
Curriculum Vitae

Bruce A. Wade, Ph.D.
Professor & Head
C.B.I.T. TC/LEQSF Regents Professor
Department of Mathematics
University of Louisiana at Lafayette

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March 1, 2024

Specialty

Numerical analysis & Computational Mathematics (PDE, Optimization, Data Science, Machine Learning).

Professional Education

- Ph.D., Mathematics, University of Wisconsin-Madison, 1987
Adviser: Professor J.C. Strikwerda.
- M.A., Mathematics, University of Wisconsin-Madison, 1984
- B.S., Mathematics, University of Wisconsin-Madison, 1982

Professional Employment

- Head, Department of Mathematics, University of Louisiana at Lafayette,
2018–
- Professor, Department of Mathematics, University of Louisiana at Lafayette,
2018–
- Chair, Department of Mathematical Sciences, University of Wisconsin–Milwaukee,
2017– 2018

- Professor, Department of Mathematical Sciences, University of Wisconsin–Milwaukee, 2006–2018
- Associate Professor, Department of Mathematical Sciences, University of Wisconsin–Milwaukee, 1995–2006
- Assistant Professor, Department of Mathematical Sciences, University of Wisconsin–Milwaukee, 1989–1995
- Post-doctoral Fellow, Mathematical Sciences Institute, Cornell University, Adviser: L. B. Wahlbin, 1987–89

Additional Professional Positions

- C.B.I.T. TC/LEQSF Regents Professor University of Louisiana at Lafayette, 2019–
- Professor Emeritus, University of Wisconsin–Milwaukee, 2018–
- Founder & Director, Center for Industrial Mathematics, University of Wisconsin–Milwaukee, 1998–2012
- Associate Chair, Department of Mathematical Sciences, University of Wisconsin–Milwaukee, 1998–2001 & 2005–2008
- Profesor Visitante, Departamento de Matemática Aplicada, Universidad de Salamanca, Spain, 2005
- Visiting Professor, Dept. of Mathematics, Statistics and Computer Science, Marquette University, 1998
- Acting Assistant Professor, Department of Mathematics, Cornell University, 1987–89

Grants

1. PI, *MDD 212 Computer Lab Expansion and Upgrade*, Student Technology Enhancement Program (STEP), University of Louisiana at Lafayette, \$49,800,000, May 1, 2021 - June 30, 2022.
2. PI, *MDD 214 Computer Lab Creation*, Vernon and Ruby Langlinais Mathematics Laboratory Fund, University of Louisiana at Lafayette, \$52,738, August 1, 2021 – July 31 2022.
3. Co-PI, *Mathematical Modeling of Pigment/Filler Settling in Coating Formulations*, Industrial Collaborator: Rust-Oleum Corporation, University of Wisconsin System Chemistry Center Translational Grant Program, \$82,684, May 1, 2014 - June 30, 2015, #131-485400-4-PRJ83HT, (with K. Swanson, PI).

4. PI, *Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2010*, National Science Foundation (NSF), \$22,000, September 2009 – August, 2010, #0946656.
5. Co-PI, *Analysis, Control, and Stopping of Singular Stochastic Processes*, National Security Agency (NSA), \$52,809, January, 2009 - December, 2010, #H98230-09-1-0002 (with R. Stockbridge).
6. Co-PI, *Singular Control of Stochastic Processes: Probabilistic Foundations and Numerical Methods*, National Security Agency (NSA), \$77,000, December, 2004 - August, 2007, #H98230-05-1-0062 (with R. Stockbridge).
7. Senior Associate, *Técnicas Numéricas Adaptadas al Cálculo de Orbitas de Satélites Artificiales y a la Generación de Lluvia Artificial*, Ministerio de Educación, Cultura y Deporte, España, \$35,000, 2005, #MTM-2005-04007 (with J. Vigo-Aguiar).
8. PI, *Numerical Solution of Multi-Dimensional Reaction-Diffusion Equations and Numerical Foundations for Stochastic Processes*, Ministerio de Educación, Cultura y Deporte, España, €31,200 (\$37,440), 2005, #SAB2003-0266 (with J. Vigo-Aguiar, Universidad de Salamanca).
9. Co-PI, *Nonlinear PID Control for the Paper Industry*, University of Wisconsin System Applied Research Grant, July 1, 1999— June 30, 2000, \$34,303. Supporting funds of \$27,000 provided by Rockwell Automation, Inc (with B.A. Armstrong).

Publications

Google Scholar: h -Ind.= 14, i_{10} -Ind.= 24, g -Ind.= 25, #Cite/s= 801

1. *Dynamics of Transmission of a Monkeypox Epidemic in the Presence of an Imperfect Vaccination*, (Y. O. Afolabi & B.A. Wade), Results in Applied Mathematics (RINAM), Elsevier, V.19 (2023), pp. 1–18, 100391.
<https://authors.elsevier.com/sd/article/S2590037423000377>
2. *A Second-Order Crank-Nicolson-Type Scheme for Nonlinear Space–Time Reaction–Diffusion Equations on Time-Graded Meshes*, (Y. O. Afolabi, T.A. Biala, O.S. Iyiola, A.Q.M. Khaliq & B.A. Wade), Fractal & Fractional, V. 7 (40), pp. 1–20.
<https://doi.org/10.3390/fractalfract7010040>
3. *DPER: Efficient Parameter Estimation for Randomly Missing Data*, (T. Nguyen, K. M. Nguyen Duy, D. M. Nguyen Ho, B. A. Wade,) Knowledge-Based Systems, V. 240, pp. 1081–11, 2022.
4. *Traveling Waves of Nonlocal Delayed Disease Models: Critical Wave Speed and Propagation Speed*, (H. Shu, X. Pan, B.A. Wade, and X.-S. Wang), Applicable Analysis, 2021, pp. 385–405.

