

Xiang-Sheng Wang

CONTACT INFORMATION

ADDRESS: Department of Mathematics, University of Louisiana at Lafayette, Lafayette, LA 70503, USA
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EDUCATION

2009 Ph.D. in Mathematics
City University of Hong Kong (jointly awarded by University of Science and Technology of China)
2004 B.Sc. in Mathematics
University of Science and Technology of China

WORK EXPERIENCE

2022-PRESENT Associate Professor, Department of Mathematics
University of Louisiana at Lafayette, Lafayette, LA 70503, USA
2016-2022 Assistant Professor, Department of Mathematics
University of Louisiana at Lafayette, Lafayette, LA 70503, USA
2013-2016 Assistant Professor, Department of Mathematics
Southeast Missouri State University, Cape Girardeau, MO 63701, USA
2012-2013 Teaching Postdoctoral Fellow, Department of Mathematics and Statistics
Memorial University of Newfoundland, St. John's, NL A1C 5S7, Canada
2010-2012 Postdoctoral Fellow, Department of Mathematics and Statistics
York University, Toronto, ON M3J 1P3, Canada
2009-2010 Research Fellow, Liu Bie Ju Centre for Mathematical Sciences
City University of Hong Kong, Kowloon, Hong Kong, China

RESEARCH INTERESTS

Asymptotic Analysis • Computational Mathematics • Differential Equations • Dynamical Systems • Mathematical Biology • Mathematical Statistics • Orthogonal Polynomials • Special Functions

PUBLICATIONS

1. J. Deng, H. Shu, L. Wang, and X.-S. Wang, Viral dynamics with immune responses: Effects of distributed delays and Filippov antiretroviral therapy, **Journal of Mathematical Biology** 86 (2023), 37.
2. Y. He, J. Liu, and X.-S. Wang, Optimized sparse approximate inverse smoothers for solving Laplacian linear systems, **Linear Algebra and its Applications** 656 (2023), 304-323.
3. Y. Jiang, J. Liu, and X.-S. Wang, A direct parallel-in-time quasi-boundary value method for inverse space-dependent source problems, **Journal of Computational and Applied Mathematics** 423 (2023), 114958.
4. J. Liu and X.-S. Wang, Dynamic optimal allocation of medical resources: a case study of face masks during the first COVID-19 epidemic wave in the United States, **Mathematical Biosciences and Engineering** 20 (2023), 12472-12485.

5. H. Shu, X. Pan, X.-S. Wang, and B. Wade, Traveling waves of nonlocal delayed disease models: Critical wave speed and propagation speed, **Applicable Analysis** 102 (2023), 385-405.
6. W. Xu, H. Shu, L. Wang, X.-S. Wang, and J. Watmough, The importance of quarantine: modelling the COVID-19 testing process, **Journal of Mathematical Biology** 86 (2023), 81.
7. L. Cao, S. Ghimire, and X.-S. Wang, Bivariate Lagrange interpolation at the checkerboard nodes, **Proceedings of the American Mathematical Society** 150 (2022), 2153-2163.
8. J. Liu, X.-S. Wang, S.-L. Wu, and T. Zhou, A well-conditioned direct PinT algorithm for first- and second-order evolutionary equations, **Advances in Computational Mathematics** 48 (2022), 16.
9. W. Shi, G. Nemes, X.-S. Wang, and R. Wong, Error bounds for the asymptotic expansions of the Hermite polynomials, **Proceedings of the Royal Society of Edinburgh Section A: Mathematics** (2022), online.
10. X. Shi, X.-S. Wang, and N. Reid, A new class of weighted CUSUM statistics, **Entropy** 24 (2022), 1652.
11. X. Shi, X.-S. Wang, and A. Wong, Explicit Gaussian variational approximation for the Poisson lognormal mixed model, **Mathematics** 10 (2022), 4542.
12. H. Shu, W. Xu, X.-S. Wang, and J. Wu, Spatiotemporal patterns of a structured spruce budworm diffusive model, **Journal of Differential Equations** 336 (2022), 427-455.
13. C. Wang, X.-S. Wang, Y. Xu, B. Zhang, M. Jiang, S. Xiong, Q. Zhang, W. Li, and Q. Li, A new likelihood function for consistent phase series estimation in distributed scatterer interferometry, **IEEE Transactions on Geoscience and Remote Sensing** 60 (2022), 5227314.
14. X. Zhang, F. Scarabel, X.-S. Wang, and J. Wu, Global continuation of periodic oscillations to a diapause rhythm, **Journal of Dynamics and Differential Equations** 34 (2022), 2819-2839.
15. S. Ghimire and X.-S. Wang, Competition and cooperation on predation: Bifurcation theory of mutualism, **Journal of Biological Systems** 29 (2021), 49-73.
16. S. Ghimire and X.-S. Wang, Traveling waves in cooperative predation: Relaxation of sublinearity, **Mathematics in Applied Sciences and Engineering** 2 (2021), 22-31.
17. H. Shu, Z. Ma, and X.-S. Wang, Threshold dynamics of a nonlocal and delayed cholera model in a spatially heterogeneous environment, **Journal of Mathematical Biology**, 83 (2021), 41.
18. C. J. Browne, X. Pan, H. Shu, and X.-S. Wang, Resonance of periodic combination antiviral therapy and intracellular delays in virus model, **Bulletin of Mathematical Biology** 82 (2020), 29.
19. D. Dai, M. E. H. Ismail, and X.-S. Wang, On a Ramanujan type entire function and its zeros, **Journal of Mathematical Analysis and Applications** 485 (2020), 123856.
20. Y.-T. Li, X.-S. Wang, and R. Wong, Asymptotics of the Wilson polynomials, **Analysis and Applications** 18 (2020), 237-270.
21. W. Long, D. Dai, Y.-T. Li, and X.-S. Wang, Asymptotics of orthogonal polynomials with asymptotic Freud-like weights, **Studies in Applied Mathematics** 144 (2020), 133-163.
22. H. Shu, Z. Ma, X.-S. Wang, and L. Wang, Viral diffusion and cell-to-cell transmission: Mathematical analysis and simulation study, **Journal de Mathématiques Pures et Appliquées** 137 (2020), 290-313.
23. H. Shu, W. Xu, X.-S. Wang, and J. Wu, Complex dynamics in a delay differential equation with two delays in tick growth with diapause, **Journal of Differential Equations** 269 (2020), 10937-10963.

