systems
Referee for Proceedings of the Royal Society
Referee for Canadian Applied Mathematical Quarterly
Referee for Environmental and Resource Economics

Referee for Acta Mathematica Sinica
Referee for SIAM Journal on Mathematical Analysis
Referee for Discrete and Continuous Dynamical Systems Series B
Referee for Theoretical Population Biology
Referee for Mathematical Biosciences
Referee for National Science and Engineering Research Council of Canada (NSERC)
Referee for Mathematics of Information Technology and Complex Systems (MITACS)
Applied Analysis Panel for National Science Foundation
Referee for Journal of Theoretical Biology
Referee for Journal of Integral Equations
Referee for Nonlinear Analysis B Real World Applications
Referee for the Estonian Science Foundation
Referee for FONDECYT (Chilean Science Foundation)
Referee for Canada Research Chairs
Referee for Applicable Analysis
Referee for Discrete and Continuous Dynamical Systems Series A
Referee for Journal of Biological Dynamics
Referee for Journal of Theoretical Ecology
Referee for Proceedings of the National Academy of Sciences of the USA
Reviewer for European Research Council
Reviewer for Simons Foundation Collaboration Grants for Mathematicians
Referee for the Arabian Journal of Mathematics
Referee for Calculus of Variations and Partial Differential Equations
Referee for Evolution Equations and Control Theory
Mathematical Biology Panel for National Science Foundation
Referee for Communications in Pure and Applied Mathematics
Referee for the Memoirs of the American Mathematical Society
Referee for Nature Communications
Reviewer for the Alberta Conservation Association

Co-Editor, Special Issue of the Electronic Journal of Differential Equations for the Proceedings of Nonlinear Differential Equations: A Meeting in Honor of Professor Alan Lazer on the Occasion of His 60th Birthday.

Co-Editor, Special Issue of Advanced Nonlinear Studies in honor of Klaus Schmitt on the occasion of his retirement (2013)

Co-Editor, Special Issue of Discrete and Continuous Dynamical Systems B in honor of Chris Cosner on the occasion of his 60th birthday (2014)

Co-Editor, Special Issue of Discrete and Continuous Dynamical Systems B on the Role of Movement and Dispersal In Spatial Ecology, Epidemiology and Environmental Science (2015)

Co-Editor, Special Issue of Mathematical Biosciences on From Within Host Dynamics to

Epidemiology of Infectious Disease (2015)

Co-Editor, Special Volume "Contemporary Research in Mathematical Biology". World Scientific Press, developing

23. **Professional and Honorary Organizations (member, officer, date):**

Phi Beta Kappa, 1976.
American Mathematical Society
Mathematical Association of America
Society of Mathematical Biology

24. **Honors and Awards:**

1. Who's Who in American Colleges and Universities, 1976

2. Delaney Medal in Mathematics, 1976 (top graduate in mathematics at Furman University)

3. Nominee for Pan-Hellenic Society Professor of the Year, 1988 (University of Miami)

4. 'Top-Level Foreign Expert" Designation by the PR China at Renmin University of China, 2015-2017.

5. Scientific Review Panel, Atlantic Association for Research in the Mathematical Sciences (AARMS) 2015-2020.

6. Mathematics Advisory Group, Transforming Post-Secondary Education in Mathematics (TPSE), 2016-

7. Fellow, University of Miami Faculty Learning Community on *Learning through Dialogue and Discussion*, 2018-2019

8. Cooper Fellow of the College of Arts and Sciences 2019

9. 2019-2020 recipient of the James W. McLamore Outstanding Service Award, bestowed by the Faculty Senate of the University of Miami

25. **Post-Doctoral Fellowships:**

26. **Other Professional Activities (e.g., papers presented performances; conference proceedings; seminar or conference panel member; etc.):**

Conferences Organized:

-Nonlinear Differential Equations: A Meeting in Honor of Professor Alan Lazer on the Occasion of His 60th Birthday; chair, organizing committee, University of Miami, Coral Gables, Florida, January 8-9, 1999.

-Workshop on Spatial Ecology: The Interplay between Theory and Data; inaugural event for the proposed Institute for Theoretical and Mathematical Ecology; chair, organizing committee; Rosenstiel School of Marine and Atmospheric Sciences, University of Miami; Key Biscayne, Florida; January 7-10, 2005.

-Symposium on The Mathematics of Spatial Ecology at EcoSummit 2007: Ecological Complexity and Sustainability: Challenges and Opportunities for the 21st Century's Ecology, Beijing Jiuhua Resort and Convention Center, Beijing, P.R. China, May 22-27, 2007 (with Julian Lopez-Gomez).

- Mini-symposium on the Evolution of Dispersal at the Joint Meeting of the Society for Mathematical Biology and the Chinese Society of Mathematical Biology, Hangzhou, China, June 14-17, 2009 (with Chris Cosner and Yuan Lou)

- Banff International Research Station (BIRS) 5-day workshop "Emerging Challenges at the Interface of Mathematics, Spatial Ecology and Environmental Science", BIRS, Banff AB Canada, July3-8, 2011.

- 9th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, July 1-5, 2012, Special Session on "Dispersal in Heterogeneous Landscapes", Co-organizer.

- Everything Disperses to Miami: The Role of Movement and Dispersal in Spatial Ecology, Epidemiology and Environmental Science; Chair, Organizing Committee, University of Miami, December 14-16, 2012.

-New Mathematical Developments Arising from Ecology, Epidemiology and Environmental Science, October 17- 20, 2013, Beijing International Center for Mathematical Research, Peking University, Beijing, China, Co-Organizer.

- Mathematical Biosciences Institute Current Topic Workshop (CTW) From Within Host Dynamics to the Epidemiology of Infectious Disease, April 7-11, 2014, Mathematical Biosciences Institute, Ohio State University.

- International Conference on Reaction-Diffusion Equations and Their Applications to the Life, Social and Physical Sciences, Institute for Mathematical Sciences, Renmin University of China, Beijing, China, May 26-29, 2016.

- American Institute of Mathematical Sciences (AIMS) 11th Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, July 1-5, 2016, Special Session on Spatial and Evolutionary Aspects in Ecology and Epidemiology.

-International Conference on Frontiers of Mathematical Biology: Modeling, Computation and Analysis, University of Central Florida, Orlando, Florida, May 2-4, 2018, Member of the Organizing Committee

- American Institute of Mathematical Sciences (AIMS) 12th Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan, July 5-9, 2018, Special Session on Dynamical System Modeling for Ecological Effects and Evolution of Dispersal in Biological Systems

-International Congress of Mathematicians 2018 Satellite Meeting; A Pan-Hemispheric Celebration of Mathematics in Miami, University of Miami, Coral Gables, Florida, July 26-29,2018, Chair, Organizing Committee

- Transforming Post-Secondary Education in Mathematics Partners Meeting, University of Miami, April1, 2019

Talks:

-Joint Mathematics Meetings; Cincinnati, Ohio, January 13, 1982.

-Texas Seminar on Differential Equations and Applications; University of Texas at Austin, Austin, Texas, March 6, 1982.

-Eleventh Midwest Conference on Differential Equations; University of Nebraska at Lincoln, Lincoln, Nebraska, October 1-2, 1982.

-University of Calgary; Calgary, Alberta, May 13-14, 1982.

-Georgia Institute of Technology; Atlanta, Georgia, January 6, 1983.

-Special Session on Nonlinear Elliptic and Parabolic Partial Differential Equations; AMS Regional Conference, University of Utah, Salt Lake City, Utah, April 28, 1983.

-Mathematics Forschungsinstitut Oberwolfach Conference on the Theory, Numerics, and Applications of Nonlinear Eigenvalue Problems, Oberwolfach, West Germany, May 8, 1984.

-Fourth Annual Southeast Atlantic Conference on Differential Equations; Wake Forest University, Winston-Salem, NC, October 13, 1984.

-Fifth Annual Southeast Atlantic Conference on Differential Equations; Georgia Institute of

Technology, Atlanta, Georgia, October 25, 1985.

-University of Utah Conference or Nonlinear Partial Differential Equations, University of Utah, Salt Lake City, Utah, February 5, 1986.

-Clemson University, Clemson, South Carolina, August 7, 1986.