5. *EPEM: Efficient Parameter Estimation for Multiple Class Monotone Missing Data*, (T. Nguyen, M.D. Nguyen Ho, H. Nguyen, & B.A. Wade), J. Information Sciences, Volume 567, August 2021, pp. 1-22, 2021.
6. *Periodic Solutions and Their Stability for Some Perturbed Hamiltonian Systems*, (J.L.G. Guirao, J. Llibre, J.A. Vera, & B.A. Wade), Int. J. Geometric Methods in Modern Physics (IJGMMP), V. 18 (01), pp. 2150013-1–2150013-13, 2020.
7. *A Second Order Exponential Time differencing Scheme for Non-Linear Reaction Diffusion Systems with Dimensional Splitting*, (E.O. Asante-Asamani, A. Kleefeld, & B.A. Wade), J. Comput. Phys., pp. 1–18, 2020.
8. *On Deep Matrix Tri-Factorization for Mining Vertex-wise Interactions in Multi-Space Attributed Graphs*, Y. He, S. Chen, T. Nguyen, B.A. Wade, and X Wu, Proceedings of the 2020 SIAM International Conference on Data Mining (SDM), pp. 334-342 C. Demeniconi and N. Chawla, eds., eISBN: 978-1-61197-623-6, SIAM, 2020.
9. *Efficient Time Discretization Scheme for Nonlinear Space Fractional Reaction-Diffusion Equations*, (O.S. Iyiola, E.O. Asante-Asamani, K.M. Furati, and A.Q.M Khaliq, B.A. Wade), Int. J. Comput. Math., V. 95 (6-7), pp. 1274-1291, 2018.
10. *Time Discretization and Stability Regions for Dissipative dispersive Kuramoto-Sivashinsky Equation Arising in Turbulent Gas Flow Over Laminar Liquid*, (A. Mouloud, H. Fellouah, B.A. Wade, M. Kessal), Journal of Computational and Applied Mathematics, V. 330, pp. 605-617, 2018.
11. *Efficient Krylov-Based Exponential Time Differencing Method in Application to 3D Advection-Diffusion-Reaction Systems*, (H.P. Bhatt, A.Q.M. Khaliq, B.A. Wade), Applied Mathematics and Computation, V. 338, pp. 260-273, 2018.
12. *Exponential Integrator Methods for Systems of Non-Linear Space-Fractional Models with Super-Diffusion Processes in Pattern Formation*, (O.S. Iyiola and B.A. Wade), Computers & Math. with Appl., 75 (10), pp. 3719-3736, 2018.
13. *A Real Distinct Pole Rational Approximation of Generalized Mittag-Leffler Functions and Their Inverses: Applications to Fractional Calculus*, (O.S. Iyiola, E.O. Asante-Asamani, and B.A. Wade), J. Comput. & Appl. Math., V. 330, pp. 307-317, 2018.
14. *A Dimensional Splitting of ETD Schemes for Reaction-Diffusion Systems*, (E.O. Asante-Asamani and B.A. Wade), Comm. in Comput. Phys. (CICP), V. 19, No. 5, pp. 1343-1356, May, 2016.
15. *A Real Distinct Poles Exponential Time Differencing Scheme for Reaction-Diffusion Systems*, (E.O. Asante-Asamani, A.Q.M. Khaliq, and B.A. Wade), J. Comput. & Appl. Math (JCAM), V. 299, pp. 24–34, 2016.

16. *On the Periodic Solutions of a Rigid Dumbbell Satellite in a Circular Orbit*, (J.L.G. Guirao , J. A. Vera and B.A. Wade), *Astrophysics & Space Science*, Springer, V. 4, pp 1-6, 2013.
17. *Exponential Time Differencing Schemes for Reaction-Diffusion Problems*, Proceedings of the 2012 International Conference on Computational and Mathematical Methods in Science and Engineering, J. Vigo Aguiar et al, ed., V. 3, pp. 1227–1236, 2012.
18. *On Efficient Numerical Methods for an Initial-Boundary Value Problem with Nonlocal Boundary Conditions*, (J. Martín Vaquero and B.A. Wade), *Applied Mathematical Modelling*, V. 38(8), pp. 3411–3418, 2012.
19. *An ETD Crank-Nicolson Method for Reaction-Diffusion Systems* (B. Kleefeld, A.Q.M. Khaliq and B.A. Wade), *Numerical Methods for Partial Differential Equations (NMPDE)*, V. 28, pp. 1309-1335, 2012.
20. *On the Approximation of Controlled Singular Stochastic Processes*, (G. Rus, R.H. Stockbridge and B.A. Wade), Proceedings of the 2009 International Conference on Computational and Mathematical Methods in Science and Engineering, ISBN 978-84-612-9727-6, V. 3, pp. 954–964, 2009.
21. *Smoothing Schemes for Reaction-Diffusion Systems with Nonsmooth Data*, (A.Q.M. Khaliq, J. Martín-Vaquero, M. Yousuf, and B.A. Wade) *J. Comput. & Appl. Math (JCAM)*, V. 223(1), pp. 374–386, 2009.
22. *Recent advances in Computational and Applied Mathematics in Science and Engineering*, (J. Vigo-Aguiar B.A. Wade), Taylor & Francis 86 (2), 199-199, 2009.
23. *Numerical Solution of a Long-term Average Control Problem for Singular Stochastic Processes*, (P. Kaczmarek, S.T. Kent, G.A. Rus, R.H. Stockbridge, and B.A. Wade), *Mathematical Methods of Operations Research*, V. 66, pp. 451–473, 2007.
24. *High Order Smoothing Schemes for Inhomogeneous Parabolic Problems with Applications to Nonsmooth Payoff in Option Pricing* (A.Q. M. Khaliq, M. Yousuf, J. Vigo-Aguiar, and B.A. Wade), *Numer. Methods for Partial Differential Equations (NMPDE)* V. 23(5), pp. 1249–1276, 2007.
25. *Adapted BDF Algorithms Applied to Parabolic Problems* (J. Martín-Vaquero, J. Vigo-Aguiar, and B.A. Wade), *Numerical Methods for Partial Differential Equations (NMPDE)*, V. 23, No. 2, pp. 350-365, 2007.
26. *On Smoothing of the Crank-Nicolson Scheme and Higher Order Schemes for Pricing Barrier Options* (A.Q.M. Khaliq, M. Yousuf, J. Vigo-Aguiar, R. Deininger, and B.A. Wade), *Journal of Computational and Applied Mathematics (JCAM)*, V. 204, No. 1, pp. 144-158, 2007.