24. D. Dai, M. E. H. Ismail, and X.-S. Wang, Doubly infinite Jacobi matrices revisited: Resolvent and spectral measure, **Advances in Mathematics** 343 (2019), 157-192.
25. D. Dai, M. E. H. Ismail, and X.-S. Wang, Asymptotics of partition functions in a fermionic matrix model and of related q-polynomials, **Studies in Applied Mathematics** 142 (2019), 91-105.
26. W. W. Hager, H. Hou, S. Mohapatra, A. V. Rao, and X.-S. Wang, Convergence rate for a Radau hp collocation method applied to constrained optimal control, **Computational Optimization and Applications** 74 (2019), 275-314.
27. X.-M. Huang, L. Cao, and X.-S. Wang, Asymptotic expansion of orthogonal polynomials via difference equations, **Journal of Approximation Theory** 239 (2019), 29-50.
28. X.-M. Huang and X.-S. Wang, Traveling waves of diffusive disease models with time delay and degeneracy, **Mathematical Biosciences and Engineering** 16 (2019), 2391-2410.
29. M. E. H. Ismail and X.-S. Wang, On quasi-orthogonal polynomials: Their differential equations, discriminants and electrostatics, **Journal of Mathematical Analysis and Applications** 474 (2019), 1178-1197.
30. J. Liu and X.-S. Wang, Numerical optimal control of a size-structured PDE model for metastatic cancer treatment, **Mathematical Biosciences** 314 (2019), 28-42.
31. X. Pan, H. Shu, L. Wang, and X.-S. Wang, Dirichlet problem for a delayed diffusive hematopoiesis model, **Nonlinear Analysis: Real World Applications** 48 (2019), 493-516.
32. H. Shu, X. Pan, X.-S. Wang, and J. Wu, Traveling waves in epidemic models: non-monotone diffusive systems with nonmonotone incidence rates, **Journal of Dynamics and Differential Equations** 31 (2019), 883-901.
33. S. Venkatesh, T. Li, X.-S. Wang, C.-C. Yeung, K. Pei, Q.-J. Sun, W. Wu, R. K. Y. Li, M. H. W. Lam, P. K. L. Chan, J. J. Wylie, and V. A. L. Roy, Dual-gated transistor platform for on-site detection of lead ions at trace levels, **Analytical Chemistry** 90 (2018), 7399-7405.
34. W. W. Hager, J. Liu, S. Mohapatra, A. V. Rao, and X.-S. Wang, Convergence rate for a Gauss collocation method applied to constrained optimal control, **SIAM Journal on Control and Optimization** 56 (2018), 1386-1411.
35. X.-S. Wang and R. Wong, Asymptotics of Racah polynomials with fixed parameters, **Proceedings of the American Mathematical Society** 146 (2018), 1083-1096.
36. H. Shu and X.-S. Wang, Global dynamics of a coupled epidemic model, **Discrete and Continuous Dynamical Systems - Series B** 22 (2017) 1575-1585.
37. X. Shi, X.-S. Wang, D. Wei, and Y. Wu, A sequential multiple change-point detection procedure via VIF regression, **Computational Statistics** 31 (2016), 671-691.
38. H. Wang and X.-S. Wang, Traveling wave phenomena in a Kermack-McKendrick SIR model, **Journal of Dynamics and Differential Equations** 28 (2016), 143-166.
39. X.-S. Wang, Asymptotic analysis of difference equations with quadratic coefficients, **Methods and Applications of Analysis** 23 (2016), 155-172.
40. X.-S. Wang and R. Wong, Asymptotics of Racah polynomials with varying parameters, **Journal of Mathematical Analysis and Applications** 436 (2016), 1149-1164.
41. D. Dai, W. Hu, and X.-S. Wang, Uniform asymptotics of orthogonal polynomials arising from coherent states, **Symmetry, Integrability and Geometry: Methods and Applications** 11 (2015), 070, 17 pages.