-Sixth Annual Southeast Atlantic Conference on Differential Equations; Clemson University, Clemson, South Carolina, October 24, 1986.

-Mathematical Ecology Conference; College of Charleston, Charleston, South Carolina, April 10, 1987.

-Eighth Annual Southeast Atlantic Conference on Differential Equations; University of Georgia, Athens, Georgia, November 4, 1988.

-Dublin Differential Equations Conference, National Institute for Higher Education (now Dublin City University), Dublin, Ireland, May 22, 1989.

-American Mathematical Society Regional Meeting #852 (Special Session on Differential Equations), Ball State University, Muncie, Indiana, October 27, 1989.
-American Mathematical Society Regional Meeting #855 (Special Session on Partial Differential Equations), Kansas State University, Manhattan, Kansas, March 16, 1990.

-Tenth Annual Southeast Atlantic Conference on Differential Equations; Virginia Polytechnic Institute and State University, Blacksburg, Virginia, November 16, 1990.

-Utah State University Mini-Conference on Differential Equations; Utah State University, Logan, Utah, June 1, 1991.

-Eleventh Annual Southeast Atlantic Conference on Differential Equations; Mississippi State University, Starkeville, Mississippi, October 25, 1991.

-Mississippi State University; Starkeville, Mississippi, March 30-31, 1992.

-Second Geoffrey J. Butler Memorial Conference on Differential Equations and Population Biology; University of Alberta; Edmonton, Alberta, Canada, June 18, 1992.

-First World Congress of Nonlinear Analysts; Tampa, Florida, August 19, 1992.

-Mathematisches Forschngsinstitut Oberwolfach Conference on Ordinary Differential Equations; March 15, 1993.

-Individual Based Modeling Meeting, Rosenstiel School of Marine and Atmospheric Science; The University of Miami; Key Biscayne, Florida, January 23, 1994.

-University of Alabama-Birmingham; Birmingham, Alabama, July 13, 1993.

-University of Alabama-Birmingham / Georgia Institute of Technology International Conference on Differential Equations and Mathematical Physics; University of Alabama - Birmingham; Birmingham, Alabama, March 13, 1994.

-Rosenstiel School of Marine and Atmospheric Science; University of Miami; Key Biscayne, Florida, May 5, 1994.

-Woods Hole Oceanographic Institution, Woods Hole, Massachusetts, June 23, 1994.

-Society for Mathematical Biology 1994 Annual Meeting; San Diego, California, July 27, 1994.
-Fourteenth Annual Southeast Atlantic Conference on Differential Equations; University of Tennessee; Knoxville, Tennessee, October 22, 1994.

-University of Washington Department of Zoology Mathbio Supercourse Workshop Guest Lectures; Seattle, Washington, May 1-4, 1995.

-Fourth International Conference on Population Dynamics; Rice University; Houston, Texas, May 23, 1995.

-Fifteenth Annual Southeast Atlantic Conference on Differential Equations; North Carolina State University; Raleigh, North Carolina, October 13, 1995.

-American Mathematical Society Regional Meeting #906 (Special Session on Nonlinear Boundary Value Problems), University of North Carolina-Greensboro; Greensboro, North Carolina, November 18, 1995.

-Universidad Autonoma de Yucatan; Merida, Yucatan, Mexico; January 8, 1996.

-International Conference on Dynamical Systems and Differential Equations, Southwest Missouri State University; Springfield, Missouri, May 31, 1996.

-3rd Geoffrey J. Butler Memorial Conference on Differential Equations and Population Biology, University of Alberta; Edmonton, Alberta, June 27, 1996.

-American Mathematical Society Regional Meeting #915 (Special Session on Nonlinear Partial Differential Equations) University of Tennessee-Chattanooga; Chattanooga, Tennessee, October 11, 1996.

-16th Annual Southeast Atlantic Regional Conference on Differential Equations, Emory University, Atlanta, Georgia, October 18, 1996.

-Third Mississippi State Conference on Differential Equations and Computational Simulations, Mississippi State University, Starkeville, Mississippi, May 17, 1997.

-International Conference on Mathematical Models in Medical and Health Sciences (Special Session on Diffusive Systems), Vanderbilt University, Nashville, Tennessee, May 28, 1997.

-International Conference on Differential Equations with Applications to Biology, Dalhousie University, Halifax, Nova Scotia, July 28, 1997.

-International Conference on Differential Equations and Dynamical Systems (Special Session on Nonlinear Boundary Value Problems); University of Waterloo, Waterloo, Ontario, Canada, August 3, 1997.

-3rd Midwest-Southeastern Atlantic Joint Regional Conference on Differential Equations, Vanderbilt University, Nashville, Tennessee, November 8, 1997.
-Fifth International Conference on Mathematical Population Dynamics (Special Session on Topological Methods in Analyzing Population Dynamics), Zakapone, Poland, June 26, 1998

-International Conference on Operator Theory and its Applications to Scientific and Industrial Problems (Minisymposium in Biomathematics), Winnipeg, Manitoba, October 8, 1998.

-18th Annual Southeast Atlantic Regional Conference on Differential Equations, Auburn University, Auburn, Alabama, October 17, 1998.

-University of Minnesota, Minneapolis, November 10, 1999.

-International Conference on Mathematics in Biology/Annual Meeting of the Society of Mathematical Biology; University of Utah, Salt Lake City, Utah, August 5, 2000.

-American Mathematical Society Regional Meeting #960 (Special Session on Nonlinear Differential Equations and Applications), University of Alabama at Birmingham; Birmingham; Birmingham, AL, November 11, 2000.

-Joint Mathematics Meetings (Special Session on PDE Models in Population Biology and Epidemiology), New Orleans, LA, January 11, 2001.

-International Conference on Dynamics of Continuous, Discrete and Impulsive Systems, University of Western Ontario, London, Ontario, July 29, 2001.

-International Workshop on Dynamical Systems and Their Applications in Biology, Cape Breton, Nova Scotia, Canada, August 2, 2001.

-Ohio State University, Columbus, Ohio, November 8, 2001.

-Wichita State University, Wichita, Kansas, March 8, 2002.

-Fourth International Conference on Dynamical Systems and Differential Equations (Mini Symposium on Recent Trends in Nonlinear Analysis), University of North Carolina at Wilmington, Wilmington, North Carolina, May 26, 2002.

-Shanghai Jiao Tong University, Shanghai, P.R.China, August 11, 2002.

-International Congress of Mathematicians 2002 Satellite Conference on Mathematical Biology (Invited speaker), Guangxi Normal University, Guilin, P.R.China, August 15, 2002.

-22nd Annual Southeast-Atlantic Regional Conference on Differential Equations (plenary speaker), University of Tennessee, Knoxville, TN, October 11, 2002.

-University of Alabama at Birmingham, Birmingham, AL, February 7, 2003.

-Canadian Mathematical Society Summer 2003 Meeting. University of Alberta, Edmonton, Alberta, Special Session on Infinite Dimensional Dynamical Systems, June 15, 2003.

-2nd Alcalá International Conference on Mathematical Ecology, Colegio de San I'defonso, Alcalá de Henares, Spain, Special Session on Spatio-Temporal Complexity in Population Dynamics, September 8, 2003

-2nd Workshop on Spatial Dynamic Models of Economics and Ecoystems, Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, April 15, 2004.

-Workshop on Spatial Aspects of Reserve Design Optimization under Economic Constraints, Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, April 20, 2004.
-6th Joint Meeting of the American Mathematical Society and the Sociedad Matematica Mexicana, Special Session on Continuous Distributed Parameter Models in Mathematical Biology, May 13, 2004.

-AIMS Fifth International Conference on Dynamical Systems and Differential Equations, California State Polytechnic University, Pomona, CA, June 17, 2004.

-International Conference on Nonlinear Dynamics and Evolution Equations, Memorial University of Newfoundland, St. John's Newfoundland, Canada, July 9, 2004.

-University of Alberta, Edmonton, Alberta, April 11, 2005.

-Sixth Mississippi State-UAB Conference on Differential Equations and Computational Simulations (Special Session in Honor of Klaus Schmitt on the Occasion of his 65th Birthday); Mississippi State University, Starkeville, MS, May 13, 2005

-Park City Mathematical Institute 2005 Summer Research Program in Mathematical

Biology, Park City, Utah, July 14, 2005.

