Curriculum Vitae — Joseph L. Shomberg, Ph.D.

Last updated November 4, 2023

Personal and Contact Information

Born in Wisconsin Rapids, WI (USA) on December 16, 1974
Citizenship: United States of America
Affiliation: Department of Mathematics and Computer Science, Providence College
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Education

University of Wisconsin – Milwaukee

Ph.D., Mathematics — Completion date: August 2008
Dissertation Title: Explicit Construction of a Robust Family of Compact Inertial Manifolds
Adviser: Professor Albert J. Milani

M.S., Mathematics — May 2002

University of Wisconsin – Stevens Point

B.A., Mathematics and Philosophy (double major) — December 1999

University of Wisconsin Center – Marshfield/Wood County

Associate of Arts and Science — May 1996

Certifications

Cornell University (eCornell)

Machine Learning Certificate — Completion date: June 2021

HackerRank

Python (Basic) Certificate — February 2021
https://www.hackerrank.com/certificates/41d901f2c5d4

Academic Employment History

Providence College

Associate Professor (with tenure) July 2014—current

- Teaching centric duties; didactical meditations
- Research
- Service to the discipline, to the college and to the department

Assistant Professor July 2009—June 2014
Adjunct Assistant Professor September 2008—June 2009

Research projects supervised (presented at the Providence College "Celebration of Student Scholarship and Creativity"):

- "Machine Learning Cancer Immunotherapy" (Fall, 2022)
- "Application of Black-Scholes Model in Option Pricing and Intangibles Assets" (Summer, 2019)

Courses taught:

- MTH 105 Introduction to Mathematical Methods
- MTH 107 Mathematics for Business Analysis I
- MTH 108 Mathematics for Business Analysis II
- MTH 109 Calculus I
- MTH 110 Calculus II
- MTH 131 Calculus and Analytical Geometry I
- MTH 132 Calculus and Analytical Geometry II
- MTH 215 Linear Algebra
- MTH 223 Calculus and Analytical Geometry III
- MTH 304 Differential Equations
- MTH 311/506 History of Mathematics (formerly MTH 435) (eight weeks as substitute)
- MTH 318 (formerly MTH 417) Topics in Applied Mathematics
- CSC/MTH 320 Numerical Analysis (formerly CSC/MTH 440 Numerical Analysis I)
- MTH 324 Real Analysis II
- MTH 390 Independent Study: Machine Learning Cancer Immunotherapy
- MTH 390 Independent Study: Dynamical Systems and Chaos
- MTH 390 Independent Study: PDE[1] in Medical Imaging
- MTH 540 Topics in Applied Math: Lebesgue Integration and Fourier Series

[1] Throughout, PDE is an abbreviation for Partial Differential Equation(s).

- MTH 537 Topics in Complex Variables (designed the course but did not teach it because of a medical leave)

University of Wisconsin – Milwaukee

Teaching Assistant and Dissertator September 2007—August 2008

- Ph.D. research
- Teaching (sole instructor)
- Proctor for "Calculus Gateway" testing center—this was a testing center for calculus students—duties included administering and grading computer-generated quizzes; also, proctoring for "Algebra Gateway" testing center, which was similar to the Calculus Gateway, but for remedial algebra students.

Teaching Fellow June 2003—August 2007

- Ph.D. research
- Analysis/PDE seminar presenter
- Ph.D. course work
- Teaching (sole instructor, fall semesters only)
- Proctor for Calculus Gateway testing center

Teaching Assistant January 2000—May 2003

- M.S. course work
- Teaching (sole instructor)
- Proctor for Calculus Gateway testing center
- Grader/aid for two courses: taking attendance, collecting and grading homework and exams, answering student questions

Summary of teaching experience at the University of Wisconsin – Milwaukee:

- 526 students in 21 courses ranging from Intermediate Algebra, Calculus with Precalculus I & II and Calculus and Analytical Geometry I

Research Interests

- PDE arising from mathematical physics
- Dynamic boundary conditions
- Equations with memory
- Nonlocal and fractional diffusion
- Asymptotic behavior (finite dimensional attractors)
- Infinite-dimensional dynamical systems
- Singular perturbation theory
- Numerical methods and analysis (approximation, experiment, illustration of finite dimensional dynamical systems)
- Applications of machine learning (in dynamical systems, inverse problems)

Research Awards

Summer Scholar Program Award summer 2013

An award granted by the School of Arts and Science of Providence College to "support faculty research efforts during the summer months."