42. C. Paulhus and X.-S. Wang, Global stability analysis of a delayed SIS epidemic model, **Journal of Biological Dynamics** 9 (2015) suppl. 1, 45-50.
43. X.-S. Wang and X.-Q. Zhao, Pulsating waves of a partially degenerate reaction-diffusion system in a periodic habitat, **Journal of Differential Equations** 259 (2015), 7238-7259.
44. X.-S. Wang and L. Zhong, Ebola outbreak in West Africa: Real-time estimation and multiple-wave prediction, **Mathematical Biosciences and Engineering** 12 (2015), 1055-1063.
45. B. Costa Lima, M. R. Grasselli, X.-S. Wang, and J. Wu, Destabilizing a stable crisis: Employment persistence and government intervention in macroeconomics, **Structural Change and Economic Dynamics** 30 (2014), 30-51.
46. D. Dai, M. E. H. Ismail, and X.-S. Wang, Plancherel-Rotach asymptotic expansion for some polynomials from indeterminate moment problems, **Constructive Approximation** 40 (2014), 61-104.
47. X. Shi, X.-S. Wang, and N. Reid, Saddlepoint approximation of nonlinear moments, **Statistica Sinica** 24 (2014), 1597-1611.
48. X.-S. Wang, Plancherel-Rotach asymptotics of second-order difference equations with linear coefficients, **Journal of Approximation Theory** 188 (2014), 1-18.
49. X.-S. Wang, Asymptotics of delay differential equations via polynomials, **Asymptotic Analysis** 90 (2014), 83-103.
50. X.-S. Wang, D. He, J. J. Wylie, and H. Huang, Singular perturbation solutions of steady-state Poisson-Nernst-Planck systems, **Physical Review E** 89 (2014), 022722.
51. X.-S. Wang, H. Wang, and J. Wu, Traveling waves of diffusive predator-prey systems: Disease outbreak propagation, **Discrete and Continuous Dynamical Systems - Series A** 32 (2012), 3303-3324.
52. X.-S. Wang and R. Wong, Asymptotics of orthogonal polynomials via recurrence relations, **Analysis and Applications** 10 (2012), 215-235.
53. X.-S. Wang and J. Wu, Periodic systems of delay differential equations and the dynamics of avian influenza, (**Russian**) **Sovremennaya Matematika. Fundamental'nye Napravleniya** 45 (2012), 32-42; translation in **Journal of Mathematical Sciences** 201 (2014), 693-704.
54. X.-S. Wang and J. Wu, Seasonal migration dynamics: Periodicity, transition delay and finite-dimensional reduction, **Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences** 468 (2012), 634-650.
55. X.-S. Wang, J. Wu, and Y. Yang, Richards model revisited: Validation by and application to infection dynamics, **Journal of Theoretical Biology** 313 (2012), 12-19.
56. X.-S. Wang and R. Wong, Global asymptotics of the Meixner polynomials, **Asymptotic Analysis** 75 (2011), 211-231.
57. X.-S. Wang and J. Wu, Approximating periodic patterns and dynamic threshold for patchy model of migratory birds with delay, **Canadian Applied Mathematics Quarterly** 19 (2011), 275-292.
58. X.-S. Wang and R. Wong, Uniform asymptotics of some q-orthogonal polynomials, **Journal of Mathematical Analysis and Applications** 364 (2010), 79-87.
59. X.-S. Wang, Asymptotics of the q-theta function. **Communications in Mathematical Analysis** 7 (2009), 50-54.
60. X.-S. Wang and R. Wong, Discrete analogues of Laplace's approximation, **Asymptotic Analysis** 54 (2007), 165-180.