27. *Stability of Phase-Based Gain Modulation with Designer-Chosen Switch Functions*, (wB. Armstrong, J.A. Gutierrez, R. Joseph, and B.A. Wade), International Journal of Robotics Research, V. 25, No. 8, pp. 781–796, 2006.
28. *Smoothing with VSVO BDF Schemes for Parabolic Problems with Nonsmooth Data*, (J. Martín-Vaquero and B.A. Wade), Proceedings of the 2006 Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE 2006), V. 2, pp. 706–711, (ISBN 84-611-1090-0; 978-84-611-1090-2), 2006.
29. *Optimization of a Gene Analysis Application* (K. Ghosh, P. Tonellato, and B.A. Wade), Computing Letters (CoLe), V. 2, No. 1, pp. 74–96, 2006.
30. *Smoothing with Positivity–Preserving Padé Schemes for Parabolic Problems with Nonsmooth Data*, (A.Q.M. Khaliq, M. Siddique, M. Yousuf, and B.A. Wade), Numerical Methods for Partial Differential Equations (NMPDE), Wiley Interscience, V. 21, No. 3, (DOI 10.1002/num. 20039), pp. 553–573, 2005.
31. *Stochastic Methods for Dirichlet Problems*, (J. Vigo–Aguiar, R. Ardanuy–Albajar, and B.A. Wade), Journal of Mathematical Modeling and Algorithms (JMMA), V. 4, Number 3, pp. 317 - 330, 2005.
32. *Numerical Solution of Parabolic Problems by Adapted BDF Algorithms*, (J. Martín-Vaquero, J. Vigo-Aguiar, and B.A. Wade), V - Proceedings of the CMMSE 2005, J.Vigo-Aguiar & B.A. Wade, eds., ISBN No. 84-609-4844-7, V. 1, pp. 364–389, 2005.
33. *On the Smoothing of the Crank-Nicolson Method for Pricing Barrier Options*, (A.Q.M. Khaliq, M. Yousuf, J. Vigo-Aguiar, R. Deininger, and B.A. Wade), V- Proceedings of the CMMSE 2005, J.Vigo-Aguiar & B.A. Wade, eds., ISBN No. 84-609-4844-7, V. 1, pp. 279–290, 2005
34. *Numerical Simulation of the Active Magnetic Regenerator*, (B. Siddikov, D. Schultz, and B.A. Wade), Computers and Mathematics with Applications, V. 49, pp. 1525-1538, 2005.
35. *Optimal NPID Stabilization of Linear Systems*, (I. Lauko, B. Armstrong, and B.A. Wade), Journal of Optimization Theory and Applications, V. 124, No. 2, pp. 307–322, 2005.
36. *Numerical Simulation of the Passive Regenerator*, (B. Siddikov, D.H. Schultz, and B.A. Wade) International Journal of Applied Science and Computations, V. 9, no. 2, pp. 89–97, 2002.
37. *The Stability of Nonlinear PID Control with Arbitrary Partial-State Knowledge*, (B. Armstrong, J. A. Gutierrez, R. Joseph, and B.A. Wade), Proceedings of the 2002 IEEE International Conference on Robotics and Automation, ICRA 2002, May 11-15, 2002, Washington, DC, USA, V. 4, pp. 3429-3434, 2002.

38. *On Smoothing of the Crank-Nicolson Scheme for Nonhomogeneous Parabolic Problems*, (A.Q.M. Khaliq and B.A. Wade) *Journal of Computational Methods in Sciences and Engineering (JCMSE)*, V. 1, no. 1, pp. 107–124, 2001.
39. *A Two-Stage Multi-Splitting Method for Non-Overlapping Domain Decomposition for Parabolic Equations*, (D.S. Daoud and B.A. Wade), *Domain Decomposition Methods in Sciences and Engineering (DDM)*, T. Chan, T. Kako, H. Kawarada, and O. Pironneau, eds., ISBN No. 4-901404-00-8, pp. 101–108, 2001.
40. *Nonlinear PID Control with Partial State Knowledge: A Generation Method Based on Quadratic Programming*, (B. Armstrong and B.A. Wade), *Proceedings of the American Control Conference*, Chicago, Illinois, pp. 774–778, 2000.
41. *Nonlinear PID Control with Partial State Knowledge: A Generation Method Based on Quadratic Programming*, (B. Armstrong and B.A. Wade), *Proceedings of the American Control Conference*, Chicago, Illinois, pp. 774–778, 2000.
42. *The Weighted Continuous Galerkin Scheme for Ordinary Differential Equations*, (M. Nabhan and B.A. Wade), *International Journal of Computer Mathematics*, V. 76, no. 1-2, pp. 323–337, 2000.
43. *Nonlinear PID Control With Partial State Knowledge Damping Without Derivatives*, (B. Armstrong and B.A. Wade), *International Journal of Robotics Research*, V. 19, no. 8, pp. 715–731, 2000.
44. *A Non-Overlapping Implicit Predictor-Corrector Scheme for Parabolic Equations* (D. S. Daoud, A.Q.M. Khaliq, and B.A. Wade), *Parallel and Distributed Processing Techniques and Applications*, H.R. Arabnia et al, ed., V. I (ISBN 1-892512-22-x), CSREA Press, pp. 15–19, 2000.
45. *Modeling the Active Magnetic Regenerator*, (D. H. Schultz, B. Siddikov and B.A. Wade), *Proceedings of the IMACS International Conference on Scientific Computing and Mathematical Modeling*, (IMACS 2000, Milwaukee, WI), Institute for Applied Science and Computations, pp. 55–59, 2000.
46. *The Weighted Continuous Galerkin Method*, (M. Nabhan and B.A. Wade), *IMACS 1997: Iterative Methods in Scientific Computation*, *Proceedings of the Third IMACS International Symposium on Iterative Methods in Scientific Computation*, Jackson Hole, Wyoming, July 9-12, 1997, J.P. Wang, M.B. Allen III, B.M. Chen, and T. Mathew, eds., Volume 4 in the IMACS Series on Computational and Applied Mathematics, pp. 295–300, 1998.
47. *A Survey of the Kreiss Matrix Theorem for Power Bounded Families of Matrices and Its Extensions* (J.C. Strikwerda and B.A. Wade), in *Linear Operators*, Banach Center Publications, Polish Academy of Sciences, Institute of Mathematics, J. Janas, F. Szafraniec, and J. Zemánek, eds., Warsaw, V. 38, pp. 339–360, 1997.

