Tuoc Phan

Department of Mathematics,
University of Tennessee
227 Ayres Hall, 1403 Circle Drive
Knoxville, TN 37996
E-mail: tphan2@utk.edu
Homepage: `http://math.utk.edu/~phan`
Tel: (office) 865-974-4329

Employment and education

- 08/2022   PROFESSOR, University of Tennessee, Knoxville, TN, USA

- 08/2018 - 07/2022   ASSOCIATE PROFESSOR, University of Tennessee, Knoxville, TN, USA

- 08/2012 - 07/2018   ASSISTANT PROFESSOR, University of Tennessee, Knoxville, TN, USA

- 08/2010 - 07/2012   POSTDOCTORAL FELLOW, University of Tennessee, Knoxville, TN, USA

- 07/2007 - 07/2010   POSTDOCTORAL FELLOW, University of British Columbia, Vancouver, BC, Canada

- 07/2007   PH.D. IN MATHEMATICS, University of Minnesota, Minneapolis, MN, USA

- 04/2000   B.S. IN MATHEMATICS, University of Science, Vietnam National University of Ho Chi Minh City, Ho Chi Minh City, Vietnam

Research areas and collaborators

- RESEARCH AREAS: Partial differential equations

  - **Existence uniqueness and regularity estimates**: Linear - nonlinear elliptic, parabolic equations and system of equations; nonlinear degenerate p-Laplacian type equations; equations with singular degenerate coefficients; equations with singular drifts; Stokes systems and Navier-Stokes equations.
  - **Nonlinear dynamics for nonlinear dispersive equations**: Normal form theory, dispersive estimates, asymptotical stability of solitons in Dirac equations, Klein-Gordon equations, and Schrödinger equations.
  - **Optimal control theory and its applications**: Population (cells, chemical concentration) dynamics in heteronomy. Analysis of PDE and optimal control techniques to investigate optimal control problems in nonlinear biological PDE models.

- COLLABORATORS: Dat Cao (Minnesota State University - Mankato); Xia Chen (**UTK**); Andrew Comech (Texas A & M University); Dario V. Castillo (Ave Maria University); Scipio Cuccagna (University of Trieste, Italy); Kokum De Silva (University of Peradeniya, Sri Lanka); Hongjie Dong (Brown University); Duong Minh Duc (University of Science, Ho Chi Minh City - Vietnam); Heather Finotti (**UTK**); Juraj Foldes (University of Virginia); Stephen Gustafson (University of British Columbia - Canada); Doyoon Kim (Korea University); Luan Hoang (Texas Tech University); An Le (Senior Healthcare Economics Consultant, Landmark Health); Suzanne Lenhart (**UTK**); Masaya Maeda (Chiba University - Japan); Tadele Mengesha (**UTK**); Kenji Nakanishi (Kyoto University - Japan); Loc Nguyen (University of North Carolina - Charlotte); Truyen Nguyen (University of Akron); Dmitry Pelinovsky (McMaster University - Canada); Du Pham (University of Texas at San Antonio); Nguyen Cong Phuc (Louisiana State University); Yannick Sire (Johns Hopkins University); Atanas Stafanov (University of Kansas); Grozdena Todorova (**UTK**); Hung Vinh Tran (University of Wisconsin - Madison); Tai-Peng Tsai (University of British Columbia - Canada).

Publications

45. H. Dong, **T. Phan**, and Y. Sire , *Sobolev estimates for singular-degenerate quasilinear equations beyond the A_2 class*, submitted (2023), `https://arxiv.org/abs/2305.07634`, arXiv:2305.07634.

44. H. Dong and **T. Phan**, *Weighted mixed-norm L_p estimates for equations in non-divergence form with singular coefficients: the Dirichlet problem*, Journal of Functional Analysis, `https://doi.org/10.1016/j.jfa.2023.109964`, arXiv:2103.08033.

43. H. Dong, **T. Phan**, and H. V. Tran, *Degenerate linear parabolic equations in divergence form on the upper half space*, Transactions of the American Mathematical Society (2022), DOI: `https://doi.org/10.1090/tran/8892`, arXiv:2107.08033.

42. **T. Phan**, *On trace theorems for weighted mixed norm Sobolev spaces and applications*, Potentials and Partial Differential Equations: The legacy of David Adams (Advances in Analysis and Geometry, De Gruyter), arXiv:2205.04941.

41. **T. Phan** and Dario A. Valdebenito, *A Boundary layer problem in non-flat domains with measurable viscous coefficients*, Studies in Applied Mathematics, 2022, DOI:10.1111/sapm.12531.

40. H. Dong and **T. Phan**, *On parabolic and elliptic equations with singular or degenerate coefficients*, Indiana University Mathematics Journal, accepted, arXiv:2007.04385.

39. H. Dong, D. Kim and **T. Phan**, *Boundary Lebesgue mixed-norm estimates for non-stationary Stokes systems with VMO coefficients*, Communications in Partial Differential Equations, `https://doi.org/10.1080/03605302.2022.2084627`, arXiv:1910.00380.

38. J. Földes and **T. Phan**, *On higher integrability estimates for elliptic equations with singular coefficients*, Funkcialaj Ekvacioj, 66 (2023), 1 - 16.