PRESENTATIONS

- APRIL 1-2, 2023 AMS Spring Eastern Virtual Sectional Meeting, Online
Title: Global analysis of a delayed cholera model with nonlocal spatial heterogeneity
- MAR 18-19, 2023 AMS Spring Southeastern Sectional Meeting, Georgia Institute of Technology
Title: Global dynamics of a delayed viral infection model with immune responses and two infection modes
- JAN 4-7, 2023 Joint Mathematics Meetings, Boston, Massachusetts
Title: Spatiotemporal patterns of a structured spruce budworm diffusive model
- NOV 4-6, 2022 The 5th Annual Meeting of the SIAM Texas-Louisiana Section, University of Houston
Title: Global dynamics of a cholera model with two nonlocal and delayed transmission mechanisms
- OCT 1-2, 2022 The 7th Annual Meeting of SIAM Central States Section, Oklahoma State University
Title: The condition number of a Vandemonde-like matrix arising from a direct parallel-in-time algorithm
- JUN 13-17, 2022 The 16th International Symposium on Orthogonal Polynomials, Special Functions and Applications, Online
Title: Applications of orthogonal polynomials in parallel computation and numerical integration
- APR 6-9, 2022 Joint Mathematics Meetings, Online
Title: Threshold dynamics of a nonlocal and delayed cholera model in a spatially heterogeneous environment
- JAN 10-14, 2022 The 9th International Conference on Computational Methods and Function Theory, Online
Title: Applications of orthogonal polynomials in numerical analysis
- DEC 2-7, 2021 Canadian Mathematical Society Winter Meeting, Online
Title (1st talk): Global analysis of a viral infection model with cell-to-cell transmission and immune chemokines
Title (2nd talk): Error bounds for the asymptotic expansions of the Hermite polynomials
- JAN 6-9, 2021 Joint Mathematics Meetings, Online
Title: Complex dynamics in a delay differential equation with two delays in tick growth with diapause
- OCT 16-18, 2020 SIAM Texas-Louisiana Sectional Meeting, Online
Title: Resonance of periodic combination antiviral therapy and intracellular delays in virus model
- JAN 15-18, 2020 Joint Mathematics Meetings, Denver, Colorado
Title: Optimal control of a size-structured model for metastatic cancer treatment
- JUL 1-5, 2019 Workshop on Mathematical Modeling and Analysis of Population Dynamics, Guangzhou University
Title: Dirichlet problem for a delayed diffusive hematopoiesis model
- JUN 8-10, 2019 The Thirteenth International Conference on Recent Advances in Applied Dynamical Systems, Hangzhou Normal University
Title: Optimal control of a PDE tumor model
- MAY 24-26, 2019 Workshop on Differential Equations with Applications, Chang'an University
Title: Multiple-scale analysis in an ion channel model
- FEB 15-16, 2019 Scientific Computation Around Louisiana, Tulane University

- Title: Numerical optimal control of a size-structured PDE model for metastatic cancer treatment
- DEC 7-10, 2018 Canadian Mathematical Society Winter Meeting, Vancouver, Canada
Title: Asymptotic analysis of difference equations
- OCT 5-7, 2018 SIAM Texas-Louisiana Sectional Meeting, Louisiana State University
Title: Viral dynamics revisited: partial degeneracy and spatial heterogeneity
- JUL 25-AUG 15, 2018 Summer Research Institute on q-Series, Nankai University
Title: On quasi-orthogonal polynomials
- JUL 10-11, 2018 PDEs from Biology, Ecology and Life Sciences: Models and Analysis, Hong Kong Polytechnic University
Title: Steady-state and dynamical solutions of Poisson-Nernst-Planck systems
- JUL 5-9, 2018 The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan
Title: Joint impact of cell-free and cell-to-cell transmissions in viral dynamics
- JUN 8-10, 2018 The Twelfth International Conference on Recent Advances in Applied Dynamical Systems, Chongqing Normal University
Title: Dynamics of an ion channel model
- JUN 4-8, 2018 International Conference on Applied Mathematics, City University of Hong Kong
Title: Asymptotic analysis of time-dependent Poisson-Nernst-Planck systems
- JAN 10-13, 2018 Joint Mathematics Meetings, San Diego, California
Title: Traveling waves in epidemic models: non-monotone diffusive systems with non-monotone incidence rates
- AUG 28-SEP 1, 2017 Workshop on Wave Transport of Ionic Species, Fields Institute
Title: The dynamics of Poisson-Nernst-Planck systems
- JUN 5-9, 2017 International Conference on Special Functions: Theory, Computation, and Applications, City University of Hong Kong
Title: Asymptotic expansion of orthogonal polynomials via difference equations
- JUN 2-5, 2017 China-Canada International Conference on Disease Modelling, Shanghai University
Title: Global dynamics a coupled epidemic model
- JAN 4-7, 2017 Joint Mathematics Meetings, Atlanta, Georgia
Title: Age-structure model with periodic mature probability
- DEC 12-16, 2016 Mathematical Modelling and Computation in Medicine/Biology, Yau Mathematical Sciences Center
Title: Computation of dynamic thresholds for bird migration models
- MAY 30-JUN 2, 2016 International Conference on Applied Mathematics, City University of Hong Kong
Title: Asymptotic solutions of linear difference equations
- JAN 6-9, 2016 Joint Mathematics Meetings, Seattle, Washington
Title: Asymptotic analysis of difference equations
- OCT 2-4, 2015 The 5th International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, Western University
Title: Transmission dynamics of avian influenza
- AUG 10-14, 2015 The 8th International Congress on Industrial and Applied Mathematics, Beijing, China
Title: Asymptotic analysis of associated orthogonal polynomials via three-term recurrence relations
- AUG 4-7, 2015 International Symposium on Application of Nonlinear Partial Differential Equations in Life Science, Nankai University