48. *Convergence of Galerkin Finite Element Schemes for Nonhomogeneous Parabolic Evolution Problems* (K. Jayasuriya and B.A. Wade), *Journal of Mathematical Analysis and Applications*, V. 195, pp. 645-657, 1995.
49. *Cesàro Means and the Kreiss Matrix Theorem* (J.C. Strikwerda and B.A. Wade), *Linear Algebra and Its Applications*, V. 145, pp. 89-106, 1991.
50. *Symmetrizable Finite Difference Operators*, *Mathematics of Computation*, V. 54, 1990, pp. 525-543.
51. *Regularity Estimates up to the Boundary for Elliptic Systems of Difference Equations* (J.C. Strikwerda, K.P. Bube and B.A. Wade), *SIAM Journal on Numerical Analysis*, V. 27, pp. 292-322, 1990.
52. *An Extension of the Kreiss Matrix Theorem* (J.C. Strikwerda and B.A. Wade), *SIAM Journal on Numerical Analysis*, V. 25, pp. 1272-1278, 1988.

Major Invited Lectures

1. *EPEM: Efficient Parameter Estimation for Multiple Class Monotone Missing Data*, Department of Mathematics and Statistics Colloquium, Marquette University, April 22, 2023.
2. *Splitting with Exponential Time Differencing Schemes For Reaction-Diffusion Systems*, Colloquium lecture, Universidad EAFIT, Medellin, Colombia, January 27, 2020.
3. *Splitting Methods for ETD Schemes*, IMACS 2016 World Congress, Xiamen, China, Dec 10-14, 2016
4. *Exponential Time Differencing Schemes for Nonlinear Parabolic Systems with Dimensional Splitting and Comparison to Standard Schemes*, Colloquium lecture, Computational Science & Engineering (CSE), Purdue University, August 21, 2016.
5. *Dimensional Splitting of ETD Schemes*, 5th International Conference on Scientific Computing and Partial Differential Equations (SCPDE14), Hong Kong.
6. *Exponential Time Differencing (ETD) Schemes Nonlinear Reaction-Diffusion Systems*, Colloquium lecture, Department of Mathematics, Georgia Tech University, Atlanta, Georgia, August 27, 2012.
7. *ETD Schemes in Comparison to Iterative Schemes for Nonlinear Parabolic Systems*, Colloquium lecture, Department of Applied Mathematics and Statistics, Polytechnic University of Cartagena, Cartagena, Spain July 12, 2012.
8. *Exponential Time Difference (ETD) Schemes for Reaction-Diffusion Systems*, Colloquium, Department of Mathematics, Baylor University, March 18, 2011, Waco, TX.

9. *Computation for Reaction-Diffusion Problems with Data of Low Regularity*, Colloquium, Departamento de Matemática Aplicada, Universidad de Salamanca, Salamanca, Spain, July 29, 2005.
10. *Smoothing Schemes for Parabolic Problems with Nonsmooth Data & Applications*, Centro Andaluz del Medio Ambiente (CEAMA), Universidad de Granada, Granada, Spain, June 1, 2005.
11. International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'2000), Las Vegas, Nevada, June, 2000. Title: *A Non-Overlapping Implicit Predictor-Corrector Scheme for Parabolic Equations*.
12. *International Conference on Operator Theory and Its Applications to Scientific and Industrial Problems*, Winnipeg, Manitoba, Canada, October, 1998. Title: *Finite Element Schemes in Time for Evolution Equations*.
13. *Third IMACS International Symposium on Iterative Methods in Scientific Computations*, Jackson, Wyoming, July, 1997. Title: *Weighted Galerkin Methods for Evolution Equations*.
14. *Fifth International Conference on Evolution Equations and Their Applications to Technology*, Hiroshima, Japan, October, 1996. Title: *Finite Element Methods for Evolution Equations*.
15. *Semester on Linear Operators, II*, Stefan Banach Center, Institute of Mathematics, Polish Academy of Sciences, Warsaw, Poland, February, 1996. A second lecture, given later in the same conference by special invitation after the first lecture: Title: *Numerical Range Mapping Theorems and Resolvent Estimates*.
16. *Semester on Linear Operators, II*, Stefan Banach Center, Institute of Mathematics, Polish Academy of Sciences, Warsaw, Poland, February, 1996. Title: *The Kreiss Operator Theorem and Numerical Range Mapping Theorems, With Applications to Numerical Analysis*.

Editorship

1. Advisory Board, *International Journal of Computer Mathematics*, Taylor and Francis.
2. Associate Editor, *Special Issue on Application-Oriented Numerical Computation and Optimization— A Celebration of 60 Years of IJCM, International Journal of Computer Mathematics (IJCM)*, Taylor & Francis, 2023-2024 –
3. Associate Editor, *Numerical Analysis and Applicable Mathematics*, (NAAM), published by Ariviyal, 2020–
4. Editorial Board, *Computational and Mathematical Methods*, Wiley Online Library, 2018–