-Universidad Autonoma deYucatan; Merida, Yucatan, Mexico; January 11, 2006.

-University of Tennessee, Knoxville; TN, April 11, 2006.

-American Institute of Mathematical Sciences 6th International Conference on Dynamical Systems, Differential Equations and Applications, Special Session on Dynamical Systems and Control in Biology; University of Poitiers, Poitiers, France, June 28, 2006.

-Beijing University, Beijing, P.R. China, May 22, 2007.

-EcoSummit 2007: Ecological Complexity and Sustainability: Challenges and Opportunities for the 21st Century's Ecology, Symposium on Ecology, Evolution and Modeling of Disease Dynamics, Beijing Jiuhua Resort and Convention Center, Beijing, P.R. China, May 24, 2007.

-4th International Conference on Mathematical Biology, Wuyishan, Fijian, P.R. China, May 31, 2007.

-7th Mississippi State/University of Alabama Birmingham Conference on Differential Equations and Computational Simulation Birmingham, AL, November 2, 2007.

-   Workshop on Population Dynamics and Mathematical Biology, CIRM, Luminy, France, June 19, 2008.

- World Congress of Nonlinear Analysts 2008, Special Session on "New Directions in Non-linear Partial Differential Equations, Orlando, Florida, July 4, 2008.

- Universidad de Chile, Santiago, Chile, August 8, 2008.

- University of Puerto Rico Mayaguez, February 4, 2009. (Colloquium talk)

- Ulam Centennial Conference, University of Florida, March 10, 2009 (Invited talk)

- Banff International Research Station (BIRS) Workshop on Multiscale Analysis of Self-Organization in Biology, Banff, AB Canada; July 14, 2009 (Invited talk)

- Sixth Annual East China Normal University Graduate Summer School in Partial Differential Equations, Shanghai, China, July 23-August 7, 2009. (5 plenary lectures)

- Workshop on Adaptive Movement of Interacting Species, Fields Institute, Toronto, ON Canada, September 12, 2009 (Invited talk)

- American Mathematical Society Fall Southeastern Sectional Meeting, Boca Raton, FL, October 31, 2009 (Special Session on Mathematical Models in Biology)

-8th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, at the Dresden University of Technology, Dresden, Germany, Special Session on Reaction-Diffusion Systems, May 28, 2010.

-Joint Mathematics Meetings (Special Session on Analysis of Reaction-Diffusion Models), New Orleans, LA, January 9, 2011.

- University of Florida Conference on Mathematical Models in Computational and Systems Biology, March 19, 2011, (Invited Talk).

- University of Nebraska Conference on Mathematical Ecology, University of Nebraska, Lincoln, Nebraska, April 15, 2012 (Invited Plenary Talk)

- Mathematical Bioscience Institute Emphasis Year on Stochastics in Biological Systems Workshop on Spatial Models of Micro and Macro Systems; Mathematical Biosciences Institute, Ohio State University, April 19, 2012. (Funded Invited Talk)

-2012 NCTS Program On Nonlinear Equations in Spatial Population Biology, National Center for Theoretical Science (NCTS), Hsinchu, Taiwan，May 18, 2012 (Funded Mini-Course Lecture)

-"Workshop on Nonlinear Equations in Spatial Population Biology" at the National Center for Theoretical Science (NCTS), Hsinchu, Taiwan, May 24, 2012 (Funded Invited Talk)

- Zentrum fur interdisziplinare Forschung (ZiF) Research Group Stochastic Dynamics: Mathematical Theory and Applications Workshop on "Qualitative behavior of Stochastic Systems and Applications", June 19, 2012, Universitat Bielefeld, Bielefeld, Germany. (Funded Invited Talk)

- 9th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, July 4, 2012 (Special Session on Reaction Diffusion Equations and Applications)

- 9th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, July 5, 2012 (Special Session on Nonlinear Elliptic and Parabolic Problems)

-University of Central Florida, March 21, 2013 (Colloquium Talk)

-Workshop on Nonlinear Equations in Population Biology, Center for Partial Differential Equations, East China Normal University, Shanghai, China, May 27, 2013. (Supported Invited Plenary Talk)

-Fourth Conference on Computational and Mathematical Population Dynamics, North University of China, Taiyuan, China, May 29, 2013 (Invited Talk).

-Shanxi University, Taiyuan, China, June 3, 2013. (Colloquium Talk)

- Zentrum fur interdisziplinare Forschung (ZiF) Research Group Stochastic Dynamics: Mathematical Theory and Applications Workshop on "Fusion of Knowledge in Stochastic Modeling of Large Complex Systems", June 13, 2013, Universitat Bielefeld, Bielefeld, Germany. (Funded Invited Talk)

-Workshop on Nonlinear Partial Differential Equations, Universidad Complutense de Madrid, June 20, 2013 (Funded Invited Talk).

-2013 Atlantic Association for Research in the Mathematical Sciences (AARMS) Summer School on Dynamical Systems and Mathematical Biology, July 16- August 9, 2013, Memorial University, St John's, Newfoundland, Canada. Funded course on Reaction-Diffusion Equations and Applications (19 lectures with 21 students)

-AARMS Workshop on Mathematical Biology, July 29, 2013. (Funded Plenary Talk)

-PDE Seminar, Ohio State University, October 9, 2013.

-New Mathematical Developments Arising from Ecology, Epidemiology and Environmental Science, October 20, 2013, Beijing International Center for Mathematical Research, Peking University, Beijing, China, Invited Speaker.

-National Institute of Mathematical Sciences (Korea) and the Korea Institute of Science and Technology PDE Conference on Reaction-Diffusion Equations for Ecology and Related Problems, Daejeon, Korea, October 23, 2013 (Supported Invited Speaker).

-Capitol Normal University, October 28-29, 2013. (Colloquium Talks)

- Joint Mathematics Meetings (Special Session on Reaction-Diffusion Equations and Applications), Baltimore, MD, January 18, 2014

- American Mathematical Society Southeastern Sectional Meeting at the University of Tennessee, Knoxville, Special Session on "Diversity of Modeling and Optimal Control" March 22, 2014

- International Symposium on Mathematical Biology, Guangzhou China, May 25-28, 2014 (Partially Funded Invited Talk)

- 2014 National Center for Theoretical Sciences International Conference on Nonlinear Dynamics with Applications to Biology, National Center for Theoretical Sciences,

National Tsing-Hua University, Hsinchu, Taiwan May 28-30, 2014 (Partially Funded Invited Talk)

- 2014 Workshop on Differential Equations with Applications, Renmin University of China, June 7-8, 2014, Beijing, China (Partially Funded Invited Talk)

- Southwestern University of China, Chongqing, China, June 10, 2014 (Colloquium Talk)

- International Workshop on Reaction-Diffusion Equations and Their Applications to Biomath, Capital Normal University, Beijing, China, June 21, 2014 (Partially Funded Invited Talk)

- American Institute of Mathematical Sciences (AIMS) 10th Conference on Dynamical Systems, Differential Equations and Applications, Special Session on "Nonlinear elliptic and parabolic problems", Madrid, Spain, July 8, 2014.

- American Institute of Mathematical Sciences (AIMS) 10th Conference on Dynamical Systems, Differential Equations and Applications, Special Session on "Dissipative systems with applications", Madrid, Spain, July 10, 2014.

- National Natural Science Foundation of China, Tianyuan Foundation and Xi'an Jiaotong University Graduate Summer School on Mathematical Biology, Xi'an, China, six hour guest lecture, August 6-7, 2014 (Funded Plenary Talk)

- Applied Mathematics Conference 2014, Oakland University, Rochester, Michigan, September 13, 2014 (Funded Invited Talk)

- Joint Mathematics Meetings (Special Session on Theory and Application of Reaction-Diffusion Models), San Antonio, TX, January 18, 2014

-Renmin University of China Institute of Mathematical Sciences Top-Level Foreign Expert Lectures in the Graduate Summer School on "Free Boundary Problems in PDE's" (two lectures), July 2015

-Renmin University of China Institute of Mathematical Sciences Workshop on "PDE's with Applications", July 29, 2015

-Workshop on Mathematical Modeling in the Life Sciences, Harbin Normal University, Harbin, China, August 1, 2015 (plenary talk)

-Harbin Institute of Technology, August 3, 2015 (colloquium talk)

-International Symposium on Application of Nonlinear Partial Differential Equations in the Life Sciences, Chern Institute of Mathematics, Nankai University, Tianjin, China, August 4, 2015

- International Conference on Models in Population Dynamics and Ecology 2015, Instituto de Matematica e Estatistica de Universidade Federal Fluminense, Niteroi, Rio de Janeiro, August 25, 2015

- Hong Kong Polytechnic University, May 18, 2016.