- JUN 1-4, 2015 Title: Traveling waves of a diffusive Kermack-McKendrick SIR model
The Ninth International Conference on Recent Advances in Applied Dynamical Systems, Guangzhou University
- APR 11-12, 2015 Title: Global stability analysis of a delayed SIS epidemic model
The 1st Annual Meeting of SIAM Central States Section, Missouri University of Science and Technology
- JAN 10-13, 2015 Title: A population model with age structure and periodically distributed time delay
Joint Mathematics Meetings, San Antonio, Texas
- DEC 1-5, 2014 Title: Periodic systems of delay differential equations and the dynamics of avian influenza
International Conference on Applied Mathematics in honor of Professor Roderick S. C. Wong's 70th birthday, City University of Hong Kong, Hong Kong
- AUG 4-7, 2014 Title: Plancherel-Rotach asymptotics of second-order difference equations with linear coefficients
SIAM Conference on the Life Sciences, Charlotte, North Carolina
- MAY 26-30, 2014 Title: Basic reproductive ratios in ecosystems and disease models
Constructive Functions 2014 in honor of Ed Saff's 70th birthday, Vanderbilt University
- OCT 4-6, 2013 Title: Asymptotics of hypergeometric orthogonal polynomials via difference equations
The 4th International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, Texas Tech University
- JULY 27-29, 2013 Title: Age-structure model with periodically distributed delay
The 5th Atlantic Association for Research in Mathematical Sciences (AARMS) Annual Workshop on Mathematical Biology, Memorial University of Newfoundland
- MAY 20-24, 2013 Title: Pulsating waves of a partially degenerate reaction-diffusion system in a periodic habitat
International Conference on Approximation Theory and Applications, City University of Hong Kong
- JAN 9-12, 2013 Title: Singular perturbation solutions of steady-state Poisson-Nernst-Planck systems
Joint Mathematics Meetings, San Diego, California
- AUG 18-19, 2012 Title (1st talk): Traveling waves of diffusive predator-prey systems: disease outbreak propagation
Title (2nd talk): Uniform asymptotics of some q -orthogonal polynomials
The 4th Atlantic Association for Research in Mathematical Sciences (AARMS) Annual Workshop on Mathematical Biology, Dalhousie University
- JUN 5-JUL 3, 2012 Title: Avian influenza, migratory birds and dynamical threshold
Sojourns in Nonlinear Economics, Fields Institute
- JUN 24-28, 2012 Title: Persistence theory applied to Keen's model - a link between mathematical biology and mathematical economics
Canadian Applied and Industrial Mathematics Annual Meeting, Fields Institute
- DEC 10-11, 2011 Title: Threshold dynamics of avian influenza spread
International Workshop on Asymptotic Analysis, City University of Hong Kong
- AUG 13-14, 2011 Title: Asymptotic analysis in biological mathematics
The 3rd Atlantic Association for Research in Mathematical Sciences (AARMS) Annual Workshop on Mathematical Biology, Memorial University of Newfoundland
- JUL 25-30, 2011 Title: Asymptotic analysis in migration ecology and simple SIR epidemiology
The 5th Geoffrey J. Butler Memorial Conference on Differential Equations and Population Biology, University of Alberta

