Hung Vinh Tran

Contact information

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Professional Preparation

- Ph.D. in Mathematics, University of California Berkeley, US, 2008-2012.
- B.S. Honor program in Mathematics, University of Science, Vietnam National University at Ho Chi Minh city, 2002-2006.

Employment

- 2023-present: Professor, Department of Mathematics, UW.
- 2/2022-present: Member of Scientific Council, Vietnam Institute for Advanced Study in Mathematics (VIASM), Vietnam (no salary).
- 2020-2025: Distinguished Associate Member, Vietnam Institute for Advanced Study in Mathematics (VIASM), Vietnam (no salary).
- 2019-2023: Associate Professor, Department of Mathematics, UW.
- 2015-2019: Assistant Professor, Department of Mathematics, UW.
- 2012-2015: Dickson Instructor, Department of Mathematics, The University of Chicago.
- 2009-2012: Graduate Student Instructor/Researcher, Department of Mathematics, University of California Berkeley.

Research interests

- Partial Differential Equations.

Selected grants, honors & awards

- ACDM Best Paper Award 2025, Advances in Continuous and Discrete Models, for paper [71] (brief information).
- NSF grant DMS-2348305 (PI), 2024-2027.
- Vilas Faculty Early-Career Investigator Award, 2022-2024 (brief information).
- Simons Fellowship, academic year 2021-2022 (brief information).
- co-PI, RTG: Analysis and Partial Differential Equations at the University of Wisconsin, NSF DMS-2037851, 2021-2026.
- NSF CAREER award DMS-1843320, 2019-2024 (brief information).
- Honored Instructor, UW Madison University Housing (Fall 2018, Spring 2019).
- Distinguished paper award, International Consortium of Chinese Mathematicians (ICCM), for paper [25], 2017.
- NSF grant DMS-1664424 (PI), 2017-2021.
- NSF grants DMS-1361236, DMS-1615944 (PI), 2014 - 2017.
- Graduate Division Summer Grants, UC Berkeley, Summers 2011, 2012.
- SIAM travel award, 11/2011.
- Vietnam Education Foundation (VEF) Fellowship, 2008-2010.
- Valedictorian, Mathematics department, University of Science, 2006.
- First prize, National Mathematical Olympiad for Students (Analysis), Vietnam, 2003.
- Silver Medal, Asian Pacific Mathematical Olympiad (APMO), 2002.

Books/Lecture notes

2. H. V. Tran, Hamilton–Jacobi equations: Theory and Applications, AMS Graduate Studies in Mathematics, Volume 213, ISBN 9781470465117, 1470465116, 2021.

1. N. Q. Le, H. Mitake, H.V. Tran, Dynamical and Geometric Aspects of Hamilton-Jacobi and Linearized Monge-Ampère Equations, Lecture Notes in Mathematics 2183, Springer.

Publications

79. X. Guo, W. Jing, H. V. Tran, Y. P. Zhang, Quantification of ergodicity for Hamilton–Jacobi equations in a dynamic random environment, arXiv:2604.00315 [math.AP].

78. X. Guo, T. Sprekeler, H. V. Tran Homogenization of non-divergence form operators in i.i.d. random environments, arXiv:2512.04410 [math.PR].

77. T. Jin, Y.Y. Li, H. V. Tran, X. Tu, A Liouville theorem for convex functions with periodic Monge-Ampère measure, arXiv:2511.15021 [math.AP].

76. H. Mitake, P. Ni, H. V. Tran, Quantitative homogenization of convex Hamilton-Jacobi equations with u/ε-periodic Hamiltonians, arXiv:2507.00663 [math.AP].

75. G. Shiu, F. Tonioni, H. V. Tran, Long-lived SEC violation via DM/DE couplings, *J. High Energ. Phys.* arXiv:2506.19914 [hep-th].

74. H. V. Tran, Representation formulas and large time behavior for solutions to some nonconvex Hamilton-Jacobi equations, arXiv:2505.01377 [math.AP].

73. X. Guo, H. V. Tran, Y. P. Zhang, Policy iteration for nonconvex viscous Hamilton–Jacobi equations, *SIAM Journal on Applied Mathematics*, accepted, arXiv:2503.02159 [math.NA].