5. Editorial Board, *Analytical and Numerical Methods for Differential Equations and Applications*, Frontiers in Applied Mathematics and Statistics, 2019-present.
6. Associate Editor, *International Journal of Computer Mathematics* (IJCM), Taylor & Francis, 2006 –
7. Associate Editor, *Recent Trends in Highly Accurate and Structure-Preserving Numerical Methods for Partial Differential Equations*, (Q. Sheng, Y. Tang, B.A. Wade, & Y. Wang), *International Journal of Computer Mathematics*, V. 95(1), DOI: 10.1080/00207160.2017.1359884, 2018.
8. Editorial Board, *Applied Mathematics and Nonlinear Sciences*, (AIMS), UP4, Institute of Sciences, Cartagena, Spain, 2016– present.
9. *Special issue: Computational Methods in Economic Modeling and Engineering — CMMSE 2010. Selected papers based on the presentations at the 10th international conference on computational and mathematical methods in science and engineering (CMMSE 2010), Almeria, Spain, June 26–30, 2010*, (R. Garcia-Rubio, B.A. Wade), *J. of Computational and Applied Mathematics*, V. 236(12), 2012.
10. *Proceedings of the 12th International Conference on Computational and Mathematical Methods in Science and Engineering*, (J. Vigo Aguiar, A.F. Buslaev, A. Cordero, M. Demirelp, I.P. Hamilton, and B.A. Wade) *CMMSE 1*, 1-1573, 2012.
11. *Proceedings of the 11th International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2011, Benidorm, Spain*, (R. Cortina, S. Gray, J.M. Ferrándiz, A. Fernández, I. Hamilton, J.A. López Ramos; P. de Oliveira, R. Steinwandt, E. Venturino, J. Whiteman, and B.A. Wade), *CMMSE 1*, 1- 1249, 2011.
12. *Proceedings of the 10th International Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2010, Almeria, Spain*, (J. Vigo, H. Adeli, J.A. Lopez-Ramos, S. Oharu, J. Ranilla, J. Rosenthal, and B.A. Wade), *CMMSE 1*, 1-1328, 2010.
13. *Proceedings of the 2009 International Conference on Computational and Mathematical Methods in Science and Engineering*, (J. Vigo Aguiar, P. Alonso, S. Oharu, E. Venturino, B.A. Wade), *CMMSE 1*, 1-1425, ISBN 978-84-612-9727-6, 2009.
14. Co-Editor, *Proceedings of the 2008 International Conference on Computational and Mathematical Methods in Science and Engineering*, June 13-16, Murcia, Spain, 2008, ISBN 978-84-690-6887-8.
15. Guest Editor, *Special issue: Recent Advances in Computational and Applied Mathematics in Science and Engineering* (with J. Vigo-Aguiar), *Int. J. of Computer Mathematics*, V. 85, Nos. 3-4, March-April, 2008, ISBN 0020-7160, Taylor and Francis Group, DOI: 10.1080/00207160802018575.

16. Editor, *Proceedings of the 2007 International Conference on Computational and Mathematical Methods in Science and Engineering*, June, 2007, ISBN 978-84-690-6887-8.
17. Guest Editor, *Special issue dedicated to Professor Shinnosuke Oharu on the Occasion of his 65th Birthday*, *Journal of Computational and Applied Mathematics (JCAM)* (with J. Vigo-Aguiar), V. 204, No. 1, July, 2007, ISBN 0377-0427.
18. Guest Editor, *Special Issue CMMSE 2005*, *Journal of Mathematical Chemistry*, (with J. Vigo-Aguiar), V. 40, No. 1, July, 2006, ISBN 0259-9791, Springer, Netherlands.
19. Co-editor, *Proceedings of the 2006 Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE-2006*, ISBN No. 84-611-1090; 978-84-1090-2 (with J. Vigo-Aguiar).
20. Co-editor, *Proceedings of the 2005 Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE-2005*, ISBN No. 84-609-4844-7, (with J. Vigo-Aguiar).
21. Co-Editor, *Computational and Mathematical Methods in Science and Engineering, Proceedings of the 2002 Conference on Computational and Mathematical Methods in Science and Engineering (CMMSE2002)*, (with J. Vigo-Aguiar) V. 1–4.
22. Associate Editor, *Proceedings of the IMACS International Conference on Scientific Computing and Mathematical Modeling*, (IMACS2000, Milwaukee, WI), published by the Institute for Applied Science and Computations, May, 2000.
23. Associate Editor, *Proceedings of the International Conference on Parallel and Distributed Processing Techniques and Applications, PDPTA 2000, June 24-29, 2000, Las Vegas, Nevada, USA, V. I* (ISBN 1-892512-22-x), CSREA Press, 2000.

Scientific Committees, Special Sessions and Conference Chairmanships

Specific Conferences:

1. Co-Chair, Special Session SS25, *AMS Central Section Meeting, September 14-15, University of Texas, San Antonio, Advances in Mathematical and Numerical Analysis of Partial Differential Equations for Application-Oriented Computations*.
2. Chair, *SIAM Texas-Louisiana Section Meeting (SIAMTXLA2023)*, Lafayette, LA, November 3-5, 2023.

3. Co-Chair, Mini-Session: *Recent Advances in Application-Oriented Numerical Computation and Optimization*, *The SIAM Texas-Louisiana Section Meeting* (SIAMTXLA2023), Lafayette, LA, November 3-5, 2023.
4. Conference Co-Chair, *International Conference on Mathematical Modeling and Analysis of Populations in Biological Systems* (ICMA VIII), Lafayette, LA, October 28-30, 2022.
5. Co-Chair, Mini-Session: *Recent advances in application-oriented numerical computation and optimization*, *The 7th Annual Meeting of SIAM Central States Section*, Stilwater, OK, September 28-October 2, 2022.
6. Co-Chair, Mini-Session: *Operator Splitting Methods and Adaptive Schemes for Systems of Nonlinear Evolution Equations*, *SIAM Texas-Louisiana Section Meeting*, South Padre Island, TX, November 5-7, 2021.
7. Co-Chair, Special Sessions *Advances in Computational Statistics*, *Conference on Computational and Mathematical Methods in Science and Engineering* (CMMSE 2020), Cádiz, Spain, July 6-10, 2020.
8. Outside reviewer for Science Foundation Ireland, *Mathematics Applications Consortium for Science and Industry*, University of Limerick, Ireland, September, 2016.
9. Co-Chair, Special Sessions *Advances in Numerical Solution of Time-Dependent Nonlinear Problems*, & *Industrial Mathematics*, *Conference on Computational and Mathematical Methods in Science and Engineering* (CMMSE 2015), Cádiz, Spain, July 6-10, 2015.
10. Chair, Midwest Numerical Analysis Day Conference 2014 (MWNADAY 2014), at the University of Wisconsin- Milwaukee, May 3, 2014.
11. Co-Chair (with Shi Jin (UW Madison)), *Computational and Mathematical Methods in Science and Engineering* (CMMSE 2010, USA Section), May 26–28, 2010, University of Wisconsin–Madison, Madison, WI, USA.
12. Co-Chair (with Greg Fashauer (IIT)), *Computational and Mathematical Methods in Science and Engineering* (CMMSE 2007), June 20-23, 2007, Illinois Institute of Technology, Chicago, IL.
13. Chair, Special Session *Industrial Mathematics*, *Conference on Computational and Mathematical Methods in Science and Engineering* (CMMSE 2006), Madrid, Spain, September 21-25, 2006.
14. Chair, Special Session *Numerical Solution of Ordinary Differential Equations*, *Conference on Computational and Mathematical Methods in Science and Engineering* (CMMSE 2006), Madrid, Spain, September 21-25, 2006.
15. Chair, Special Session *Computational Mathematics*, *Conference on Computational and Mathematical Methods in Science and Engineering* (CMMSE 2006), Madrid, Spain, September 21-25, 2006.