37. H. Dong and **T. Phan**, *Parabolic and elliptic equations with singular or degenerate coefficients: the Dirichlet problem*, Transactions of the American Mathematical Society, 374 (2021), 6611-6647.

36. **T. Phan** and T. Roberston, *On Masuda uniqueness theorem for Leray-Hopf weak solutions in mixed-norm spaces*, European Journal of Mechanics / B Fluids, 90 (2021) 18-28.

35. H. Dong and **T. Phan**, *Regularity theory for parabolic equations with singular degenerate coefficients*, Calculus of Variations and Partial Differential Equations, 60, Article number: 44 (2021).

34. H. Dong and **T. Phan**, *Weighted mixed-norm L_p-estimates for elliptic and parabolic equations in non-divergence form with singular degenerate coefficients*, Revista Matemtica Iberoamericana, DOI: 10.4171/rmi/1233.

33. **T. Phan**, G. Todorova and B. Yordanov, *Existence uniqueness and regularity theory for elliptic equations with complex-valued potentials*, Discrete and Continuous Dynamical Systems - Series A, 2021, 41(3): 1071-1099.

32. H. Dong and **T. Phan**, *Mixed-norm L_p-estimates for non-stationary Stokes systems with singular VMO coefficients and applications*, Journal of differential equations, Volume 276, 5 (2021), p. 342-367.

31. **T. Phan**, *Liouville type theorems for 3D stationary Navier-Stokes equations in weighted mixed-norm Lebesgue spaces*, Dynamics of Partial Differential Equations, Vol 17, no. 3 (2020), 229-243.

30. **T. Phan** and Y. Sire, *On well-posedness of 2D dissipative quasi-geostrophic equation in critical mixed norm Lebesgue spaces*, Analysis in Theory and Applications, 36, No. 2 (2020), 111-127.

29. **T. Phan**, *Well-posedness for the Navier-Stokes equations in critical mixed-norm Lebesgue spaces*, Journal of Evolution Equations, 20 (2020), 553-576.

28. **T. Phan**, *Weighted Calderón-Zygmund estimates for weak solutions of quasi-linear degenerate elliptic equations*, Potential Analysis (2020), 52(3), 393-425.

27. D. Cao, T. Mengesha and **T. Phan**, *Gradient estimates for weak solutions of linear elliptic systems with singular-degenerate coefficients*, AMS Contemporary Mathematics, Nonlinear Dispersive Waves and Fluids, Volume 725, 2019, 13-33.

26. **T. Phan**, *Lorentz estimates for weak solutions of quasi-linear parabolic equations with singular divergence-free drifts*, Canadian Journal of Mathematics, Canad. J. Math. Vol. 71 (4), 2019, 937-982.

25. X. Chen and **T. Phan**, *Free energy in a mean field of Brownian particles*, Discrete and Continuous Dynamical Systems - Series A, 39 (2019), no. 2, 747-769.

24. T. Mengesha and **T. Phan**, *Weighted $W^{1,p}$-estimates for weak solutions of degenerate elliptic equations with coefficients degenerate in one variable*, Nonlinear Analysis, 179 (2019), 184 - 236.

23. **T. Phan**, *Regularity estimates for BMO-weak solutions of quasi-linear equations with inhomogeneous boundary conditions*, Nonlinear Differential Equations and Applications NoDEA, (2018) 25: 8, `https://doi.org/10.1007/s00030-018-0501-2`.

22. **T. Phan**, *Interior gradient estimates for weak solutions of quasi-linear p-Laplacian type equations*, Pacific Journal of Mathematics, 297(2018), no. 1, 195–224.

21. D. Cao, T. Mengesha and **T. Phan**, *Weighted $W^{1,p}$-estimates for weak solutions of degenerate and singular elliptic equations*, Indiana University Mathematics Journal, Vol. 67, No. 6 (2018), 2225-2277.

20. **T. Phan**, *Regularity gradient estimates for weak solutions of singular quasi-linear parabolic equations*, Journal of Differential Equations, Volume 263, Issue 12, 2017.

19. **T. Phan**, *Local $W^{1,p}$-regularity estimates for weak solutions of parabolic equations with singular divergence-free drifts*, Electronic Journal of Differential Equations, Vol. 2017 (2017), No. 75, 1-22.

18. K. De Silva, S. Lenhart and **T. Phan**, *Advection control in parabolic PDE systems for competitive populations*, Discrete and Continuous Dynamical Systems - Series B, Vol. 22, Issue 3 (2017), 1049 – 1072.

17. A. Comech, **T. Phan** and A. Stefanov, *Asymptotic stability of solitary waves in generalized Gross–Neveu model*, Annales de l'Institut Henri Poincare (C) Non Linear Analysis, Vol. 34, Issue 1 (2017), 157-196.

16. S. Cuccagna, M. Maeda and **T. Phan**, *On small energy stabilization in the NLKG with a trapping potential*, Nonlinear Analysis, Vol 146 (2016), 32-58.

15. T. Nguyen and **T. Phan**, *Interior gradient estimates for quasilinear elliptic equations*, Calculus of Variations and Partial Differential Equations, 55, 59 (2016), doi:10.1007/s00526-016-0996-5.