- JUL 18-22, 2011 Title: Approximating the extinction threshold of spatial dynamics of migratory birds
The 7th International Congress on Industrial and Applied Mathematics, Vancouver, Canada
- APR 6-8, 2011 Title: Asymptotic analysis in migration ecology and simple SIR epidemiology
International Conference on Special Functions in the 21st Century: Theory and Applications, National Institute of Standards and Technology
- MAR 7-10, 2010 Title: Global asymptotics of the Meixner polynomials
The 13th International Conference on Approximation Theory, San Antonio, Texas
- JUN 19-22, 2009 Title: Asymptotics of orthogonal polynomials and order reduction method for difference equations
International Conference on Asymptotic Analysis and Infinite-dimensional Dynamical Systems, City University of Hong Kong
- Title: Uniform asymptotics of the Meixner polynomials

ORGANIZING ACTIVITIES

- NOV 3-5, 2023 Organizing Committee Member
SIAM Texas-Louisiana Sectional Meeting, University of Louisiana at Lafayette
- APR 1-2, 2023 Co-Organizer (with Zilong Song), Special Session on Recent advances in ion channel models and Poisson-Nernst-Planck systems
AMS Spring Eastern Virtual Sectional Meeting, Online
- MAR 18-19, 2023 Co-Organizer (with Jia Li and Yang Li), Special Session on Mathematical Modeling of Populations and Diseases Transmissions
AMS Spring Southeastern Sectional Meeting, Georgia Institute of Technology
- JAN 15-18, 2023 Co-Organizer (with Zhisheng Shuai and Gail S Wolkowicz), Special Session on Complex Systems in the Life Sciences
Joint Mathematics Meetings, Boston, Massachusetts
- NOV 4-6, 2022 Co-Organizer (with Zhuolin Qu and Lale Asik), Mini-Symposium on Mathematical Modeling for Biological Dynamics
SIAM Texas-Louisiana Sectional Meeting, University of Houston
- OCT 28-30, 2022 Organizing Committee Member
The Eighth International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, University of Louisiana at Lafayette
- OCT 1-2, 2022 Co-Organizer (with Qin Sheng and Bruce Wade), Mini-symposium on Recent Advances in Application-oriented Numerical Computation and Optimization
The 7th Annual Meeting of SIAM Central States Section, Oklahoma State University
- APR 6-9, 2022 Co-Organizer (with Yang Li and Hongying Shu), Special Session on Applications of Mathematical Models and Dynamical Systems in Biology
Joint Mathematics Meetings, Online
- DEC 2-7, 2021 Co-Organizer (with Yu-Tian Li and Zilong Song), Special Session on Asymptotic Analysis, Orthogonal Polynomials, and Special Functions
Canadian Mathematical Society Winter Meeting, Online
- OCT 16-18, 2020 Organizer, Mini-Symposium on Dynamical Systems and Mathematical Biology
SIAM Texas-Louisiana Sectional Meeting, Online
- JAN 15-18, 2020 Co-Organizer (with Aijun Zhang), Special Session on Differential and Difference Equations in Biological Dynamics
Joint Mathematics Meetings, Denver, Colorado

- DEC 7-10, 2018 Co-Organizer (with Chunhua Ou), Special Session on Asymptotic Analysis and Applications
Canadian Mathematical Society Winter Meeting, Vancouver, Canada
- OCT 5-7, 2018 Organizer, Mini-Symposium on Modeling, Analysis, and Computation in Mathematical Biology
SIAM Texas-Louisiana Sectional Meeting, Louisiana State University
- JUL 5-8, 2018 Co-Organizer (with Yijun Lou, Hongying Shu and Xiaotian Wu), Special Session on Dynamical Systems with Applications to Population Biology
The 12th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Taipei, Taiwan
- JAN 10-13, 2018 Co-Organizer (with Abey Lopez-Garcia), Special Session on Orthogonal Polynomials and Applications
Joint Mathematics Meetings, San Diego, California
- JAN 4-7, 2017 Co-Organizer (with Yanyu Xiao), Special Session on Analytical and Computational Studies in Mathematical Biology
Joint Mathematics Meetings, Atlanta, Georgia
- NOV 11-13, 2016 Organizing Committee Member,
Lloyd Roeling Mathematics Conference, University of Louisiana at Lafayette
- JUL 1-5, 2016 Co-Organizer (with Nemanja Kosovalic), Special Session on Differential Equations and Applications to Biological Models
The 11th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida
- JAN 6-9, 2016 Organizer, Special Session on Recent Advances in Orthogonal Polynomials and Special Functions
Joint Mathematics Meetings, Seattle, Washington
- OCT 2-4, 2015 Organizer, Mini-Symposium on Modelling Transmission Dynamics of Infectious Diseases
The 5th International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems, University of Western Ontario
- JAN 10-13, 2015 Co-Organizer (with Yu Jin), Special Session on Applications of Dynamical Systems to Biological Models
Joint Mathematics Meetings, San Antonio, Texas
- AUG 4-7, 2014 Co-Organizer (with Guihong Fan), Mini-Symposium on Recent Advances in Ecosystems and Disease Models
SIAM Conference on the Life Sciences, Charlotte, North Carolina