16. Scientific Committee, *International Conference on Mathematics and Applications (ICMA-MU 2005)*, Bangkok, Thailand, December 15– 17, 2005.
17. Chair, Special Session on *Industrial Mathematics*, at the *Conference on Computational and Mathematical Methods in Science and Engineering, CMMSE 2005*, Alicante, Spain, June 27-30, 2005.
18. Chair, *Midwest Numerical Analysis Day*, April, Milwaukee, Wisconsin, 2004.
19. Scientific Committee, *Computational and Mathematical Methods in Science and Engineering, CMMSE2004*, Uppsala, Sweden, June, 2004.
20. Scientific Committee, *International Conference of Computational and Mathematical Methods in Science and Engineering, ICMMSE2003*, Kastoria, Greece, June, 2003.
21. Co-Chair, Special Session, *Recent Advances in Analysis and Numerics for Fluid Dynamics Problems* (with H. Liu, Iowa State University), at the *Second M.I.T. Conference on Computational Fluid and Solid Mechanics*, June, 2003.
22. Co-Chair, Special Session, *Multiscale Computations in Fluid and Solid Mechanics* (with B. Diskin, NASA-ICASE), at the *Second M.I.T. Conference on Computational Fluid and Solid Mechanics*, June, 2003.
23. Scientific Advisory Board, *Second M.I.T. Conference on Computational Fluid and Solid Mechanics*, June, 2003, at the Massachusetts Institute of Technology.
24. Co-Chair, Special Session, *Parallel and Sequential Algorithms for Numerical Solution of Ordinary and Partial Differential Equations*, at *International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'2000)*, Las Vegas, Nevada, June, 2000.
25. Co-organizer, IMACS International Conference on Scientific Computing and Mathematical Modeling, May 25-27, 2000, at the University of Wisconsin–Milwaukee.
26. Local Chair, American Mathematical Society Central Sectional Meeting, at the University of Wisconsin–Milwaukee, October, 1997.
27. Chair, special session: *Finite Element Methods with Applications*, at *Third IMACS International Symposium on Iterative Methods in Scientific Computations*, Jackson, Wyoming, July, 1997.
28. Chair, *Midwest Numerical Analysis Day* Conference, April, Milwaukee, Wisconsin, 1995.

Conference Series:

29. Co-Founder & Co-General Chair (with J. Vigo Aguiar), *Computational and Mathematical Methods in Science and Engineering (CMMSE)*, Conference Series. Conference locations: Milwaukee, Wisconsin, USA (2000), Alicante, Spain (2002), Kastoria, Greece (2003), Uppsala, Sweden (2004), Alicante, Spain (2005), Madrid, Spain (2006), Chicago, IL, USA (2007), Murcia, Spain (2008), Gijon, Spain (2009), Madison, Wisconsin, USA (2010), Bendorn, Spain (2011), Murcia, Spain (2012), Almeria, Spain (2013), Cádiz, Spain (2014), Cádiz, Spain (2015), Cádiz, Spain (2016), Cádiz, Spain (2017), Cádiz, Spain (2018), Cádiz, Spain (2019), Cádiz, Spain (2022, 2023).
30. Scientific Board Member, Midwest Numerical Analysis Day (MWNADAY), an annual regional research conference, 2006– 2016 & Chair, MWNADAY series, 2016-2018.

Graduate Thesis Supervision

Ph.D.

1. Y. O. Afolabi, *Development and Analysis of a Second-order Method for Non-linear Time-Space Reaction-Diffusion Equations Over Time-Graded meshes and Construction of a Global-Type Rational Approximation of the Three-Parameter Mittag-Leffler Functions*, Ph.D., Computational Mathematics, University of Louisiana at Lafayette, August, 2023.
2. T.T. Nguyen, *Optimization of Maximum Likelihood Function in the Presence of Missing Data*, Ph.D., Computational Mathematics, University of Louisiana at Lafayette, August, 2021.
3. K.A. Boddie, *A Minimal Time Solution to the Firing Squad Synchronization Problem with Non Neumann Neighborhood of Extent 2*, Ph.D., Applied Mathematics, University of Wisconsin-Milwaukee, August, 2019.
4. O.S. Iyiola, *Exponential Integrator Methods for Nonlinear Fractional Reaction-Diffusion Models*, Ph.D., Numerical Analysis, University of Wisconsin-Milwaukee, August, 2017.
5. E. Asante-Asamani, *A Real Distinct Poles Exponential Time Differencing Scheme*, Ph.D., Numerical Analysis, University of Wisconsin-Milwaukee, August, 2016.
6. R. Adhikari, *A Weak Simpson Method for a Class of Stochastic Differential Equations and Numerical Stability Results*, Ph.D., Numerical Analysis, University of Wisconsin- Milwaukee, August, 2015 (co-advisor, C. Zhu).
7. B. Janssen, *An Efficient Exponential Time Differencing Method for Nonlinear Reaction Diffusion Problems*, Ph.D., Numerical Analysis, University of Wisconsin–Milwaukee, August, 2009.