- International Conference on Reaction-Diffusion Equations and Their Applications to the Life, Social and Physical Sciences, Institute for Mathematical Sciences, Renmin University of China, Beijing, China, May 28, 2016

- Tenth International Conference on Recent Advances in Applied Dynamical Systems, Xuzhou, China, June 11, 2016.

- American Institute of Mathematical Sciences (AIMS) 11th Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, Special Session on Spatial and Evolutionary Aspects in Ecology and Epidemiology, July 4, 2016.

- American Institute of Mathematical Sciences (AIMS) 11th Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, Special Session on New Trends in Nonlinear Partial Differential Equations, July 4, 2016.

- XIX Congreso Boliviano de Matematica, Sociedad Boliviana de Matematica, "Genesis II", Cochabamba, Bolivia, October 7, 2016. (Recorded Plenary Talk)

- Joint Mathematics Meetings, Atlanta, Georgia, January 5, 2017, (Special Session on Analytic and Computational Studies in Mathematical Biology)

- University of Cincinnati, April 27, 2017

- Miami-Cinvestav Collaboration Distinguished Scholar Lecture Series, Cinvestav, Mexico City, Mexico, May 29-31, 2017

- Harbin Institute of Technology, Harbin, China, June 27-28, 2017

- Graduate Summer School, Institute of Mathematical Sciences, Renmin University of China, July 10-13, 2017

- Conference on PDE's and Applications to Physical and Biological Sciences, Renmin University of China, Beijing, July 15, 2017

-University of Science and Technology of China, Hefei, China, July 17, 2017

-Central China Normal University, Wuhan, China, July 25, 2017

- American Mathematical Society Fall Southeastern Sectional Meeting, University of Central Florida, Orlando, FL, September 23, 2017 (Special Session on Differential Equations in Mathematical Biology)

- Universidad Simon I. Patino, Cochabamba, Bolivia, March 12-14, 2018

-International Conference on Frontiers of Mathematical Biology: Modeling, Computation and Analysis, University of Central Florida, Orlando, Florida, May 4, 2018.

- Central China Normal University, Wuhan, China, June 26, 2018

-Institute of Mathematical Sciences, Renmin University of China, Beijing, Mini-symposium on Partial Differential Equations and Applications, June 27, 2018

- American Institute of Mathematical Sciences (AIMS) 12th Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan, Special Session on Dynamical System Modeling for Ecological Effects and Evolution of Dispersal, July 9, 2018

- American Institute of Mathematical Sciences (AIMS) 12th Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan, Special Session on Dynamical System Modeling for Ecological Effects and Evolution of Dispersal, July 9, 2018

 -Institute of Mathematics, Shanghai Tech University, May 16, 2019

- Shanghai Normal University, May 20, 2019

- Colegio Nacional, Mexico City (Best of the University of Miami in Mexico), May 29, 2019

- 2019 Society of Mathematical Biology Annual Meeting, Montreal, Quebec, Canada, Mini-symposium on "Spatial and evolutionary dynamics in mathematical ecology", July 23, 2019

-39th Southeastern-Atlantic Regional Conference on Differential Equations (SEARCDE), Embry-Riddle Aeronautical University, Daytona Beach FL, October 27, 2019, invited speaker

  - American Mathematical Society Southeastern Sectional Meeting at the University of Florida, Gainesville, Special Session on "Applications of Differential Equations in Mathematical Biology" November 2, 2019

- 2019 Guangzhou International Conference on Mathematical Biology, Guangzhou University, December 14, 2019

-South China Normal University, December 16, 2019

- October 20, 2020, Theoretical Biology Seminar, Pennsylvania State University (remote talk)

- January 7, 2021, Joint Mathematics Meetings, Special Session on Nonlinear Reaction Diffusion Models with Applications in Spatial Ecology (remote talk)

- International Center of Mathematical Sciences, Bulgarian Academy of Sciences, Sofia, Bulgaria, June 30, 2021

-Applied Math Seminar, University of North Carolina at Greensboro, October 25, 2021

- Winter Workshop on Competition Dynamics in Biology, Ohio State University, December 16, 2021

- April 7, 2022 Joint Mathematics Meetings, Invited AMS Special Session Talk on Reaction-Diffusion Models with Applications in Spatial Ecology (remote talk)

- April 7, 2022 Joint Mathematics Meetings, Invited AMS Special Session Talk on Applications of Mathematical models and Dynamical Systems in Biology (remote talk)

-July 13, 2022 ICMS-Sofia Inaugural Conference (invited talk), Sofia, Bulgaria.

-November 10, 2022, XXIII Congreso Boliviano de Matematica (invited opening talk), Cochabamba, Bolivia.

- December 3, 2022, Canadian Mathematical Society Winter Meeting, Invited Special Session Talk in Topics in Mathematical Biology: Theory, Applications and Future Perspectives, Toronto, Ontario

- December 5, 2022, Canadian Mathematical Society Winter Meeting, Invited Special Session Talk in Mathematical modeling and Analysis in Spatial Ecology and Epidemiology, Toronto, Ontario

-January 5, 2023, Joint Mathematical Meetings Invited AMS Special Session Talk in Spatial Ecology Applications Using Reaction-Diffusion Equations, Boston, Massachusetts

-January 7, 2023, Joint Mathematical Meetings Invited AMS Special Session Talk in Complex Systems in the Life Sciences, Boston, Massachusetts

-<u>Mathematics Meetings Attended:</u>

Rocky Mountain Mathematics Consortium Seminar on Dynamical Systems and Singularity Theory (Phillip Holmes, Martin Golubitsky, principal speakers); Fort Lewis College, Durango, Colorado, June 28, 1981 - July 18, 1981.

-Joint Mathematical Meetings; Cincinatti, Ohio, January 12-16, 1982.

-NSF-CBMS Regional Conference on Competition Models in Mathematical Ecology (Paul Waltman, principal speaker); Utah State University, Logan, Utah, July 11-16, 1982.

-Eleventh Midwest Conference on Differential Equations; University of Nebraska at Lincoln, Lincoln, Nebraska, October 1-2, 1982.

-AMS Regional Conference; University of Utah, Salt Lake City, Utah, April 28-29, 1983.

-NSF-CBMS Regional Conference in Minimax Methods on Critical Point Theory and Applications to Differential Equations (Paul Rabinowitz, principal speaker); University of Miami; held in Miami, FL, January 9-13, 1984.

-Mathematics Forschungsinstitut Oberwolfach Conference on the Theory, Numerics, and Application of Nonlinear Eigenvalue Problems, May 6-12, 1984.

-Fourth Annual Southeast Atlantic Conference on Differential Equations; Wake Forest University, Winston Salem, NC, October 12-13, 1984.

-Fifth Annual Southeast Atlantic Conference on Differential Equations; Georgia Institute of Technology, Atlanta, GA, October 25-26, 1985.

-University of Utah Conference on Nonlinear Partial Differential Equations, University of Utah, Salt Lake City, February 5-7, 1986.

-Sixth Annual Southeast Atlantic Conference on Differential Equations; Clemson University, Clemson, South Carolina, October 24-25, 1986.

-Mathematical Ecology Conference; College of Charleston; Charleston, South Carolina, April 10-11, 1987.

-Combined Southeast Atlantic-Midwest Conference on Differential Equations; Vanderbilt University, Nashville, Tennessee, October 23-24, 1987.

-Joint Mathematical Meetings; Atlanta, Georgia, January 1988.

-Mathematical Ecology Conference; Clemson University, Clemson, South Carolina, April 1988.