Morris and Miriam Marden Award in Mathematics May 2003

A research award given to graduate students by the Department of Mathematical Sciences of the University of Wisconsin – Milwaukee in recognition of "a paper of relatively high quality with respect to both exposition and mathematical content."

Travel Grants

National Science Foundation travel grant NSF DMS-1024497 July 2012

Fellowships

GAANN (Graduate Assistance in Areas of National Need) June 2003—August 2007

Funded by the U.S. Department of Education and awarded by the Department of Mathematical Sciences, University of Wisconsin – Milwaukee.

Chancellor's Fellowship Award fall 2003—spring 2006

The Department of Mathematical Sciences of the University of Wisconsin – Milwaukee, awarded this fellowship for tuition assistance and as a supplement to other support.

Refereed Publications

Peer Reviewed Journal Articles *To Appear*

Currently none

Published Peer Reviewed Journal Articles

1. Ciprian Gal, Maurizio Grasselli, Andrea Poiatti and **Joseph L. Shomberg**, Multi-component Cahn-Hilliard Systems with Singular Potentials: Theoretical Results, *Applied Mathematics and Optimization* (Publisher: Springer Nature), 88 (2023), No.73, 1-46; DOI: 10.1007/s00245-023-10048-8
2. Ciprian Gal and **Joseph L. Shomberg**, Cahn-Hilliard Equations Governed by Weakly Nonlocal Conservation Laws and Weakly Nonlocal Particle Interactions, *Annales de l'Institut Henri Poincaré C, Analyse Non Linéaire* (Publisher: European Mathematical Society (EMS) Press), 39 (2022), No. 5, pgs; DOI: 10.4171/AIHPC/29
3. Eylem Öztürk and **Joseph L. Shomberg**, Well-posedness and Global Attractors for Viscous Fractional Cahn-Hilliard Equations with Memory, *Fractal and Fractional*, Special Issue "Advances in Fractional Differential Operators and Their Applications" (Publisher: Multidisciplinary Digital Publishing Institute (MDPI)), 6 (2022), No. 505, 1-28; DOI: 10.3390/fractalfract6090505
4. **Joseph L. Shomberg**, Weak Exponential Attractors for Coleman-Gurtin Equations with Dynamic Boundary Conditions Possessing Different Memory Kernels, *Topological Methods in Nonlinear Analysis* (Publisher: Juliusz P. Schauder Centre for Nonlinear Studies with the assistance of the Nicolaus Copernicus University in Toruń), 55 (2020), No. 1, 281-315; DOI: 10.12775/TMNA.2019.095
5. **Joseph L. Shomberg**, Well-posedness of Semilinear Strongly Damped Wave Equations with Fractional Diffusion Operators and C^0 Potentials on Arbitrary Bounded Domains, *Rocky Mountain Journal of Mathematics* (Publisher: Rocky Mountain Mathematics Consortium), 49 (2019), No. 4, 1307-1334; DOI: 10.1216/RMJ-2019-49-4-1307
6. **Joseph L. Shomberg**, Attractors for Damped Semilinear Wave Equations with a Robin-Acoustic Boundary Perturbation, *Nonlinear Analysis* (Publisher: Elsevier), 189 (2019); DOI: 10.1016/j.na.2019.111582
7. **Joseph L. Shomberg**, Upper-semicontinuity of the global attractors for a class of nonlocal Cahn-Hilliard equations, *Differential Equations and Control Processes* (Publisher: Mathematics and Mechanics Faculty of Saint-Petersburg State University), 2019 (2019), Issue 2, 126-161
8. **Joseph L. Shomberg**, Regular Global Attractors for Wave Equations with Degenerate Memory, *Ural Mathematical Journal* (Publisher: Krasovskii Institute of Mathematics and Mechanics of the Ural Branch of the Russian Academy of Sciences, Ural Federal University), 5 (2019), No. 1, 59-82; DOI: 10.15826/umj.2019.1.007
9. **Joseph L. Shomberg**, Global existence of weak solutions for strongly damped wave equations with nonlinear boundary conditions and balanced potentials, *Bulletin of the Australian Mathematical Society* (Publisher: Cambridge University Press), 99 (2019),