14. L. Hoang, T. Nguyen and **T. Phan**, *Local gradient estimates for degenerate elliptic equations*, Advanced Nonlinear Studies, Vol. 16, Issue 3 (2016), 479-489.

13. L. Hoang, T. Nguyen and **T. Phan**, *Gradient estimates and global existence of smooth solutions for a system of cross-diffusion equations*, SIAM Journal of Mathematical Analysis, Vol. 47, Issue 3 (2015), 2122–2177.

12. L. Hoang, T. Kieu and **T. Phan**, *Properties of generalized Forchheimer flows in porous media*, Problemy Matematicheskogo Analiza 76, 2014, 133–194, English translation in "Journal of Mathematical Sciences",vol. 202 (2014), no. 2, 259 - 332.

11. **T. Phan** and N. C. Phuc, *Stationary Navier-Stokes equations with critically singular external forces: existence and stability results*, Adv. Math. 241 (2013), 137–161.

10. D. E. Pelinovsky and **T. Phan**, *Normal form for the symmetry-breaking bifurcation in the nonlinear Schrödinger equation*, Journal of Differential Equations, Vol. 253, Issue 10 (2012), 2796–2824.

9. K. Nakanishi, **T. Phan** and T.-P. Tsai, *Small solutions of nonlinear Schrödinger equations near first excited states*, Journal of Functional Analysis, Vol. 263, Issue 3 (2012), 703–781.

8. H. Finotti, S. Lenhart and **T. Phan**, *Optimal control of advection direction on reaction - diffusion population models*, Evolution Equations and Control Theory, Vol. 1, no. 1 (2012), 81–107.

7. **T. Phan**, *A remark on global existence of solutions of shadow systems*, Zeitschrift für angewandte Mathematik und Physik (ZAMP), Vol. 63, Number 2 (2012), 395-400.

6. S. Gustafson and **T. Phan**, *Stable directions for degenerate excited states of nonlinear Schrödinger equations*, SIAM Journal of Mathematical Analysis, Vol. 43, Issue 4 (2011), 1716-1758.

5. **T. Phan**, *On global existence of solutions to a cross-diffusion system*, Journal of Mathematics Analysis and Applications, Volume 343 (2008), 826–834.

4. **T. Phan**, *On global existence of solutions to Shigesada-Kawasaki-Teramoto cross-diffusion systems in domains of arbitrary dimensions*, Proceedings of the American Mathematical Society, Vol. 135 (2007), no. 12, 3933–3941.

3. L. H. An, P. X. Du, D. M. Duc and **T. Phan**, *Lagrange multipliers for functions derivable along directions in a linear subspace*, Proceedings of the American Mathematical Society, Vol. 133 (2005), no. 2, 595–604.

2. D. M. Duc, N. H. Loc and **T. Phan**, *Generalized zeros of operators and applications*, Vietnam Journal of Mathematics, Vol. 32 (2004), Special Issue, 87–96.

1. D. M. Duc, N. H. Loc and **T. Phan**, *Topological degree for a class of operators and applications*, Nonlinear Analysis, Vol. 57, no. 4 (2004), 505–518.

Awards/Grants:

- UTK — Faculty Research Assistants Funding (Spring 2021, $1,750, UTK-Office of Undergraduate Research)
- Simons Foundation — Asymptotical stability and regularity theory in nonlinear partial differential equations, August 2015 - August 2022 (PI, grant # 354889, $35,000).
- IMA — The 46th Barrett Lectures on Modeling and Analysis of Nonlinear PDEs in Spatial Ecology, 2016 (PI, $5000).
- NSF — Southeastern-Atlantic Regional Conference on Differential Equations, University of Tennessee, Knoxville, TN, 2013 (Co-PI, DMS-1338314, $21,938.00).

Current students supervised

- Joshua David Douden (Undergraduate math honors student, 08/2021- present).
- Van Le (Ph.D student, 08/2020 - present).
- Junyuan Fang (Ph.D student, 08/2020 - present).

Former students supervised

- Timothy Eugene Robertson (Ph.D. 12/2022): Currently an assistant professor, Pacific Union College, CA.

- Adrian Calderon (Undergraduate mathematics honors student, Spring 2019 - Spring 2022): Honors thesis (spring 2022), currently a Ph.D. student in Boston University.

- Jun Park (Undergraduate mathematics honors student, Fall 2019 - Spring 2021): Honors thesis (spring 2021), currently a Ph.D. student in University of Virginia.

- Shay Phagan (Undergraduate mathematics honors student, summer 2018 - Spring 2019): Honors thesis (spring 2019), currently a Ph.D. student in Purdue University.

- Beili Johnson (MS degree - May 2018): Math instructor, Walters State Community College, TN.

- Thuy Van Nguyen Le (Can Tho University, Vietnam, undergraduate thesis, May 2018): "Functional analysis methods in PDE and probability theory".

- Robert Adams, Christopher Oballe, and Natasha Rudy: Summer 2013 REU students, NIMBioS, `http://www.nimbios.org/reu/reu2013_proteins_proj`

- Elena Crosley, Arielle Nivens, and Ilan Rubin: Summer 2012 REU students, NIMBioS, `http://www.nimbios.org/reu/reu2012_proj_salmonella`

Postdoc supervised

- Toai Luong (08/2022 - 08/2025)

- Darío A. Valdebenito (08/2019 - 06/2022): Assistant Professor (Ave Maria University, Florida).