JOURNALS REFEREED

Advanced Functional Materials • Advances in Difference Equations • Advances in Mathematics • American Journal of Epidemiology • Analysis and Applications • Annali di Matematica Pura ed Applicata • Applicable Analysis • Applied Mathematics Letters • Applied Mathematical Modelling • Asymptotic Analysis • Canadian Mathematical Bulletin • Communications in Nonlinear Science and Numerical Simulation • Communications on Pure and Applied Analysis • Computational Optimization and Applications • Constructive Approximation • Current Medicinal Chemistry • Discrete and Continuous Dynamic Systems - Series A • Discrete and Continuous Dynamic Systems - Series B • Functional Analysis and Its Applications • Indagationes Mathematicae • Infectious Disease Modelling • Journal of Applied Analysis and Computation • Journal of Approximation Theory • Journal of Biological Dynamics • Journal of Biological Systems • Journal of Business Research • Journal of Computational and Applied Mathematics • Journal of Difference Equations and Applications • Journal of Differential Equations • Journal of Dynamics and Differential Equations • Journal of Global Optimization • Journal of Information Science • Journal of Mathematical Analysis and Applications • Journal of Mathematical Biology • Journal of Mathematical Physics • Journal of Nonlinear and Convex Analysis • Journal of Statistical Planning and Inference • Journal of

the Electrochemical Society • Journal of the Franklin Institute • Journal of Theoretical Biology • Mathematical Biosciences and Engineering • Mathematical Medicine and Biology • Mathematics and Computers in Simulation • Mathematics in Applied Sciences and Engineering • Nonlinear Analysis: Real World Applications • Nonlinearity • Physica A: Statistical Mechanics and its Applications • Physica D: Nonlinear Phenomena • Physics Letters A • Proceedings of the American Mathematical Society • Random Matrices: Theory and Applications • Results in Mathematics • Revista de la Real Academia de Ciencias Exactas, Físicas y Naturales. Serie A. Matemáticas • Rocky Mountain Journal of Mathematics • SIAM Journal on Applied Mathematics • Soft Computing • Studies in Applied Mathematics • Theoretical Biology and Medical Modelling • Zeitschrift für angewandte Mathematik und Physik

COURSES TAUGHT

JAN-MAY 2023 University of Louisiana at Lafayette
MATH 556-001 (Numerical Analysis II, 3 credit hours)
MATH 656-001 (Advanced Topics in Numerical Analysis II, 3 credit hours)
MATH 699-019 (Dissertation, 6 credit hours)

AUG-DEC 2022 University of Louisiana at Lafayette
MATH 555-001 (Numerical Analysis I, 3 credit hours)
MATH 655-001 (Advanced Topics in Numerical Analysis I, 3 credit hours)
MATH 699-020 (Dissertation, 6 credit hours)

JUN-JUL 2022 University of Louisiana at Lafayette
MATH 699-020 (Dissertation, 6 credit hours)

JAN-MAY 2022 University of Louisiana at Lafayette
MATH 556-001 (Numerical Analysis II, 3 credit hours)
MATH 699-020 (Dissertation, 6 credit hours)

AUG-DEC 2021 University of Louisiana at Lafayette
MATH 350-001 (Differential Equations, 3 credit hours)
MATH 497-001 (Advanced Numerical Analysis I, 3 credit hours)
MATH 555-001 (Numerical Analysis I, 3 credit hours)
MATH 699-020 (Dissertation, 6 credit hours)

JAN-MAY 2021 University of Louisiana at Lafayette
MATH 656-001 (Advanced Topics in Numerical Analysis II, 3 credit hours)
MATH 699-016 (Dissertation, 6 credit hours)

AUG-DEC 2020 University of Louisiana at Lafayette
MATH 350-001 (Differential Equations, 3 credit hours)
MATH 655-001 (Advanced Topics in Numerical Analysis I, 3 credit hours)
MATH 699-010 (Dissertation, 6 credit hours)