Issue 3, 432-444; DOI: 10.1017/S0004972719000078; MR3952478[2]

10. **Joseph L. Shomberg**, Attractors for Damped Semilinear Wave Equations with Singularly Perturbed Acoustic Boundary Conditions, to *Electronic Journal of Differential Equations* (Publisher: Texas State University, Department of Mathematics), 2018 (2018), No. 152, 1-33; MR3856428
11. **Joseph L. Shomberg**, On the Upper Semicontinuity of Global Attractors for Damped Wave Equations, *AIMS Mathematics* (Publisher: AIMS Press), 2 (2017), Issue 3, 557-561; DOI: 10.3934/Math.2017.2.557
12. **Joseph L. Shomberg**, Exponential Decay Results for Semilinear Parabolic PDE with C^0 Potentials: A "Mean Value" Approach, *Differential Equations and Dynamical Systems* (Publisher: Springer), 26 (2016), Issue 4, 355-370; DOI: 10.1007/s12591-016-0274-1; MR3856274
13. P. Jameson Graber and **Joseph L. Shomberg**, Attractors for Strongly Damped Wave Equations with Nonlinear Hyperbolic Dynamic Boundary Conditions, *Nonlinearity* (IOP Publishing Ltd & London Mathematical Society), 29 (2016), 1171-1212; DOI: 10.1088/0951-7715/29/4/1171; MR3476505
14. **Joseph L. Shomberg**, Robust Exponential Attractors for Coleman-Gurtin Equations with Dynamic Boundary Conditions Possessing Memory, *Electronic Journal of Differential Equations* (Publisher: Texas State University, Department of Mathematics), 2016 (2016), No. 47, 1-35; MR3466518
15. Ciprian G. Gal and **Joseph L. Shomberg**, Coleman-Gurtin Type Equations with Dynamic Boundary Conditions, *Physica-D: Nonlinear Phenomena* (Publisher: Elsevier/North-Holland (Netherlands)), 292/293 (2015), 29-45; DOI: 10.1016/j.physd.2014.10.008; MR3286609
16. Ciprian G. Gal and **Joseph L. Shomberg**, Hyperbolic Relaxation of Reaction Diffusion Equations with Dynamic Boundary Conditions, *Quarterly of Applied Mathematics* (Publisher: Brown University and the American Mathematical Society), 73 (2015), 93-129; DOI: 10.1090/S0033-569X-2015-01363-5; MR3322727
17. **Joseph L. Shomberg**, Attractors for a Neural Network Equation, *Differential Equations and Dynamical Systems* (Publisher: Springer) 23 (2015), Issue 1, 99-115; DOI: 10.1007/s12591-013-0193-3; MR3296355
18. Cristina Nartea and **Joseph L. Shomberg**, A Family of Approximate Inertial Manifolds for a Van der Pol/FitzHugh-Nagumo Perturbation Problem, *International Journal of Computer Mathematics* (Publisher: Taylor & Francis), 88 (2011), No. 7, 1443-1470; DOI: 10.1080/00207160.2010.509792; MR2787903
19. **Joseph L. Shomberg**, Holomorphic Methods in PDE, *International Journal of Mathematical Analysis* 1 (2006), No. 2, 141-152; MR2295246
20. **Joseph L. Shomberg**, A Note on Surfaces with Radially Symmetric Nonpositive Gaussian Curvature, *Mathematica Bohemica* (Publisher: Institute of Mathematics, Academy of Sciences of the Czech Republic), 130 (2005), No. 2, 167-176; MR2148650

[2] MR###### indicates the article was indexed in the MathReviews database published online by the American Mathematical Society.