-Eighth Annual Southeast Atlantic Conference on Differential Equations; University of Georgia, Athens, Georgia, November 4-5, 1988.

-Dublin Differential Equations Conference, National Institute for Higher Education (now Dublin City University), Dublin, Ireland, May 22-25, 1989.

-American Mathematical Society Regional Meeting #852 (Special Session on Differential Equations), Ball State University, Muncie, Indiana, October 27-28, 1989.

-American Mathematical Society Regional Meeting #855 (Special Session on Partial Differential Equations); Kansas State University, Manhattan, Kansas, March 16-17, 1990.

-Tenth Annual Southeast Atlantic Conference on Differential Equations; Virginia Polytechnic Institute and State University, Blacksburg, Virginia, November 16-17, 1990.

-1991 Barrett Memorial Lectures (on Non-Convex Problems in Partial Differential Equations); University of Tennessee, Knoxville, Tennessee, April 4-6, 1991. (partial support).

-Utah State University Mini-Conference on Differential Equations; Utah State University, Logan, Utah, May 31-June 1, 1991.

-Eleventh Annual Southeast Atlantic Conference on Differential Equations; Mississippi State University, Starkeville, Mississippi, October 25-26, 1991.

-Georgia Tech - UAB International Conference on Differential Equations and Mathematical Physics; Georgia Institute of Technology; Atlanta, Georgia, March 26-28, 1992.

-Second Geoffrey J. Butler Memorial Conference on Differential Equations and Population Biology; University of Alberta; Edmonton, Alberta, Canada, June 17-20, 1992.

-First World Congress of Nonlinear Analysts; Tampa, Florida, August 19-22, 1992.

-Second Combined Southeast Atlantic - Midwest Conference on Differential Equations; University of Kentucky, Lexington, Kentucky, November 13-15, 1992.

-Mathematische Forschungsinstitut Oberwolfach Conference on Ordinary Differential Equations; March 14-20, 1993.

-Individual Based Modeling Meeting/Rosenstiel School of Marine and Atmospheric Science; the University of Miami; Key Biscayne, Florida, January 23, 1994.

-University of Alabama-Birmingham / Georgia Institute of Technology International Conference on Differential Equations and Mathematical Physics; University of Alabama - Birmingham; Birmingham, Alabama, March 12 - 17, 1994.

-Society for Mathematical Biology 1994 Annual Meeting, held in conjunction with the 1994 Annual Summer Meeting of the Society for Industrial and Applied Mathematics (SIAM); San Diego, California, July 25-27, 1994.

-Fourteenth Annual Southeast Atlantic Conference on Differential Equations; University of Tennessee; Knoxville, Tennessee, October 21-22, 1994.

-Fifteenth Annual Southeast Atlantic Conference on Differential Equations; North Carolina State University; Raleigh, North Carolina, October 13-14, 1995.

-American Mathematical Society Regional Meeting #906; University of North Carolina-Greensboro; Greensboro, North Carolina, November 17-18, 1995.

-International Conference on Dynamical Systems and Differential Equations, Southwest Missouri State University; Springfield, Missouri, May 30 - June 1, 1996.

-3rd Geoffrey J. Butler Memorial Conference on Differential Equations and Population Biology, University of Alberta; Edmonton, Alberta, June 26 - 29, 1996.

-American Mathematical Society Regional Meeting #915 (Special Session on Nonlinear Partial Differential Equations) University of Tennessee-Chattanooga; Chattanooga, Tennessee, October 11 - 12, 1996.

-16th Annual Southeast Atlantic Regional Conference on Differential Equations, Emory University, Atlanta, Georgia, October 18 - 19, 1996.

-Third Mississippi State Conference on Differential Equations and Computational Simulations, Mississippi State University, Starkeville, Mississippi, May 16 - 17, 1997.

-International Conference on Mathematical Models in Medical and Health Sciences, Vanderbilt University, Nashville, Tennessee, May 28 - 31, 1997.

-International Conference on Differential Equations with Applications to Biology, Dalhousie University, Halifax, Nova Scotia, July 25 - 29, 1997.

-International Conference on Differential Equations and Dynamical Systems; University of Waterloo, Waterloo, Ontario, Canada, August 1 - 4, 1997.

-3rd Midwest-Southeastern Atlantic Joint Regional Conference on Differential Equations, Vanderbilt University, Nashville, Tennessee, November 7 - 9, 1997.

-International Conference on Operator Theory and its Applications to Scientific and Industrial Problems, Winnipeg, Manitoba, October 7-11, 1998.

-18th Annual Southeast Atlantic Regional Conference on Differential Equations, Auburn University, Auburn, Alabama, October 16-17, 1998.

-Nonlinear Differential Equations: A Meeting in Honor of Professor Alan Lazer on the Occasion of His 60th Birthday, University of Miami, Coral Gables, FL January 8-9, 1999.

-American Mathematical Society Regional Meeting #960 (Special Session on Nonlinear Differential Equations and Applications), University of Alabama at Birmingham, Birmingham, AL, November 10-12, 2000.

-Joint Mathematics Meetings (Special Session on PDE Models in Population Biology and Epidemiology), New Orleans, LA, January 9-11, 2001.

-International Conference on Dynamics of Continuous, Discrete and Impulsive Systems, University of Western Ontario, London, Ontario, July 27-31, 2001.

-International Workshop on Dynamical Systems and Their Applications in Biology, Cape Breton, Nova Scotia, Canada, August 2-6, 2001.

-Fourth International Conference on Dynamical Systems and Differential Equations, The University of North Carolina at Wilmington, Wilmington, North Carolina, May 24-27, 2002.

-International Congress of Mathematicians 2002 Satellite Conference on Mathematical Biology, Guangxi Normal University, Guilin, P.R. China, August 15-18, 2002.

-22nd Annual Southeastern Atlantic Regional Conference on Differential Equations, The University of Tennessee at Knoxville, TN, October 11-12, 2002.
-Canadian Mathematical Society Summer 2003 Meeting, University of Alberta, Edmonton, Alberta, June 14-16, 2003, Special Session on Infinite Dimensional Population Dynamics.

-6th Joint Meeting of the American Mathematical Society and the Sociedad Matematica Mexicana (Special Session on Continuous Distributed Parameter Models in Mathematical Biology), May 13-15, 2004.

-AIMS Fifth International Conference on Dynamical Systems and Differential Equations, California State Polytechnic University, Pomona, CA, June 16-19, 2004.

-International Conference on Nonlinear Dynamics and Evolution Equations, Memorial University of Newfoundland, St. John's, Newfoundland, Canada, July 6-10, 2004.

-Sixth Mississippi State – UAB Conference on Differential Equations and Dynamical Systems, Mississippi State University, Starkeville, MS, May 13-14, 2005

-American Institute of Mathematical Sciences 6th International Conference Dynamical

Systems, Differential Equations and Application; University of Poitiers, Poitiers, France, June 25-28, 2006.

-Seventh Mississippi State/University of Alabama Birmingham Conference on Differential Equations and Computational Simulation, Birmingham, AL, November 1-3, 2007.

-World Congress of Nonlinear Analysts 2008, Orlando, Florida, July 3-5, 2008.

-Symposium in Honor of Professor Hans Weinberger's 80th Birthday, Institute for Mathematics and its Applications, Minneapolis, Minnesota, October 4, 2008.

- Ulam Centennial Conference, University of Florida, March 7-11, 2009 (partially funded)

- Banff International Research Station (BIRS) Workshop on Multiscale Analysis of Self-Organization in Biology, Banff, AB Canada; July 12-17, 2009 (partially funded)

- Sixth Annual East China Normal University Graduate Summer School in Partial Differential Equations, Shanghai, China, July 23-August 7, 2009. (Funded plenary speaker)

- Workshop on Adaptive Movement of Interacting Species, Fields Institute, Toronto, ON Canada, September 10-13, 2009.

- American Mathematical Society Fall Southeastern Sectional Meeting, Boca Raton, FL, October 31, 2009.

- NSF-CBMS Regional Conference on "The Mathematics of Diffusions" (Wei-Ming Ni, principal lecturer), Tulane University, New Orleans, Louisiana, May 17-21, 2010. (partially supported).

-8th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, at the Dresden University of Technology, Dresden, Germany, May 25-28, 2010.