- Dat Cao (2015 - 2016): Assistant Professor (Minnesota State University-Mankato, Minnesota)

Editorship

- Associate editor   *Evolution Equations and Control Theory* (since 06/2021).

- Member of editorial *Electronic Journal of Differential Equations* (since 07/2021).
  board

- Book editor   *Nonlinear dispersive waves and fluids*, AMS Contemporary Mathematics, Volume: 725, 2019.

Workshops, conferences, and special sessions organized

- Organizer (member and founder): *Third Conference on Analysis and Applied Mathematics*, Sai Gon University, Ho Chi Minh City, December 19-21, 2022.

- Organizer (member): *AMS special Session on Nonstandard Elliptic and Parabolic Regularity Theory with Applications*, AMS Fall Southeastern Sectional Meeting, University of Tennessee at Chattanooga, Chattanooga, TN October 15-16, 2022.

- Organizer (member): *Mathematical Conference: Summer Meeting*, Sai Gon University, Ho Chi Minh City, `https://seminartoanhoc.wordpress.com/`, July 30 - 31, 2022.

- Organizer (member): *Workshop on PDE and related topics*, VIASM, `https://viasm.edu.vn/en/hdkh/pde2022`, July 25 - July 28, 2022.

- Organizer (member): *Mathematical Conference: Summer Meeting*, virtual, `https://seminartoanhoc.wordpress.com/`, July 24 - 25, 2021.

- Organizer (member and founder): *Second Conference on Analysis and Applied Mathematics*, Sai Gon University (Hybrid), December 18 - 19, 2020, Ho Chi Minh City, Vietnam.

- Organizer (member and founder): *First Conference on Analysis and Applied Mathematics*, Ho Chi Minh City University of Technology (Hutech), January 3 - 4, 2019, Ho Chi Minh City, Vietnam (`http://www.math.utk.edu/~phan/caam.html`).

- Organizer (member): *AMS Special Session on Spectral Calculus & Quasilinear Partial Differential Equations*, AMS 2017 joint meeting, Atlanta, January 2017.

- Organizer (member): *Mathematical Conference: Summer Meeting*, Hochiminh City, July 23 - 24, 2016.

- Organizer (chair): *The 46th Barrett Lectures on Modeling and Analysis of Nonlinear PDEs in Spatial Ecology*, Department of Mathematics, University of Tennessee, Knoxville, May 16 - 18, 2016.

- Organizer (member): Special session on *Analysis on Nonlinear Integral and Partial Differential Equations* AMS Southeastern Sectional Meeting University of Alabama in Huntsville, Huntsville, AL, March 27-29, 2015.

- Organizer (member): Special session on *Recent Advances in Evolution Equations*, The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, July 07 - 11, 2014 Madrid, Spain.

- Organizer (member) Special session on *Harmonic Analysis and Nonlinear Partial Differential Equations*, AMS Southeastern Spring Sectional Meeting, University of Tennessee, Knoxville, TN March 21-23, 2014.

- Organizer (member): *Southeastern-Atlantic Regional Conference on Differential Equations*, University of Tennessee, Knoxville, TN, Sept 21- 23, 2013.

- Organizer (member): Minisymposium on *Current Trends and Phenomena in the Analysis of Nonlinear Partial Differential Equations*, 37th Annual SIAM Southeastern Atlantic Section Conference, Knoxville, TN.

- Organizer (member): Special session on *Dynamics, Nonlinear PDES and Applications*, The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, USA, July 1 - 5, 2012.

Short term invited visits

- 11/2019   Department of Mathematics, Johns Hopkins University, Baltimore, MD 21218

- 10/2019   Division of Applied Mathematics, Brown University, Providence, RI 02912

- 09/2019   Institute for Mathematics and its Applications, Minneapolis, Minnesota

- 07/2018   Center of Advanced Study in Theoretical Sciences, National Taiwan University, Taipei, Taiwan

- 06/2017   School of Mathematics, Jilin University, Changchun, Jilin, China
  `Host:` Prof. Lianzhang Bao

- 06/2017   School of Mathematics and Statistics, Wuhan University, Wuhan, Hubei, China
  `Host:` Prof. Wei-Wei Ao and Prof. Juncheng Wei

- 10/2015   Department of Mathematics, University of British Columbia, BC, Canada
  `Host:` Prof. Juncheng Wei and Prof. Tai-Peng Tsai

- 06/2014   Department of Mathematics, École Polytechnique Fédérale de Lausanne, Switzerland
  `Host:` Prof. Hoai Minh Nguyen

- 11/2011   Department of Mathematics, University of Kansas, Lawrence, KS, USA
  `Host:` Prof. Milena Stanislavova

- 11/2011   Department of Mathematics, Vanderbilt University, Nashville, TN, USA
  `Host:` Prof. Juraj Foldes

- 05/2011   Hausdorff Center for Mathematics, University of Bonn, Bonn, Germany
  `Host:` Prof. Antoine Choffrut

- 05/2011   Département de Mathématiques, Université Paris-Sud, Orsay, France
  `Host:` Prof. Nalini Anantharaman