***Published* Peer Reviewed Conference Proceedings**

21. **Joseph L. Shomberg**, Well-posedness and Global Attractors for a Non-isothermal Viscous Relaxation of Nonlocal Cahn-Hilliard Equations, *Nonlinear Evolution PDEs, Interfaces and Applications* (a special issue of *AIMS Mathematics*, published by AIMS Press), 1 (2016), Issue 2, 102-136; DOI: 10.3934/Math.2016.2.102

Acknowledgements

1. I provided an application of one of my results to Professor Rana D. Parshad, Ph.D., then at Clarkson University and currently at Iowa State University, for the article "Biological control via 'ecological' damping: An approach that attenuates non-target effects", *Mathematical Biosciences* (Publisher: Elsevier), 273 (2016), 23-44. My name appears in the acknowledgements section.

"Magazine" Type Problems & Solutions

1. *American Mathematical Monthly*, Problem #11571, my name appears in "Also solved by…", January 2013 issue, volume 120, no. 1, page 83

Unpublished Papers on ArXiv[3]

1. Modeling change in public sentiment with nonlocal reaction-diffusion equations; arXiv:2105.03920
2. Explicit construction of a robust family of compact inertial manifolds; arXiv:0807.3934

[3] arXiv is an online preprint depository.

Seminar Talks, Conference Presentations & Colloquia

Invited Seminar Talks (50-60 minutes)

1. "Dynamic Boundary Conditions with Memory: Well-Posedness and Attractors for Coleman-Gurtin Equations," Lefschetz Center for Dynamical Systems Seminar, Division of Applied Mathematics, Brown University, Providence, Rhode Island, March 7, 2016

Invited Conference Talks (25-30 minutes)

2. "On non-isothermal viscous nonlocal Cahn-Hilliard equations," The Second Mathematical Congress of the Americas, Special Session on Models and Methods in Evolutionary Differential Equations on mixed scales, Montréal, Canada, July 23-28, 2017; full support by Providence College
3. "Global Attractors and Weak Exponential Attractors for Strongly Damped Wave Equations with Nonlinear Hyperbolic Dynamic Boundary Conditions," The 11th American Institute of Mathematical Sciences Conference on Dynamical Systems, Special Session on Nonlinear Evolution Equations and Related Topics, Orlando, Florida, July 1-5, 2016; full support by Providence College
4. "Well-posedness and global attractors for a non-isothermal viscous relaxation of nonlocal Cahn-Hilliard equations" (Preliminary report), The 11th American Institute of Mathematical Sciences Conference on Dynamical Systems, Special Session on Qualitative and Quantitative Techniques for Differential Equations arising in Economics, Finance and Natural Sciences, Orlando, Florida, July 1-5, 2016; full support by Providence College
5. "Well-posedness and asymptotic behavior for non-isothermal viscous nonlocal Cahn-Hilliard equations" (Preliminary report), Fall Southeastern Sectional Meeting of the American Mathematical Society, Special Session on Special Session on Cahn-Hilliard and Related Equations and Applications, University of Memphis, Memphis, Tennessee, October 17-18, 2015
6. "Attractors for Damped Semilinear Wave Equations with a Robin-Acoustic Boundary Perturbation" (Preliminary Report), Spring Eastern Sectional Meeting of the American Mathematical Society, Special Session on Nonlinear Partial Differential Equations in Sciences and Engineering, Georgetown University, Washington, DC, March 7-8, 2015
7. "Dynamic Boundary Conditions with Memory: Well-Posedness of the Coleman-Gurtin Equation," The 10th American Institute of Mathematical Sciences Conference on Dynamical Systems, Differential Equations and Applications, Special Session on Recent Advances in Evolutionary Equations, Instituto de Ciencias Matemáticas and the Universidad Autónoma de Madrid, Madrid, Spain, July 7-11, 2014; supported in part by Providence College