8. G. Rus, *Finite Element Methods for Control of Singular Stochastic Processes*, Ph.D., Applied Mathematics, University of Wisconsin–Milwaukee, May, 2009.
9. S. Chiappetta, *Parallel Numerical Algorithms for Convection–Diffusion Partial Differential Equations*, Ph.D., Numerical Analysis, University of Wisconsin–Milwaukee, May, 2009.
10. M. Yousuf, *Smoothing with Positivity-Preserving Padé Schemes for Inhomogeneous Parabolic Problems with Nonsmooth Data*, Ph.D., Numerical Analysis, Mathematics, University of Wisconsin–Milwaukee, May, 2005.
11. I. Panayotova, *Meridional Asymmetries in Large-Scale Atmospheric Dynamical Phenomena*, (Co-advisor K. Swanson, Atmospheric Science), Ph.D., Applied Mathematics, University of Wisconsin–Milwaukee, May, 2005.
12. M. Siddique, *Smoothing with Positivity-Preserving Padé Schemes for Parabolic Problems with Nonsmooth Data*, Ph.D., Numerical Analysis, University of Wisconsin–Milwaukee, December, 2002.
13. Tatiana Soleski, *Wavelets in Computerized Tomography*, (Co-advisor G. Walter), Ph.D., Industrial Mathematics, University of Wisconsin–Milwaukee, May, 2002.
14. Bahodir Siddikov, *Numerical Simulation of the Active Magnetic Refrigerator*, (Co-advisor D.H. Schultz), Ph.D., Industrial Mathematics, University of Wisconsin–Milwaukee, May, 2001.
15. Maha Nabhan, *The Weighted Continuous Galerkin Method for Initial Value Problems*, Ph.D., Numerical Analysis, University of Wisconsin–Milwaukee, August, 1997.
16. Sergio Loch, *Error Estimates for Semidiscrete Galerkin Finite Element Schemes for Second Order Strongly Damped Wave Equations*, Ph.D., Numerical Analysis, accepted at University of Wisconsin–Milwaukee, August, 1993.
17. Kumara Jayasuriya, *Optimal Error Estimates for Semidiscrete and Backward Euler Galerkin Finite Element Schemes for Parabolic Evolution Equations*, Ph.D., Numerical Analysis, University of Wisconsin–Milwaukee, August, 1993.

Master's

1. Lovelyn Madu, Master of Science, University of Louisiana at Lafayette, December, 2024.
2. Björn Müller, *Investigation of Exponential Time Differencing Schemes for Advection-Diffusion-Reaction Problems in the Presence of Significant Advection*, Master of Science, University of Louisiana at Lafayette, December, 2022.

3. Sophia Vorderwülbecke, *Numerical Solutions of Fractional Nonlinear Advection Reaction Diffusion Equations*, Master of Science, University of Wisconsin-Milwaukee, May, 2018.
4. Constantin Greif, *Numerical Methods for Hamilton-Jacobi-Bellman Equations*, Master of Science, University of Wisconsin-Milwaukee, May, 2017.
5. Anja Denner, *Experiments on temporal variable step BDF2 algorithms*, Master of Science, University of Wisconsin-Milwaukee, May, 2014.
6. Jeffrey H. Allen, *Incorporating Krylov Subspace Methods in the ETDRK4 Scheme*, Master of Science, University of Wisconsin-Milwaukee, May, 2014.
7. Nathan Wojahn, *A Second-Order Exponential Time Differencing Crank-Nicolson Method, Applied to the Nonlinear Schrödinger Equation*, Master of Science, University of Wisconsin-Milwaukee, May, 2014.
8. Thomas S. Goepfing, *Mathematical Modeling of Physiological Characteristics in Female Soccer Athletes*, Master of Science, University of Wisconsin-Milwaukee, August, 2013.
9. Emanuel Asante-Asamini, *An Efficient Methodology for Learning Bayesian Networks*, Master of Science, University of Wisconsin-Milwaukee, July, 2012. Co-advisor: P. Tonellato of the Zilber School of Public Health.
10. Theresa Springer, *Development of a Second Order Exponential Time Differencing Scheme*, Master of Science, University of Wisconsin-Milwaukee, May, 2008.
11. Britta Janssen, *Linearly-Implicit Methods Applied to a Chemotaxis Model*, Master of Science, University of Wisconsin-Milwaukee, May, 2007.
12. Kathrin Kopp, *Higher Order Computational Methods for Asian Options*, Master of Science, University of Wisconsin-Milwaukee, May, 2006.
13. Peter Kaczmarek, *Numerical Analysis of a Long-Term Average Stochastic Control Process*, Master of Science, University of Wisconsin-Milwaukee, May, 2006.
14. R. Deininger, *On the Performance of Positively Smoothed Pade Schemes for Barrier Options*, Master of Science, Mathematics, University of Wisconsin-Milwaukee, December, 2004.
15. F. Mörchen, *Analysis of Speedup as Function of Block Size and Cluster Size for Parallel Feed-Forward Neural Networks on a Beowulf Cluster*, Master of Science, Applied Mathematics, University of Wisconsin-Milwaukee, August, 2002.
16. Liubov A. Mikhailova, *NPID Control with Gamma-Limiting and Arbitrary Partial-State Knowledge*, Master of Science, Industrial Mathematics, University of Wisconsin-Milwaukee, May, 2002.

17. Krishnendu Ghosh, *Enhancement of a Problem Solving Environment for Gene Analysis*, Master of Science, Industrial Mathematics, University of Wisconsin–Milwaukee, August, 2001.
18. Lisa Ann Walter, *Log-Logit and the Four Parameter Logistic Transformations of Immunoassays*, Master of Science, Industrial Mathematics, University of Wisconsin–Milwaukee, August, 2001.
19. Ruth Carlson, *Optimization of Gluing Operations Using Design of Experiments and MINITAB Software*, Master of Science, Industrial Mathematics, University of Wisconsin–Milwaukee, August, 2001.
20. Elizabeth Torma, *Analysis of a Viable Model and Its Implementation for Assigning Faculty to Courses and Times at the University of Michigan-Dearborn, Department of Mathematics and Statistics*, Master of Science, Industrial Mathematics, University of Wisconsin–Milwaukee, May, 2000.
21. Christoph Höft, *Modeling Ink Flow in the Industrial Print Process*, Master of Science, Industrial Mathematics, University of Wisconsin–Milwaukee, May, 1999.
22. Oliver Röhrle, *Weighted Finite Difference Schemes for Evolution Problems*, Master of Science, Mathematics (Numerical Analysis), University of Wisconsin–Milwaukee, August, 1999.
23. Tatiana Golovatcheva, *Report to PPG Industries, Inc.*, Master of Science, Industrial Mathematics, University of Wisconsin–Milwaukee, December, 1997.