- 04/2010   Department of Mathematics, Texas A & M University, College Station, TX, USA
  `Host:` Prof. Andrew Comech

- 02/2010   Department of Mathematics & Statistics, McMaster University, Hamilton, ON, Canada
  `Host:` Prof. Dmitry Pelinovsky

- 12/2009   Department of Mathematics, Kyoto University, Kyoto, Japan
  `Host:` Prof. Kenji Nakanishi and Prof. Yoshio Tsutsumi

- 10/2009   Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX, USA
  `Host:` Prof. Luan Thach Hoang

Conference and seminar talks

- 01/2023   Invited speaker: Colloquium, Department of Mathematics Mechanics and Informatics, Ha Noi University of Science, Ha Noi, VN

- 11/2022   Invited speaker: Virtual Analysis and PDE Seminar (VAPS), `https://www.youtube.com/watch?v=CUiEQWCjvBU`

- 11/2022   Invited speaker: Applied Math Seminar, Department of Mathematics and Statistics, University of Auburn, Auburn, AL

- 11/2022   Invited speaker: 40th Southeastern-Atlantic Regional Conference on Differential Equations, North Carolina State University Raleigh, NC

- 10/2022   Invited speaker: Colloquium, Department of Mathematics and Statistics, University of North Carolina at Charlotte, Charlotte, NC

- 08/2022   Invited speaker: VIASM Annual Meeting 2022, Vietnam Institute for Advanced Study in Mathematics, Ha Noi, Vietnam

- 03/2022   Invited speaker: Colloquium, Department of Mathematics, University of Alabama at Birmingham, Birmingham, AL

- 11/2021   Speaker: Junior Colloquium, Department of Mathematics, University of Tennessee, TN

- 10/2021   Invited sessional speaker: The 44th SIAM Southeastern Atlantic Section Conference, September 18-19, 2021 Auburn University, AL

- 04/2021   Invited speaker: Colloquium, Department of Mathematics, State University of New York at Geneseo (SUNY Geneseo), Geneseo, NY

- 03/2021   Invited speaker: Analysis Seminar, Department of Mathematics, Kansas State University, Manhattan, KS

- 03/2021   Invited speaker: Analysis Seminar, Department of Mathematics, The University of Kansas, Lawrence, KS

- 02/2021   Invited speaker: Applied Analysis Seminar, Department of Mathematics, Louisiana State University, Baton Rouge, LA

- 02/2021   Invited speaker: Analysis Seminar, Department of Mathematics, University of Alabama, Tuscaloosa, AL

- 10/2020   Invited speaker: Pure Mathematics Colloquium - Current Advances in Mathematics, Department of Mathematics and Statistics, Texas Tech University

- 10/2019   Invited speaker: PDE seminar, University of Science - Vietnam National University, Ho Chi Minh City, Vietnam

- 12/2019   Invited speaker: Junior Colloquium, Department of Mathematics, International University - Vietnam National University, Ho Chi Minh City, Vietnam

- 11/2019   Invited sessional speaker: AMS Fall Southeastern Sectional Meeting, University of Florida, Gainesville, FL

- 11/2019   Invited speaker: PDE seminar, Division of Applied Mathematics, Brown University, Rovidence, Rhode Island

- 11/2019   Invited speaker: Colloquium, Department of Mathematical Sciences, George Mason University, Fairfax, VA 22030

- 11/2018   Invited sessional speaker: AMS Fall Southeastern Sectional Meeting, University of Arkansas, Fayetteville, AR

- 10/2018   Invited sessional speaker: AMS Fall Central Sectional Meeting, University of Michigan, Ann Arbor, Ann Arbor, MI

- 10/2018   Invited speaker: Analysis Seminar, Department of Mathematics, University of Alabama, Tuscaloosa, AL

- 07/2018   Plenary speaker: 2018 summer meeting, University of Science, Ho Chi Minh City, Vietnam

- 06/2018   Invited sessional speaker (two sessions): Canadian Mathematical Society 2018 Summer Meeting, University of New Brunswick, Fredericton, New Brunswick

- 04/2018   Invited sessional speaker: AMS Spring Southeastern Sectional Meeting, Vanderbilt University, Nashville, TN

- 03/2018   Invited speaker: Harmonic Analysis and PDE seminar, Department of Mathematics, University of Virginia, Charlottesville, VA

- 03/2018   Invited sessional speaker: AMS Spring Central Sectional Meeting, Ohio State University, Columbus, OH

- 09/2017   Invited speaker: PDE seminar, Department of Mathematics, University of Wisconsin - Madison, Wisconsin

- 06/2017   Invited speaker: PDE seminar, School of Mathematics, Jilin University, Changchun, Jilin, China

- 06/2017   Invited speaker: PDE seminar, School of Mathematics and Statistics, Wuhan University, Wuhan, Hubei, China

- 04/2017   Invited speaker: PDE seminar, Division of Applied Mathematics, Brown University, Rovidence, Rhode Island

- 04/2017   Invited speaker: Department Colloquium, Department of Mathematical Sciences, Georgia Southern University, Statesboro, Georgia

- 03/2017   Invited speaker: PDE Seminar, School of Mathematics, University of Minnesota, Minneapolis, MN