- Joint Mathematics Meetings (Special Session on Analysis of Reaction-Diffusion Models), New Orleans, LA, January 6-9, 2011.

- University of Florida Conference on Mathematical Models in Computational and Systems Biology, March 17-19, 2011, (Invited Speaker).

- 9th AIMS International Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, July 1-5, 2012.

- Institute for Mathematics and its Applications (IMA) Annual Program Year Workshop on Lattice and Nonlocal Dynamical Systems and Applications, December 3-7, 2012, University of Minnesota (Funded Participant)

-Workshop on Nonlinear Equations in Population Biology, Center for Partial Differential Equations, East China Normal University, Shanghai, China, May 25- 27, 2013. (Supported Plenary Speaker)

-Workshop on Nonlinear Partial Differential Equations, Universidad Complutense de Madrid, June 19-20, 2013 (Funded Invited Speaker)

-New Mathematical Developments Arising from Ecology, Epidemiology and Environmental Science, October 17- 20, 2013, Beijing International Center for Mathematical Research, Peking University, Beijing, China, (Invited Speaker).

-National Institute of Mathematical Sciences (Korea) and the Korea Institute of Science and Technology (KAIST) PDE Conference on Reaction-Diffusion Equations for Ecology and Related Problems, Daejeon, Korea, October 22-25, 2013 (Supported Invited Speaker).

- Joint Mathematical Meetings, Baltimore, Maryland, January 15-18, 2014

- American Mathematical Society Southeastern Sectional Meeting at the University of Tennessee, Knoxville, March 21-22, 2014

- 2014 Workshop on Differential Equations with Applications, Renmin University of China, June 7-8, 2014, Beijing, China (Partially Funded Invited Speaker)

- International Workshop on Reaction-Diffusion Equations and Their Applications to Biomath, Capital Normal University, Beijing, China, June 21, 2014 (Partially Funded Invited Speaker)

- American Institute of Mathematical Sciences (AIMS) 10th Conference on Dynamical Systems, Differential Equations and Applications, Madrid, Spain, July 7- July 11, 2014

- National Natural Science Foundation of China, Tianyuan Foundation and Xi'an Jiaotong University Graduate Summer School on Mathematical Biology, Xi'an, China, August 2-9,2014 (Supported Guest Lecturer)

- Applied Mathematics Conference 2014, Oakland University, Rochester, Michigan, September 13, 2014 (Funded Invited Talk)

- Joint Mathematical Meetings, San Antonio, Texas, January 10-13, 2015

-Renmin University of China Institute of Mathematical Sciences Workshop on "PDE's with Applications", July 29, 2015

-Workshop on Mathematical Modeling in the Life Sciences, Harbin Normal University, Harbin, China, August 1-3, 2015

-International Symposium on Application of Nonlinear Partial Differential Equations in the Life Sciences, Chern Institute of Mathematics, Nankai University, Tianjin, China, August 4-7, 2015

-   International Conference on Models in Population Dynamics and Ecology 2015, Instituto de Matematica e Estatistica de Universidade Federal Fluminense, Niteroi, Rio de Janeiro, August 25, 2015 (Funded Invited Speaker)

- Joint Mathematics Meetings, Seattle, Washington, January 3-5, 2016, (National Chair's Workshop)

- Inaugural Meeting of the Transforming Post-Secondary Education (TPSE) Mathematics Advisory Group (MAG), Washington, DC, March 25-26, 2016.

- International Conference on Reaction-Diffusion Equations and Their Applications to the Life, Social and Physical Sciences, Institute for Mathematical Sciences, Renmin University of China, Beijing, China, May 26-29, 2016.

- Tenth International Conference on Recent Advances in Applied Dynamical Systems, Xuzhou, China, June 10-12, 2016.

- American Institute of Mathematical Sciences (AIMS) 11th Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, July 1-5, 2016.

- Joint Mathematics Meetings, Atlanta, Georgia, January 3-6, 2017, (National Chair's Workshop and Special Session on Analytic and Computational Studies in Mathematical Biology)

- Graduate Summer School, Institute of Mathematical Sciences, Renmin University of China, July 3-13, 2017

-Conference on PDE's and Applications to Physical and Biological Sciences, Institute for Mathematical Sciences, Renmin University of China, July15-16, 2017

- American Mathematical Society Fall Southeastern Sectional Meeting, University of Central Florida, Orlando, Florida, September 23-24, 2017

- Joint Mathematics Meetings, San Diego, California, January 9-13, 2018, (National Chair's Workshop)

- Transforming Post-Secondary Education (TPSE) Mathematics Meeting on Upper Division Pathways: New England Regional Meeting, Worcester Polytechnic Institute, Worcester, Massachusetts, June 11-12, 2018

-International Conference on Frontiers of Mathematical Biology: Modeling, Computation and Analysis, University of Central Florida, Orlando, Florida, May 2-4, 2018

- American Institute of Mathematical Sciences (AIMS) 12th Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan, July 5-9, 2018

-International Congress of Mathematicians 2018 Satellite Meeting; A Pan-Hemispheric Celebration of Mathematics in Miami, University of Miami, Coral Gables, Florida, July 26-29,2018

 -39th Southeastern-Atlantic Regional Conference on Differential Equations (SEARCDE), Embry-Riddle Aeronautical University, Daytona Beach FL, October 26-27, 2019.

  - American Mathematical Society Southeastern Sectional Meeting at the University of Florida, Gainesville, November 2-3, 2019

-Joint Mathematics Meetings, January 6-9, 2021 (held remotely)

-AMS National Mathematics Chairs' Workshop, January 14, 2021

-Winter Workshop on Competition Dynamics in Biology, Ohio State University, December 15-17, 2021

-July 11-14, 2022 ICMS-Sofia Inaugural Conference (invited talk), Sofia, Bulgaria.

-July 15-18, 2022, ICMS-Sofia Conference on Geometry and Physics, Sunny Beach, Bulgaria

-November 10- 12, 2022, XXIII Congreso Boliviano de Matematica, Cochabamba, Bolivia.

- December 3-5, 2022, Canadian Mathematical Society Winter Meeting, Toronto, Ontario

- January 3-7, 2023, Joint Mathematics Meetings, Boston, Massachusetts

Interdisciplinary Scientific Meetings Attended:

-Woods Hole Oceanographic Institution Program of Summer Study in Geophysical Fluid Dynamics (Bio-Physical Models of Oceanic Population Dynamics); Woods Hole Oceanographic Institution; Woods Hole, Massachusetts, June 20 - July 2, 1994 (Guest Investigator, supported by WHOI).

-University of Washington Department of Zoology Mathbio Supercourse Workshop; Seattle, Washington, May 1 - 4, 1995 (Principal Lecturer, visit supported by the University of Washington).

-Fourth International Conference on Population Dynamics; Rice University; Houston, Texas, May 23 - 28, 1995.

-Fifth International Conference on Mathematical Population Dynamics, Zakapone, Poland, June 21-26, 1998.

-Institute for Mathematics and Its Applications 1998-99 Program (Mathematics in Biology) Workshop #12 (From Individual to Aggregation: Modeling Animal Grouping), Institute for Mathematics and Its Applications, University of Minnesota, Minneapolis, MN, June 7-11, 1999, supported participant.

-International Conference on Mathematics in Biology/Annual Meeting of the Society of Mathematical Biology; University of Utah, Salt Lake City, Utah, August 3-5, 2000.

-2nd Alcalá International Conference on Mathematical Ecology, Colegio de San I'delfonso, alcalá de Henares, Spain, September 5-9, 2003. Special Session on Spatio-Temporal Complexity in Population Dynamics.

-2nd Workshop on Spatial Dynamic Models of Economics and Ecoystems, Abdus Salam International Centre for Theoretical Physics, Trieste, Italy, April 15-17, 2004.

-Workshop on Spatial Aspects of Reserve Design Optimization under Economic Constraints, Abdul Salam International Center for Theoretical Physics, Trieste, Italy, April 19-21, 2004.

-Banff International Research Station (BIRS) 5 Day Workshop on Mathematical Models for Biological invasios, BIRS, Banff, Alberta, Canada, November 28-December 2, 2004.