8. "Attractors of the Hyperbolic Relaxation of Reaction Diffusion Equations with Dynamic Boundary Conditions," The 10th American Institute of Mathematical Sciences Conference on Dynamical Systems, Differential Equations and Applications, Special Session on Nonlinear Evolution Equations and Related Topics, Instituto de Ciencias Matemáticas and the Universidad Autónoma de Madrid, Madrid, Spain, July 7-11, 2014; supported in part by Providence College
9. "Dynamic Boundary Conditions with Memory: Well-Posedness of the Coleman-Gurtin Equation" (Preliminary report), Southeastern Spring Sectional Meeting of the American Mathematical Society, Special Session on Nonlinear Partial Differential Equations in the Applied Sciences, University of Tennessee, Knoxville, Tennessee, March 21-23, 2014
10. "Attractors of the Hyperbolic Relaxation of Reaction Diffusion Equations with Dynamic Boundary Conditions," Spring Central Section Meeting of the American Mathematical Society, Special Session on Partial Differential Equations, Iowa State University, Ames, Iowa, April 27-28, 2013; supported in full by Providence College
11. "Global Attractors for Damped Semilinear Wave Equations with a Robin-Acoustic Boundary Perturbation" (Preliminary Report), The 9th American Institute of Mathematical Sciences Conference on Dynamical Systems, Differential Equations and Applications, Special Session on Singular Perturbations, Orlando, Florida, July 1-5, 2012; supported in part by Providence College and National Science Foundation travel grant NSF DMS-1024497

Contributed Talks (10-30 minutes)

12. "Attractors for Damped Semilinear Wave Equations with a Robin-Acoustic Boundary Perturbation," EquaDiff 2015, Université Claude Bernard Lyon, Lyon, France, July 6-10, 2015; supported in part by Providence College
13. "Global Attractors of the Hyperbolic Relaxation of Reaction-Diffusion Equations with Dynamic Boundary Conditions," Society for Industrial and Applied Mathematicians Conference on Analysis of Partial Differential Equations, Orlando, FL, December 7-10, 2013; supported in part by Providence College
14. "Attractors of the Hyperbolic Relaxation of Reaction Diffusion Equations with Dynamic Boundary Conditions," Southeastern-Atlantic Regional Conference on Differential Equations, The University of Tennessee, Knoxville, Tennessee, September 21-22, 2013; supported in full by Providence College
15. "Global Attractors for Hyperbolically Relaxed Reaction-Diffusion Equations with Dynamic Boundary Conditions," Spring Eastern Sectional Meeting of the American Mathematical Society, contributed papers sessions, Boston College, Chestnut Hill, Massachusetts, April 6-7, 2013; supported in full by Providence College
16. "On Damped Semilinear Wave Equations with Singularly Perturbed Boundary Conditions," Spring School in Nonlinear Partial Differential Equations, Université Libre

de Bruxelles, Brussels, Belgium, May 30-June 6, 2012; supported in full by Providence College