- 03/2017   Invited sessional speaker: AMS Spring Southeastern Sectional Meeting, College of Charleston, Charleston, SC

- 02/2017   Invited speaker: PDE and Math. Physics Seminar, Department of Mathematics and Statistics, UNC Charlotte, Charlotte, NC

- 10/2016   Invited sessional speaker: AMS Fall Central Sectional Meeting, University of St. Thomas, Minneapolis, MN

- 09/2016   Invited sessional speaker: Forty-Fourth Annual Conference Differential Equations and Dynamical Systems, Miami University, Oxford, OH

- 12/2015   Invited sessional speaker: Siam Conference on Analysis of PDEs, Scottsdale, AZ (invited talk in Dynamics of PDEs session)

- 11/2015   Invited speaker: Applied Math seminar, Department of Mathematics, Texas A&M University, College Station, TX

- 10/2015   Invited speaker: Differential Geometry - Mathematical Physics - PDE Seminar, Department of Mathematics, University of British Columbia, BC, Canada

- 09/2015   Invited speaker: PDE seminar, Department of Mathematics, Indiana University, Bloomington, IN

- 09/2015   Invited sessional speaker: Workshop in nonlinear PDEs, Brussels, 2015, (invited talk in Parabolic PDEs session)

- 07/2014   Invited speaker: PDE seminar, Fac. of Math & Computer Science, University of Science, Ho Chi Minh City, Vietnam

- 07/2014   Invited speaker: Summer Program on "PDEs and Applied Mathematics", Vietnam Institute for Advanced Study in Mathematics, Ha Noi, Vietnam

- 06/2014   Invited speaker: PDE seminar, Department of Mathematics, École Polytechnique Fédérale de Lausanne, Switzerland

- 05/2014   Plenary speaker (45 minute talk): Workshop on Stability of Solitary Waves, University of Pisa, Italy

- 04/2014   Invited speaker: PDE Seminar, School of Mathematics, University of Minnesota, Minneapolis, MN

- 03/2014   Invited sessional speaker: AMS Spring Central Sectional Meeting Texas Tech University, Lubbock, TX (talked in the Special Session on Qualitative Theory for Nonlinear Parabolic and Elliptic Equations)

- 10/2013   Contributed sessional speaker: The Texas Analysis and Mathematical Physics Symposium, Rice University

- 07/2012   Invited sessional speaker: The 9th AIMS Conference on Dynamical Systems, Differential Equations and Applications, Orlando, FL, USA

- 04/2012   Contributed sessional speaker: The 2nd Ohio River Analysis Meeting, University of Kentucky, Lexington, KY, USA

- 02/2012   Invited speaker: Colloquium, Department of Mathematics, West Virginia University, Morgantown, WV, USA

- 01/2012   Invited speaker: Colloquium, Department of Mathematics, University of Tennessee, Knoxville, TN, USA

- 01/2012   Invited sessional speaker: AMS 2012 Joint Mathematics Meeting, Boston, MA, USA

- 12/2011   Invited speaker: PDE Seminar, Department of Mathematics, University of Kansas, Lawrence, KS, USA

- 11/2011   Invited speaker: PDE Seminar, Department of Mathematics, Vanderbilt University, Nashville, TN, USA

- 10/2011   Invited speaker: DE and Applied Math Seminar, Department of Mathematics, University of Tennessee, Knoxville, TN, USA

- 10/2011   Invited sessional speaker: AMS Western Section Meeting, University of Utah, Salt Lake City, UT, USA

- 09/2011   Contributed sessional speaker: The 31$^{\text{st}}$ Southeastern Atlantic Regional Conference on Differential Equations
Georgia Southern University, Statesboro, GA, USA

- 05/2011   Invited speaker: Applied Math Seminar, Hausdorff Center for Mathematics, University of Bonn, Bonn, Germany

- 05/2011   Invited speaker: PDE - Numerical Analysis Seminar, Département de Mathématiques, Université Paris-Sud, Orsay, France

- 04/2011   Invited sessional speaker: The Seventh IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomenon, University of Georgia, Athens, GA, USA

- 02/2010   Invited speaker: Colloquium, Department of Mathematics, University of Tennessee, Knoxville, TN, USA

- 02/2010   Invited speaker: PDE Seminar, Department of Mathematics & Statistics, McMaster University, Hamilton, ON, Canada

- 12/2009   Invited speaker: PDE Seminar, Department of Mathematics, Kyoto University, Kyoto, Japan

- 12/2009   Invited sessional speaker: SIAM Conference on Analysis of Partial Differential Equations 2009, Miami, FL, USA

- 12/2009   Invited speaker: Diff. Geom–Math. Phys.–PDE Seminar, University of British Columbia, Vancouver, BC, Canada

- 10/2009   Invited speaker: Applied Math Seminar, Department of Mathematics and Statistics, Texas Tech University, Lubbock, TX, USA

- 08/2009   Invited sessional speaker: Second Joint CMS–SMM Meeting, University of British Columbia, Vancouver, BC, Canada

- 06/2009   Invited sessional speaker: CMS/CSHPM Summer Meeting 2009, St. John's, Newfoundland, NF, Canada