Major University Service & Teaching Experience

University Service

1. Chair, Directors and Heads Council, University of Louisiana at Lafayette, 2021– present.
2. Faculty Senate, University of Louisiana at Lafayette, 2018– present.
3. Ad Hoc Subcommittee of the Graduate Council on Underrepresented Faculty, 2020–present.
4. Graduate Council, University of Louisiana at Lafayette, 2019– present.
5. Member, Graduate Faculty, University of Louisiana at Lafayette, 2018– present
6. Faculty Senate, University of Wisconsin–Milwaukee, 2014–2017.
7. Chair, Executive Committee, Division of Natural Sciences, 2010–2011 & 2014–2015.
8. Executive Committee, Division of Natural Sciences, 2009-2012. Advises Deans of L&S and CEAS (Engineering) on promotion and tenure for faculty.

9. Graduate Faculty Committee (GFC), 2009-2012.
10. Chair, Graduate Program Review (GPR) Committee, 2009-2010 & 2010-2011.
11. Physical Environment Committee (PEC), 2009-2010 & 2010-2011.
12. Academic Program and Budget Committee (APBC), 2009-2012.
13. Designed or significantly updated computational/applied/industrial math courses: Math 601 (Advanced Engineering Mathematics I), Math 602 (Advanced Engineering Mathematics II), Math 701 (Industrial Mathematics I), Math 702 (Industrial Mathematics II), Math 413 (Introduction to Numerical Analysis), Math 415 (Introduction to Scientific Computing), Math 615 (Numerical Methods for Partial Differential Equations), Math 617 (Optimization).
14. Co-Creator & advisor, *Applied Mathematics and Computer Science*, (AMCS) degree, 2008– present.
15. Primary Author, Department Program Review Self-Study, 2008.
16. Primary Author, Department General Education Requirement (GER) course assessment plans and learning outcomes, 2008.
17. Chair & presenter for 4 Promotion committees at the Executive Committee Division of Natural Sciences, two for Associate Professor and one for Full Professor.
18. Academic Policy Committee (APC), University of Wisconsin-Milwaukee, 1994-1997.
19. Chair, Applied Mathematics and Physics (AMP) Program, 2001-2007.
20. Founder & Director, Center for Industrial Mathematics, 1999-2012.
21. Co-creator, Master's and Ph.D., Industrial Mathematics, Department of Mathematical Sciences, UWM, 1998 & 2001.

Courses Taught

- 000 (UWM) *GEST (Gateway to Engineering and Science Technology) Pre-calculus*. On-campus instruction of high school junior minority students leading to advanced placement calculus.
- 095 (UWM) *Essentials of Algebra*
- 103 (UWM) *Contemporary Mathematics*
- 103 (UL) *Applied College Algebra*
- 104 (UL) *Applied College Algebra Co-requisite Laboratory*
- 105 (UWM) *Intermediate Algebra*

109 (UWM) *Mathematics for Elementary Teachers*

112 (UWM) *College Algebra*

115 (UWM) *Elementary Functions* (Pre-calculus). Served as coordinator for two semesters

122 (UWM) *Calculus II—Honors* (at Cornell University)

211 (UWM) *Survey in Calculus and Analytic Geometry*

215 (UWM) *Elementary Statistical Analysis*

221 (UWM) *Honors Calculus I*

222 (UWM) *Honors Calculus II*

225 (UWM) *Calculus with Precalculus I* Served as coordinator two years

226 (UWM) *Calculus with Precalculus II* Served as coordinator two years

231 (UWM) *Calculus and Analytic Geometry* (I)

232 (UWM) *Calculus and Analytic Geometry* (II)

233 (UWM) *Calculus and Analytic Geometry* (III)

234 (UWM) *Linear Algebra and Differential Equations*

313 (UWM) *Linear Programming and Optimization*

314 (UWM) *Mathematical Programming*

321 (UWM) *Vector Analysis*

322 (UWM) *Introduction to Partial Differential Equations*

341 (UWM) *Introduction to the Language and Practice of Mathematics*

381 (UWM) *Honors Seminar: Introduction to Chaos and Fractals*

405 (UWM) *Mathematical Modeling*

413 (UWM) *Numerical Analysis* (I)

414 (UWM) *Numerical Analysis* (II)

415 (UWM) *Scientific Computing*

417 (UWM) *Computational Linear Algebra*

425 (Cornell) *Numerical Analysis of Differential Equations*

426 (UL) *Linear Algebra*

440 (UL) *Vector Analysis*

487 (UL) *Computational Mathematics*

493 (UL) *Advanced Calculus I*

494 (UL) *Advanced Calculus II*

- 521 (UWM) *Advanced Calculus I*
- 522 (UWM) *Advanced Calculus II*
- 535 (UWM) *Linear Algebra*
- 566 (UWM) *Computational Statistics*
- 597 (UL) *Study of Data Science and Machine Learning Algorithms*
- 599 (UWM) *Capstone Research (Undergraduate)*
- 601 (UWM) *Advanced Engineering Mathematics I*
- 602 (UWM) *Advanced Engineering Mathematics II*
- 615 (UWM) *Numerical Methods for Partial Differential Equations*
- 617 (UWM) *Optimization*
- 655 (UL) *Optimization*
- 656 (UL) *Machine Learning*
- 675 (UWM) *Topics in Applied Mathematics-Introduction to Functional Analysis*
- 699 (UWM) *Independent Study— Linear Programming*
- 701 (UWM) *Industrial Mathematics*
- 702 (UWM) *Industrial Mathematics*
- 715 (UWM) *Numerical Analysis*
- 726 (UWM) *Introduction to Functional Analysis*
- 790 (UWM) *Seminar: Numerical Analysis*
- 792 (UWM) *Industrial Internship*
- 793 (UWM) *Scientific Computing Laboratory*
- 799 (UWM) *Mathematics of Fluid Mechanics*
- 799 (UWM) *Numerical Linear Algebra*
- 799 (UWM) *Parallel Computing with MPI*
- 801 (UWM) *Topics in Applied Mathematics*
- 813 (UWM) *Numerical Solution of Ordinary Differential Equations*
- 814 (UWM) *Numerical Solution of Partial Differential Equations*
- 815 (UWM) *Topics in Numerical Analysis: Evolution Problems*
- 819 (UWM) *Advanced Partial Differential Equations*
- 990 (UWM) *Reading and Research*. Multiple students and semesters. Various topics.

Additional: Spanish Language: conversational, reading.