-Workshop on Spatial Ecology: The Interplay Between Theory and Data; Rosenstiel School of Marine and Atmospheric Sciences, The University of Miami; Key Biscayne, Fl, January 7-10, 2005.

-Park City Mathematical Institute 2005 Summer Research Program in Mathematical Biology; Park City, Utah, July 10-15, 2005.

-Mathematical Biosciences Institute Workshop on Spatial Ecology; Mathematical Biosciences Institute; Ohio State University , Columbus, OH ; March 13-17, 2006.

-EcoSummit 2007: Ecological Complexity and Sustainability: Challenges and Opportunities for the 21st Century's Ecology, Beijing Jiuhua Resort and Convention Center, Beijing, P.R. China, May 22-27, 2007.

-4th International Conference on Mathematical Biology, Wuyishan, Fujian, P.R. China, May 29-June 1, 2007.

 - Workshop on Population Dynamics and Mathematical Biology, CIRM, Luminy, France, June 16-20, 2008.

- Joint Meeting of the Society for Mathematical Biology and the Chinese Society of Mathematical Biology, Hangzhou, China, June 14-17, 2009.

- Banff International Research Station (BIRS) 5-day workshop "Emerging Challenges at the Interface of Mathematics, Spatial Ecology and Environmental Science", BIRS, Banff AB Canada, July3-8, 2011.

- Mathematical Bioscience Institute CTW Spatio-Temporal Dynamics in Disease Ecology and Epidemiology; Mathematical Biosciences Institute, Ohio State University, October 10-14, 2011. (Funded Invited Participant)

- University of Nebraska Conference on Mathematical Ecology, University of Nebraska, Lincoln, Nebraska, April 14-15, 2012 (Invited Plenary Speaker)

- Mathematical Bioscience Institute Emphasis Year on Stochastics in Biological Systems Workshop on Spatial Models of Micro and Macro Systems; Mathematical Biosciences Institute, Ohio State University, April 16-20, 2012. (Funded Invited Participant)

-2012 NCTS Program On Nonlinear Equations in Spatial Population Biology, National Center for Theoretical Science (NCTS), Hsinchu, Taiwan，May 18-20, 2012 (Funded Mini-Course Lecturer)

-"Workshop on Nonlinear Equations in Spatial Population Biology" at the National Center for Theoretical Science (NCTS), Hsinchu, Taiwan, May 24-26, 2012 (Funded Invited Speaker)

– Zentrum fur interdisziplinare Forchung (ZiF) Research Group Stochastic Dynamics: MathematicalTheory and Applications Workshop on "Qualitative behavior of Stochastic Systems and Applications", June 18-22, 2012, Universitat Bielefeld, Bielefeld, Germany. (Funded participant)

- Everything Disperses to Miami: The Role of Movement and Dispersal in Spatial Ecology, Epidemiology and Environmental Science; University of Miami, December 14-16, 2012.

-Fourth Conference on Computational and Mathematical Population Dynamics, North University of China, Taiyuan, China, May 29 – June 2, 2013 (Invited Speaker)

- Banff International Research Station (BIRS) 5-day workshop "Impact of Climate Change on Biological Invasions and Population Distributions", BIRS, Banff AB Canada, May 13-17, 2013.

- Zentrum fur interdisziplinare Forschung (ZiF) Research Group Stochastic Dynamics: MathematicalTheory and Applications Workshop on "Fusion of Knowledge in Stochastic Modeling of Large Complex Systems", June 10-14, 2013, Universitat Bielefeld, Bielefeld, Germany. (Funded Invited Speaker)

AARMS Workshop on Mathematical Biology, July 27- 29, 2013, (Funded Plenary Talk).

Mathematical Biosciences Institute Emphasis 2013 Year Fall Program on Ecosystem Dynamics and Management (Workshop 1: Sustainability and Complex Systems September 16-20, 2013; Workshop 2: Rapid Evolution and Sustainability October 7-11, 2013; Workshop 3: Sustainable Management of Living Natural Resources November 4-8, 2013). Mathematical Biosciences Institute, Ohio State University (Supported Participant).

- International Symposium on Mathematical Biology, Guangzhou China, May 25-28, 2014 (Partially Funded Invited Speaker)

- 2014 National Center for Theoretical Sciences International Conference on Nonlinear Dynamics with Applications to Biology, National Center for Theoretical Sciences, National Tsing-Hua University, Hsinchu, Taiwan May 28-30, 2014 (Partially Funded Invited Speaker)

- Workshop on Mathematical Biology and Nonlinear Analysis, University of Miami, December 19-21, 2014

- International Conference on Models in Population Dynamics and Ecology 2015, Instituto de Matematica e Estatistica de Universidade Federal Fluminense, Niteroi, Rio de Janeiro, August 24-28, 2015

- SESYNC Workshop on Seed Dispersal, National Socio-Environmental Synthesis Center (SESYNC), Annapolis, Maryland, May 9-12, 2016

- Sixth Evolutionary Demography Society Annual Meeting, University of Miami, January 10-12, 2019.

- 2019 Society of Mathematical Biology Annual Meeting, Montreal, Quebec, Canada, July 22-26, 2019

- 2019 Guangzhou International Conference on Mathematical Biology, Guangzhou University, December 12-15, 2019

- Workshop on Advances in Mathematical Ecology (Facilitating the Exchange of Novel Ideas in Mathematical Ecology & Celebrating the 60th Birthday of Professor Mark Lewis), December 6-7, 2022, Fields Institute for Research in the Mathematical Sciences, Toronto, Ontario

Other Professional Meetings Attended:

-1988 Triennial Convention of the Phi Beta Kappa Society; San Antonio, Texas, October 27-30, 1988.

-1989 Combined SAPLA-SWAPLA Conference of Pre-Law Advisors, New Orleans, Louisiana, October 12-14, 1989.

- Quantitative Biology: Curriculum and Instruction at the Math/Biology Interface, Howard Hughes Medical Institution, Chevy Chase, Maryland, July 21-24, 2008.

- Mathematical Biosciences Institute Institutional Partners Meeting 2012, Mathematical Biosciences Institute, Ohio State University, February 12, 2012.

- Mathematical Biosciences Institute Institutional Partners Meeting 2013, Mathematical Biosciences Institute, Ohio State University, February 10, 2013.

- Mathematical Biosciences Institute Summer Undergraduate Research Program Capstone Conference, Mathematical Biosciences Institute, Ohio State University, August 14, 2013.

- Inaugural Meeting of the TPSE Mathematics Advisory Group (MAG), Washington DC, March 25-26, 2016.

- Transforming Post-Secondary Education in Mathematics (TPSE Math) Chairs + 1 Conference, College Park Maryland, March 10-11, 2017

-Transforming Post-Secondary Education in Mathematics (TPSE Math), New England Regional Meeting on Upper Division Pathways, Worcester Polytechnic Institute, Worcester, MA, June 11-12, 2018

- Transforming Post-Secondary Education in Mathematics (TPSE Math) Partners Meeting, University of Miami April 1, 2019

- Transforming Post-Secondary Education in Mathematics (TPSE Math) Southeast Regional Meeting on Upper-Division Pathways, Morehouse College, June 11-12, 2019

- Transforming Post-Secondary Education in Mathematics (TPSE Math) Western Regional Meeting on Graduate Education, USC, September 14-15, 2019

-International Center for Mathematical Sciences and IMSA Partnership Development, June 28-July 2, 2021

Extended Visits:

-Memorial University, July 14- August 10, 2013

-Mathematical Biosciences Institute, Ohio State University, September 10- October 11, 2013. (Sabbatical leave)

- Renmin University of China, May 22 – June 21, 2014

- Renmin University of China, July 8- August 11, 2015

- Renmin University of China, May 15- June 27, 2016

- Renmin University of China, June 18- July 28, 2017

- Shanghai Tech University, May 12-26, 2019

TEACHING

27. **Teaching Awards Received:**

28. **Teaching Specialization :** Differential Equations, Nonlinear Analysis, Mathematical Biology.