JAN-MAY 2020 University of Louisiana at Lafayette
MATH 556-001 (Numerical Analysis II, 3 credit hours)
MATH 699-016 (Dissertation, 6 credit hours)

AUG-DEC 2019 University of Louisiana at Lafayette
MATH 301-007 (Calculus II, 4 credit hours)
MATH 309-001 (Honors Calculus II, 4 credit hours)
MATH 555-001 (Numerical Analysis I, 3 credit hours)
MATH 699-016 (Dissertation, 6 credit hours)

JAN-MAY 2019 University of Louisiana at Lafayette
MATH 455-001 (Numerical Methods, 3 credit hours)
MATH 699-016 (Dissertation, 6 credit hours)

AUG-DEC 2018 University of Louisiana at Lafayette

MATH 302-002 (Calculus III, 4 credit hours)
 MATH 495-001 (Advanced Mathematics for Engineers and Scientists, 3 credit hours)
 MATH 597-001 (Differential Equations and Dynamical Systems, 3 credit hours)

JAN-MAY 2018 University of Louisiana at Lafayette
 MATH 656-001 (Advanced Topics in Numerical Analysis II, 3 credit hours)

AUG-DEC 2017 University of Louisiana at Lafayette
 MATH 350-003 (Differential Equations, 3 credit hours)
 MATH 655-001 (Advanced Topics in Numerical Analysis I, 3 credit hours)

JAN-MAY 2017 University of Louisiana at Lafayette
 MATH 556-001 (Numerical Analysis II, 3 credit hours)

AUG-DEC 2016 University of Louisiana at Lafayette
 MATH 250-003 (Survey of Calculus, 3 credit hours)
 MATH 251-001 (Honors Survey of Calculus, 3 credit hours)
 MATH 555-001 (Numerical Analysis I, 3 credit hours)

JAN-MAY 2016 Southeast Missouri State University
 MA 137-02 (Precalculus, 5 credit hours)
 MA 144-01 (Integral Calculus and Differential Equations, 5 credit hours)
 MA 350-01 (Differential Equations I, 3 credit hours)

AUG-DEC 2015 Southeast Missouri State University
 MA 134-07 (College Algebra, 3 credit hours)
 MA 134-10 (College Algebra, 3 credit hours)
 MA 137-02 (Precalculus, 5 credit hours)
 MA 550-70 (Differential Equations II, 3 credit hours)

JAN-MAY 2015 Southeast Missouri State University
 MA 137-02 (Precalculus, 5 credit hours)
 MA 144-01 (Integral Calculus and Differential Equations, 5 credit hours)
 MA 350-01 (Differential Equations I, 3 credit hours)

AUG-DEC 2014 Southeast Missouri State University
 MA 134-09 (College Algebra, 3 credit hours)
 MA 137-04 (Precalculus, 5 credit hours)
 MA 139-01 (Applied Calculus, 3 credit hours)

MAY-AUG 2014 Southeast Missouri State University
 MA 694-01 (Thesis, 3 credit hours)

JAN-MAY 2014 Southeast Missouri State University
 MA 134-08 (College Algebra, 3 credit hours)
 MA 144-01 (Integral Calculus and Differential Equations, 5 credit hours)
 MA 350-01 (Differential Equations I, 3 credit hours)
 MA 648-01 (Delay Differential Equations, 1 credit hour)

AUG-DEC 2013 Southeast Missouri State University
 MA 134-16 (College Algebra, 3 credit hours)
 MA 134-17 (College Algebra, 3 credit hours)
 MA 139-01 (Applied Calculus, 3 credit hours)
 MA 550-70 (Differential Equations II, 3 credit hours)

JAN-APR 2013 Memorial University of Newfoundland
 MATH 1000 (Calculus I, 4 credit hours)

SEP-DEC 2012 Memorial University of Newfoundland
 MATH 1000 (Calculus I, 4 credit hours)

STUDENTS

SRIJANA GHIMIRE	Ph.D. in Mathematics (2022) University of Louisiana at Lafayette Dissertation: Analysis of non-monotone dynamical systems: Bifurcation theory of mutualism and travelling wave solutions in predator-prey models and viral transmission models
ALAYNA DILLON-COX	McNair scholar (2016) Southeast Missouri State University Project: Continued fractions and asymptotics of difference equations
LUOYI ZHONG	Undergraduate student (2015) Southeast Missouri State University Project: Ebola outbreak in West Africa: real-time estimation and multiple-wave prediction
CALAH PAULHUS	M.N.S. in Mathematics (2014) Southeast Missouri State University Thesis: Global dynamics of SIS and SIRS epidemic models with distributed delays