- 04/2009   Invited sessional speaker: AMS Western Section Meeting, San Francisco State University, San Francisco, CA, USA

- 02/2007   Invited speaker: Colloquium, Department of Mathematics, National University of Singapore, Singapore

- 11/2006   Invited speaker: Junior Colloquium, School of Mathematics, University of Minnesota, Minneapolis, MN, USA

Conferences and workshops (Invited participant only)

- 07/2019   Advances in Dispersive Equations: Challenges & Perspectives, Banff International Research Station
- 11/2017   Partial Order in Materials: at the Triple Point of Mathematics, Physics and Applications, Banff International Research Station
- 04/2017   Riviére-Fabes Symposium 2017, School of Mathematics, University of Minnesota, Minneapolis, MN
- 06/2011   IMA New Directions Short Course: Invariant Objects in Dynamical Systems and their Applications, Minneapolis, MN, USA
- 01/2009 8th Pacific Northwest PDE Meeting, University of British Columbia, BC, Canada
- 08/2008   Asymptotics and Singularities in Nonlinear and Geometric Dispersive Equations, BIRS, AB, Canada
- 05/2008   Workshop on Singularities, Hamiltonian and gradient flows, C.R.M., Montreal, QC, Canada
- 04/2008   The Eleventh Rivière-Fabes Symposium on Analysis and PDE, School of Mathematics, University of Minnesota, MN, USA
- 03/2008   Recent Developments in Elliptic and Degenerate Elliptic Partial Differential Equations, Systems and Geometric Measure Theory, BIRS, AB, Canada
- 12/2007   CBMS/NSF Regional Conference, San Antonio, TX, USA
- 01/2007   AMS 2007 Joint Mathematics Meeting, New Orleans, LS, USA
- 06/2004   Summer PDE Conference, Purdue University, IN, USA
- 11/2003 52nd Midwest PDE Conference, University of Minnesota, MN, USA
- 06-07/2002   Summer School on Harmonic Analysis, IAS/Park City Mathematics Institute (PCMI), UT, USA

Training

- 04/2009   *Instructional Skill Workshop* (Certificate confered), Teaching and Academic Growth, University of British Columbia, Canada
- 09/2007   *Instructor orientation*, Department of Mathematics, University of British Columbia, Canada
- Fall/2002   *International teaching assistant workshop (one month)*, University of Minnesota, Minneapolis, MN, USA

Teaching Experience

- Courses taught at the University of Tennessee, Knoxville, TN, USA

Spring 2022	Math 536 - Partial Differential Equations II
Fall 2021	Math 423 - Probability Math 535 - Partial Differential Equations I
Spring 2021	Math 448 - Analysis II (honor)
Fall 2020	Math 142 - Calculus II (large lecture) Math 447 - Analysis I (honor)
Spring 2019	Math 536 - Partial Differential Equations II (7 students)

Fall 2018	Math 323 - Introduction to Probability and Statistics (18 students) Math 535 - Partial Differential Equations I (6 students)
Spring 2018	Math 448 - Analysis II (honor, 17 students)
Fall 2017	Math 307 - Introduction to Abstract Mathematics (honor, 12 students) Math 447 - Analysis I (honor, 17 students) Math 539 - PDE/DE seminar
Spring 2017	Math 307 - Introduction to Abstract Mathematics (honor), 22 students
Fall 2016	Math 142 - Calculus II (large session, 231 students)
Spring 2016	Math 142 - Calculus II (large session, 141 students) Math 307 - Introduction to Abstract Mathematics (honor), 12 students
Spring 2015	Math 446 - Advanced Calculus
Fall 2014	Math 635 - Topics in Partial Differential Equations Math 445 - Advanced Calculus Math 539 - PDE/DE Seminar
Spring 2014	Math 536 - Partial Differential Equations Math 539 - PDE/DE Seminar
Fall 2013	Math 535 - Partial Differential Equations Math 231 - Differential Equations Math 539 - PDE/DE Seminar
Sping 2013	Math 446 - Advanced Calculus II
Fall 2012	Math 445 - Advanced Calculus I Math 435 - Partial Differential Equatiosn
Summer 2012	Math 231 - Differential Equations I
Spring 2012	Math 435 - Partial Differential Equations Math 231 - Differential Equations I
Fall 2011	Math 231 - Differential Equations I
Summer 2011	Math 431 - Differential Equations II
Spring 2011	Math 231 - Differential Equations I Math 446 - Advanced Calculus II Math 636 - Advanced Partial Differential Equations II
Fall 2010	Math 231 - Differential Equations I Math 445 - Advanced Calculus I

- Courses taught at the University of British Columbia, BC, Canada

Spring 2010	MATH 267 - Mathematical Methods for EE and CS Students (large session, up to 150 students)
Fall 2009	MATH 267 - Mathematical Methods for EE and CS Students (large session, up to 150 students)
Summer 2009	MATH 200/253 - Multivariable Calculus (large session, up to 150 students)
Fall 2008	MATH 215/255 - Elementary Differential Equations (large session, up to 150 students)
Spring 2008	MATH 105 - Integral Calculus with Applications to Commerce and Social Sciences (large session, up to 150 students)
Fall 2007	MATH 215/255 - Elementary Differential Equations (large session, up to 150 students)