17. "Global Attractors for Damped Semilinear Wave Equations with a Robin-Acoustic Boundary Perturbation" (Preliminary Report), Joint Mathematics Meetings, American Mathematical Society contributed papers sessions, Partial Differential Equations, Boston, Massachusetts, January 4-7, 2012; supported in full by Providence College
18. "Explicit Construction of a Robust Family of Compact Inertial Manifolds," Joint Mathematics Meetings, American Mathematical Society contributed papers sessions, Partial Differential Equations Washington, District of Columbia, January 5-9, 2009; supported in full by Providence College
19. "On the Problem of Prescribed Gauss Curvature," Northeast Section of the Mathematical Association of America, Bentley University, Waltham, Massachusetts November 21-22, 2008; supported in part by Providence College
20. "Harmonic Solutions to Some Fully Nonlinear PDE on R^2," Fall Central Section Meeting of the American Mathematical Society, Special Session on Geometric Partial Differential Equations, Northwestern University, Evanston, Illinois, October 23-24, 2004; supported in part by the University of Wisconsin – Milwaukee
21. "A Note on Surfaces with Radially Symmetric Nonpositive Gaussian Curvature," The Seventy-Second Annual Meeting of the Wisconsin Section of the Mathematical Association of America, University of Wisconsin – Platteville, April 2004; supported in part by the Wisconsin Section of the Mathematical Association of America
22. "A Note on Surfaces with Radially Symmetric Nonpositive Gaussian Curvature," Mid-West Geometry Conference, University of Arkansas, Fayetteville, Arkansas, March 25-27, 2004; supported in part by the Mathematical Sciences Department of the University of Arkansas and a travel grant award from the Graduate School of the University of Wisconsin – Milwaukee

Colloquia (45-55 minutes)

23. "Harmonic Functions, Prescribed Gaussian Curvature, and Something a Little Bit Hypergeometric too!" September 28, 2011, Department of Mathematics and Computer Science Colloquium, Providence College
24. "On the Stability of Approximate Inertial Manifolds for Perturbed Ordinary Differential Equations," October 20, 2010, Department of Mathematics and Computer Science Colloquium, Providence College

Visits, Workshop & Conference Participation

Research Institute Visits

1. Institute for Computational and Experimental Research in Mathematics (ICERM) Topical Workshop: *Current Developments in Mathematical Fluid Dynamics: Regularity, Instabilities, and Turbulence*, Providence, Rhode Island, January 24-27, 2017

Other Conferences Attended

1. Society for Industrial and Applied Mathematicians Conference on Mathematical Aspects of Materials Science, Philadelphia, Pennsylvania, June 9-12, 2013; supported by Providence College "Summer Scholar" grant
2. Northeastern Section of the Mathematical Association of America meeting held at Providence College, Providence, Rhode Island, November 19-20, 2010
3. Northeastern Section of the Mathematical Association of America meeting held at Fairfield University, Fairfield Connecticut May 29-30, 2009
4. American Mathematical Society, Eastern Section Meeting, Worcester Polytechnic Institute, Worcester, Massachusetts, April 25-26, 2009

Seminar Participation

- Center for Mathematics and Artificial Intelligence (CMAI) colloquia (held online over *Zoom*), summer 2020—spring 2021
- Brown University, 'PDE' and 'Dynamical Systems' seminars, fall 2014—spring 2017

Professional Memberships

- Society for Industrial and Applied Mathematics, since 2010
- American Mathematical Society, since 2001

Wikipedia Footprint

I am the original creator of the following mathematics related pages:

1. Gâteaux derivative
2. Trudinger inequality

Referee & Review Work

1. Boundary Value Problems, publisher: Springer Nature **(refereed one research article)**
2. Zeitschrift für angewandte Mathematik und Physik, publisher: Birkhäuser Verlag **(refereed one research article)**
3. Mathematical Modelling and Analysis, publisher: Taylor & Francis Online and Vilnius Gediminas Technical University **(refereed one research article)**
4. Analysis and Applications, publisher: World Scientific **(refereed one research article)**
5. MethodsX, publisher: Elsevier **(refereed two research articles)**
6. Mathematics, publisher: Multidisciplinary Digital Publishing Institute (MDPI) **(refereed one research article)**
7. Electronic Journal of Qualitative Theory of Differential Equations, publisher: Bolyai Institute, University of Szeged and the Hungarian Academy of Sciences **(refereed one research article)**
8. Journal of Mathematical Analysis and Applications, publisher: Elsevier **(refereed one research article)**
9. Taiwanese Journal of Mathematics, publisher: Mathematical Society of the Republic of China **(refereed one research article)**
10. Communications in Nonlinear Science and Numerical Simulation, publisher: Elsevier **(refereed two research articles)**
11. Nonlinearty, publisher: IOP Publishing and the London Mathematical Society **(refereed one research article)**
12. Textbook Chapter, publisher: Pearson **(reviewed one chapter)**
13. Communications in Pure and Applied Analysis, publisher: American Institute of Mathematical Sciences (AIMS) **(refereed one research article)**
14. Arabian Journal of Mathematics, publisher: Springer Nature **(refereed one research article)**
15. Journal of Applied Analysis and Computation, publisher: Shanghai Normal University and Wilmington Scientific Publishers **(refereed one research article)**
16. Monatshefte für Mathematik, publisher: Springer Nature **(refereed one research article)**
17. Applied Mathematics and Optimization, publisher: Springer Nature **(refereed one research article)**
18. Mathematical Methods in the Applied Sciences, publisher: John Wiley & Sons **(refereed one research article)**
19. Communications Faculty of Sciences University of Ankara Series A1 Mathematics and Statistics **(refereed one research article)**
20. "STEM textbooks" published by Elsevier Education **(reviewed three textbooks)**
21. Rocky Mountain Journal of Mathematics, publisher: Rocky Mountain Mathematics Consortium **(refereed one research article)**
22. "Textbook development" of Cambridge University Press **(reviewed one textbook)**
23. Discrete & Continuous Dynamical Systems Series A, publisher: American Institute of Mathematical Sciences (AIMS) **(refereed one research article)**
24. zbMATH (formally Zentralblatt MATH), a reviewing service for mathematics literature, produced by European Mathematical Society, FIZ Karlsruhe, and the Heidelberg Academy of Sciences **(reviewed over ninety research articles and two books)**

25. Mathematical Modelling and Analysis, publisher: Taylor and Francis **(refereed one research article)**
26. Differential Equations and Dynamical Systems, publisher: Springer Verlag **(refereed one research article)**
27. Acta Mathematicae Applicatae Sinica (English Series), publisher: Zhongguo shu xue hui, Springer Verlag **(refereed one research article)**
28. Mathematical Reviews, a database of reviewed mathematical literature, published by the American Mathematical Society **(reviewed over 180 articles and five books)**

Professional Websites

ORCiD https://orcid.org/0000-0002-5623-3140

My Erdös Number is 4 (with multiplicity two)

Professional Activities

Service to the Discipline

- Wiley publishing, Math and Statistics Advisory Panel, since summer 2022
- Panelist for SMART (Science, Mathematics and Research for Transformation) scholarship applications, January 2021, 2022
- Chair of Parallel Session 7, "Nonlinear Evolution Equations and Related Topics", 11th American Institute of Mathematical Sciences Conference on Dynamical Systems, Differential Equations and Applications, Orlando, Florida, July 1-5, 2016
- Chair of the Contributed Paper session "Reaction-Diffusion Systems, Nonlocal Equations, and Pattern Formation – Part I", at the Society for Industrial and Applied Mathematics meeting "PD13", Analysis of Partial Differential Equations, Orlando, Florida, December 7-10, 2013
- Grader for the regional mathematics competition at Central Connecticut State University (CCSU) held April 28, 2012

Service to Providence College

- Statistical consultant to Faculty Welfare Committee, summer 2022
- Committee on Academic Status, AY 20
- Registration day adviser for incoming mathematics and computer science majors, summer 2017, 2018
- Contact for ESTEEM (Engineering, Science, and Technology Entrepreneurship Excellence Program) program in partnership with the University of Notre Dame, fall 2016—fall 2022
- Providence College School of Business Quantitative Skills Sub-Committee, curriculum review, spring 2015
- Advisor for SMART (Science, Mathematics and Research for Transformation) Scholarship program, fall 2013—summer 2016
- Advisor for Undeclared Advising Program
    - summer 2017—spring 2019
    - summer 2011—spring 2013
    - summer 2009—spring 2011
- Member of Faculty Senate Academic Course Review committee, fall 2011—spring 2012
- Academic Integrity Board, one hearing, spring 2012
- Participation in "Family Day", April 18, 2009, and April 10, 2010
- Writing letters of recommendation for students and advisees