(Courses taught)
Mathematics 230
Mathematics 359
Mathematics 513-514
Mathematics 515
Mathematics 533
Mathematics 534
Mathematics 630
Mathematics 631
Mathematics 680 (Functional Analysis)
Mathematics 681 (Functional Analysis)
Mathematics 686 (Distribution Theory)
Mathematics 687 (Distribution Theory)
Mathematics 681 (Nonlinear Analysis)

Mathematics 681 (Mathematical Modeling in Ecology)
Mathematics 512
Mathematics 733-734

(Course developed)
Mathematics 359

29.   **Thesis and Dissertation Advising/Post-doctoral student supervision (chairman or committee member; topic; student name; date):**

Committee member, M.A., Linda McIntyre, April 1983.
Committee member, M.A., Raimondo Del Castillo, December 1983.
Committee member, Ph.D., Carlos Alvarez, September 1985.
Committee member, Ph.D., Waqar Ali, June 1986.
Committee member, M.A., Antonio Ansoleaga, December 1986.
Committee member, M.A., Suriani Abdulhamid, December 1987.
Committee member, Ph.D., Fethi Belgacem, 1995.
Committee member, Ph.D., Chen Chang, 1995.
Chairman, Ph.D., Eric Avila, 1995.
         (Ph.D. awarded July 1995; thesis topic: "Permanence in
          seasonal ecological models with spatial heterogeneity"
Committee Member, Ph.D., Felix Garcia, 1996.
Committee Member, Ph.D., Brian Coburn, 2009
Committee Member, Ph.D., Patricia Katri, 2010
Postdoctoral Supervisor, Juan Gutierrez, 2009-2010
Chairman, Ph.D., Daniel Ryan, July 2011; thesis topic: "Fitness dependent
         dispersal in intra-guild predation communities"
Committee Member, Ph.D. Douglas Scheib, 2012
Committee Member, Ph.D., Daozhou Gao, 2012
Committee Member, Ph.D., Lei Wang, 2012
Postdoctoral Supervisor, Yanyu Xiao, 2013-2014
Committee Member, Ph.D., Jing Chen, 2015
Committee Member, Ph.D., Fan Zhang, 2015
Committee Member, Ph.D. (Biology), Kelly Erickson, 2017
Committee Member, Ph.D. (Biology), Shana Busch Bernstein, 2017
Committee Member, Ph.D. (Biology), Lu Zhai, 2017
Committee Member, Ph.D. (RSMAS), Molly Stevens
Postdoctoral Co-Supervisor, Xiao Yu, 2016-2018
Committee Member, Ph.D., Carlos Bajo, 2018
Committee Member, Ph.D., Qiuyi Su, 2018
Postdoctoral Co-Supervisor, Hongjun Guo, 2018-2019

SERVICE

30. **University Committee and Administrative Responsibilities:**

       Colloquium Committee, 1982-1983 (Departmental)
       New Program Committee, 1983-1984 (Departmental)
       Graduate Committee, 1985-1986 (Departmental)
       Graduate Council Subcommittee on Graduate Faculty, 1984-1986, Chairman, 1985-1986.
       Faculty Advisor, Pi Mu Epsilon Mathematics Honorary Society, 1984-1994.
       Faculty Fellow, Eaton Residential College, 1986-1991.
       Faculty Fellow, Pearson Residential College, 1987-1991.
       Secretary, Phi Beta Kappa, 1987-1989.
       Vice President, Phi Beta Kappa, 1989-1990.
       President, Phi Beta Kappa, 1990-1991.
       Colloquium Committee, 1987-1988 (Departmental).
       Departmental Chair Search Committee, 1989-1990.
       College of Arts and Sciences Academic Review Committee, 1988-1994.
       Colloquium Committee, Chairperson, 1988-1994 (Departmental)
       Personnel Committee, 1988-1989.
     University Review Committee for Rhodes, Fulbright, and Truman Scholarships, 1988- 1990
      Interim Coordinator of Pre-Law Advising, 1989-1990
      Faculty Senate Committee on Academic Standards, 1991-1997.
      Faculty Senate AdHoc Committee to Establish Excellence in Teaching Award, 1991
      Departmental Undergraduate Curriculum Committee, 1991-1994.
      Faculty Senate AdHoc Committee on Undergraduate Admissions, 1992-1993.
      Faculty Senate Committee on Academic Standards, Co-Chair, 1992-1993.
      Faculty Senate Committee on Academic Standards, Vice Chair, 1993-1994
      Faculty Senate Committee on Academic Standards, Subcommittee on Retention, 1994-1995.
      Faculty Senate Committee on Academic Standards, Chair, 1995-1997.
      College of Arts and Sciences College Council, 1996-1999.
      College of Arts and Sciences Consultative Committee for Selection of Dean, 1996-1997.
      Departmental Ad Hoc Committee for Developing a Hiring Plan in Mathematics, 1998
      Faculty Senate Budget and Compensation Committee, 1999 - 2003.
      College of Arts Sciences Budget and Compensation Committee, 2000 - 2003.
      Faculty Senate Budget and Compensation Committee, Chair, 2001 – 2003.
      Faculty Senate Academic Standards Committee, 2003 – 2006.
      Faculty Senate Tenure Review Board, 2003-2009.
      Faculty Senate Academic Standards Committee, Chair, 2004-2006.
      Faculty Senate, 2004-present
      College of Arts and Sciences Promotion and Tenure Advisory Committee, 2005 - 2008.
      Faculty Senate Budget and Compensation Committee, Chair, 2006- 2008

Faculty Senate Budget and Compensation Committee, 2008- 2012
College of Arts and Sciences Committee on Educational and Informational Technology, 2005-
University GER Review Committee, 2007-2008.
Director, University of Miami Institute of Theoretical and Mathematical Ecology, 2007-
Faculty Senate Tenure Review Board, Chair, 2008- 2009
Departmental Hiring Committee, 2008-2010.
Departmental Ad Hoc Committee on Teaching Loads, 2008-2009
Special Liaison to the Dean of the College of Arts and Sciences for Promotion and Tenure
          in the Life and Physical Sciences 2009-2010.
Faculty Senate Budget and Compensation Committee, Chair, 2010-2012.
Departmental Planning Committee, 2010-
Departmental Mathematical Biology Search Committee, 2010-2011.
College of Arts and Sciences Strategic Planning Committee for Faculty Development and
          Governance, 2011-2012.
Faculty Senate General Welfare Committee, 2011-2012.
College of Arts and Sciences Promotion and Tenure Advisory Committee, 2012-2014.
Faculty Senate First Vice-Chair, 2012-2013.
Faculty Senate Ad Hoc Committee on Medical Affairs, 2012-
Departmental Analysis and Geometry Search Committee, Chair, 2013-2014.
Faculty Senate Budget and Compensation Committee, Chair, 2014-2015.
Faculty Senate Budget and Compensation Committee, 2014-2019
Faculty Senate Budget and Compensation Committee, Chair, 2016- 2019
College of Arts and Sciences Ad Hoc Committee on Revision of By Laws 2014
Departmental Internal Hiring Plan Search Committee, 2014-2015
Departmental Mathematical Finance Position Search Committee, 2014-2015
Internal Review Committee, Graduate Programs School of Education 2015
Internal Review Committee, Graduate Program in Mechanical Engineering 2017
Provost Search Committee 2017
SACS Quality Enhancement Project Committee, 2017-present
Ad Hoc Provost's Planning Committee 2020-2021
Faculty Senate Budget and Compensation Committee, Interim Chair, Fall 2022

31. **Community Activities:**

Dade County Public Schools Community Laboratory Research Program for Gifted High
School Students, 1991-1992.
Dade County Public Schools Science Fair Judge 1993.
Dade County Public Schools Science Fair Judge, 1996.
Vestry Member, Chapel of the Venerable Bede, 1997-1999, Senior Warden, 1999.
Board Member, UM/Canterbury Day Care Center, 1997 – 2003, Treasurer, 1999- 2002.
Vestry Member, Chapel of the Venerable Bede, 2006-2008, Senior Warden, 2008.
Vestry Member, Chapel of the Venerable Bede, 2011-2013, Senior Warden, 2012-2013
Vestry Member, Chapel of the Venerable Bede, 2016-2018, Senior Warden, 2017-2018.
Lecture to Mathematics Club at Palmetto High School, January 25, 2018

Vestry Member, Chapel of the Venerable Bede, 2023-2025