- Recitation sections at the University of Minnesota, MN, USA

  Fall 2006   MATH 2263 - Multivariable Calculus (two weekly sections)

  Spring 2006   MATH 2263 - Multivariable Calculus (two weekly sections)

  Fall 2005   MATH 1038 - College Algebra and Probability (two weekly sections)

  Spring 2005   MATH 1271 - Calculus I (two weekly sections)

  Fall 2004   MATH 1271 - Calculus I (two weekly sections)

  Fall 2003   MATH 1151 - Pre-Calculus II (two weekly sections)

Services and committees (department and university)

- **Graduate student committees**

  - Lucy Jiang — Oral specialty exam (member), December 2022
  - Shane Sawyer — Oral specialty exam (member), November 2022
  - Liet Vo — Ph.D. thesis defense (member), May 2022
  - Timothy Eugene Robertson — Ph.D. thesis defense (chair), May 2022
  - Wencel Valega-Mackenzie — Oral specialty exam (member), May 2020
  - Timothy Eugene Robertson — Oral specialty exam (chair), August 2019
  - Vy Nguyen — Ph.D. thesis defense (member), August 2019
  - Montgomery Taylor — Ph.D. thesis defense (member), July 2019
  - Mitchell Sutton — Oral specialty exam (member), May 2019
  - Mahir Demir — Ph.D. thesis defense (member), March 2019
  - Rebecca Pettit — Ph.D. thesis defense (member), May 2018
  - Beili Johnson — MS report (chair), May 2018
  - Mahir Demir — Oral specialty exam (member), July 2017
  - Stefan Schnake — Ph.D. thesis defense (member), May 2017
  - Wenqiang Feng — Ph.D thesis defense (member), May 2017
  - Montgomery Taylor — Oral specialty exam (member), August 2016
  - Christopher Ryan Loga — Ph.D thesis defense (member), April 2016
  - Kokum De Silva — Ph.D thesis defense (member), November 2015
  - Rebecca Pettit — Oral specialty exam (member), August 2015
  - Kevin Sonnanburg — Oral specialty exam (member), August 2015
  - Wenqiang Feng — Oral specialty exam (member), August 2015
  - Stefan Schnake — Oral specialty exam (member), June 2015
  - Jenifer Ribbeck — MS report (member), May 2015
  - Mike Kelly — Ph.D. thesis defense (member), July, 2014
  - Kokum De Silva — Oral specialty exam (member), August 2013

- **Department committees**

- 2022-2023   Assistantship Committee (chair)
  Probability Hiring Committee (member)
  MS program in industrial and applied math (member)
  Graduate Committee (member)
- 2021-2022   Graduate Committee (chair)
  Undergraduate Committee (member)
  Analysis diagnostic exam committee (member)
  Math major advisor/mentor

- 2020-2021   Graduate Committee (chair)
  Undergraduate Committee (member)
  Analysis diagnostic exam committee (member in fall, and chair in spring)
  PDE prelim committee (member)
  Math major advisor/mentor

- 2018-2019   Advisory committee (member)
  Analysis diagnostic exam committee (member)
  Undergraduate advising committee (member)
  PDE postdoc hiring committee (chair)
- 2017-2018   Communication committee (member)
  Undergraduate advising committee (member)
  Analysis diagnostic exam committee (member)
  Undergraduate committee (member)
- 2016-2017   Communication committee (member)
  Analysis diagnostic exam committee (member)
  Undergraduate advising committee (member)
  Undergraduate committee (member)
- 2015-2016   Barrett lecture committee (chair)
  PDE prelim exam committee (member)
  Undergraduate advising committee (member)
  Undergraduate committee (member)
  Fermat II exam committee (member)
- 2014-2015   Undergraduate advising committee (member)
  Analysis diagnostic exam committee (chair)
  Advisory committee (member)
  Strategic planning committee (member)
  PDE prelim exam committee (chair)
  Undergraduate committee (member)
  Fermat II exam committee (member)
- 2013-2014   Colloquium Committee (chair)
  Undergraduate advising committee (member)
  Analysis diagnostic exam committee (chair)
  Fermat II exam committee (member)
- 2012-2013   Colloquium Committee (member)
  Undergraduate advising committee (member)
  Analysis diagnostic exam committee (member)
  Fermat II exam committee (member)

- **College/university committees and outreach**

  - Spring 2019   Judge: UGR Summer Internship proposals for Arts & Sciences, Natural Sciences
  - Spring 2016   Judge: The 51st Annual Tennessee Junior Science and Humanities Symposium

- – Spring 2016   Evaluator: Cynthia B. Peterson Poster Competition
- – Spring 2015   Judge: The 50th Annual Tennessee Junior Science and Humanities Symposium
- – Spring 2015   Evaluator: Cynthia B. Peterson Poster Competition
- – Fall 2015   Fermat II exam (write, proctor and grade the Fermat II exam for Tennessee high school students)
- – Fall 2014   Fermat II exam (write, proctor and grade the Fermat II exam for Tennessee high school students)
- – Fall 2013   Fermat II exam (write, proctor and grade the Fermat II exam for Tennessee high school students)
- – Fall 2012   Fermat II exam (write, proctor and grade the Fermat II exam for Tennessee high school students)