Service to the Department of Mathematics and Computer Science of Providence College

- Interim Chair, Mathematics Faculty Search Committee, wrote 'search plan' and 'job ad', fall 2021
- Participation in student course articulation ("[to provide] input as a disciplinary specialist"), summer 2017—summer 2022
- Computer Science Faculty Search Committee, coordinate responses to the College's Mission Statement, participate in discussions and phone interviews, fall 2018—spring 2019
- Chair, Mathematics Faculty Search Committee, fall 2017—spring 2018
- Computer Science Faculty Search Committee, fall 2017—spring 2018
- Three Peer Teaching Reviews, since spring 2015
- Helped revise Continuous Improvement Program "Self-Study" document, spring 2015
- Various Tenure and Promotion Committees, since fall 2014
- Organized three students to participate in the Consortium for Mathematics and its Applications Mathematics Contest in Modeling contest held February 6-10, 2014
- Organized three students to participate in the Consortium for Mathematics and its Applications Mathematics Contest in Modeling contest held January 31-February 4, 2013
- Computer Science Faculty Search Committee, fall 2012—spring 2013
- Department Faculty Senate representative, fall 2011—spring 2012
- Creator and editor of "Students' Newsletter," (issued February 1, 2012; September 17, 2012; February 4, 2013)
- Organized two Providence College students to attend a regional mathematics competition at Central Connecticut State University held April 28, 2012
- Author of a new course proposal: MTH 311 Dynamical Systems and Chaos, last piloted in fall 2011
- Participation in Major-Minor Fair, October 26, 2011
- Organized three Providence College students to attend a regional mathematics competition at Central Connecticut State University held April 9, 2011
- Organized six students to participate in the Consortium for Mathematics and its Applications Mathematics Contest in Modeling contest held February 10-14, 2011
- Service to Capstone Course Committee fall 2010
- Obtained partial travel funding for an independent study student to present her work at the Thirteenth Annual Nebraska Conference for Undergraduate Women in Mathematics, fall 2010
- Service to Local Arrangements Committee for the fall meeting of the Northeastern Section of the Mathematical Association of America meeting held at Providence College, November 19-20, 2010
- Participation in the Mathematics and Computer Science Department Colloquium, October 20, 2010, and September 28, 2011

- Advisor for twenty-seven mathematics majors since fall 2009
- Service to Assessment Committee, summer 2009

Service within the Department of Mathematical Sciences of the University of Wisconsin – Milwaukee

- Administering ALEKS (web-oriented) assignments and exams
- Proctoring for fellow instructors and faculty
- Writing student feedback evaluations
- Providing accommodations for a special needs student
- Writing three letters of recommendation
- Holding office hours

Professional Skills

- I am familiar with Mac OS X, Linux and Windows operating systems.
- I have a working knowledge of the symbolic programming package *Mathematica* for research and teaching purposes. Students in some of my introductory courses are introduced to the software as an illustrative tool. Students in upper-level courses are expected to run more complicated tool from *Mathematica* (e.g., 3D plots, numerical integration, and Fourier series) as a part of their homework.
- Also, I have instructional knowledge of the *Python* programming language for the purposes of teaching CSC/MTH 440 Numerical Analysis. I am also familiar with some *MatLab* routines.
- My experience with machine learning has given me a command of the *NumPy* and *PyTorch* libraries for *Python*. I am also proficient with *Tensorflow* and *Keras* packages.
- I am familiar with the *LaTeX* typesetting software for writing various mathematical documents ranging from exams to research articles.