72. S. Strikwerda, H. V. Tran, M.-B. Tran, Controlling Klein-Gordon Chains and Lattices, arXiv:2502.08852 [math.OC].

71. J. Jang, H. V. Tran, Discrete Coagulation-Fragmentation equations with multiplicative coagulation kernel and constant fragmentation kernel, *Adv Cont Discr Mod* 2025, 86 (2025). *Best Paper Award 2025.*

70. G. Shiu, F. Tonioni, H. V. Tran, Analytic bounds on late-time axion-scalar cosmologies, *J. High Energ. Phys.* 2024, 158 (2024).

69. H. V. Tran, Z. Wang, Y. P. Zhang, Policy Iteration for exploratory Hamilton–Jacobi–Bellman equations, *Applied Mathematics and Optimization*, (2025) 91:50.

68. Y. Han, W. Jing, H. Mitake, H. V. Tran, Quantitative homogenization of state-constraint Hamilton–Jacobi equations on perforated domains and applications, *Arch. Ration. Mech. Anal.*, 249, 18 (2025).

67. J. Qian, T. Sprekeler, H. V. Tran, Y. Yu, Optimal rate of convergence in periodic homogenization of viscous Hamilton-Jacobi equations, *Multiscale Modeling and Simulation (MMS)*, 22 (2024), no. 4, 1558-1584.

66. H. Mitake, Y. Oka, H. V. Tran, Quenching for axisymmetric hypersurfaces under forced mean curvature flows, *Nonlinearity*, 38 (2025), 015010.

65. H. Mitake, H. V. Tran, Asymptotic growth rate of solutions to level-set forced mean curvature flows with evolving spirals, *Bull. London Math. Soc.*, 2025;57:748–770.

64. G. Shiu, F. Tonioni, H. V. Tran, Collapsing universe before time, *Journal of Cosmology and Astroparticle Physics (JCAP)*, 05(2024)124.

63. H. Dong, T. Phan, H. V. Tran, Nondivergence form degenerate linear parabolic equations on the upper half space, *Journal of Functional Analysis*, 286 (2024), no. 9, 110374.

62. G. Shiu, F. Tonioni, H. V. Tran, Late-time attractors and cosmic acceleration, *Physical Review D* 108, 063528 (2023).

61. H. Mitake, C. Mooney, H. V. Tran, J. Xin, Y. Yu, Bifurcation of homogenization and nonhomogenization of the curvature G-equation with shear flows, *Math. Ann.*, 391, 3077-3111 (2025).

60. G. Shiu, F. Tonioni, H. V. Tran, Accelerating universe at the end of time, *Physical Review D* 108, 063527 (2023).

59. X. Guo, H. V. Tran, Optimal convergence rates in stochastic homogenization in a balanced random environment, *Probability Theory and Related Fields*, 193, 821–880 (2025).

58. W. Tang, H. V. Tran, Y. P. Zhang, Policy iteration for the deterministic control problems – a viscosity approach, *SIAM Journal on Control and Optimization*, 63 (2025), no. 1, 375–401.

57. X. Guo, H. V. Tran, Stochastic integrability of heat-kernel bounds for random walks in a balanced random environment, *Electron. J. Probab.* 29 (2024), article no. 194, 1–31.

56. H. V. Tran, Y. Yu, Differentiability of effective fronts in the continuous setting in two dimensions, *International Mathematics Research Notices*, 2024, Issue 7, April 2024, Pages 5548–5585.

55. H. V. Tran, T.-S. Van, Local mass-conserving solution for a critical Coagulation-Fragmentation equation, *J. Differential Equations*, 351 (2023) 49–62.

54. X. Guo, T. Sprekeler, H. V. Tran, Characterizations of diffusion matrices in homogenization of elliptic equations in nondivergence-form, *Calculus of Variations and PDE*, 64, 1 (2025).

53. W. Jing, H. V. Tran, Y. Yu, Effective fronts of polygon shapes in two dimensions, *SIAM J. Math. Anal.*, 55 (2023), no. 6, 6764-6777.

52. H. V. Tran, Y. Yu, Optimal convergence rate for periodic homogenization of convex Hamilton-Jacobi equations, *Indiana University Math Journal*, arXiv:2112.06896 [math.AP].

51. T. T. Le, L. H. Nguyen, H. V. Tran, A Carleman-based numerical method for quasi-linear elliptic equations with over-determined boundary data and applications, *Computers and Mathematics with Applications*, 125 (2022), 13–24.

50. J. Jang, D. Kwon, H. Mitake, H. V. Tran, Level-set forced mean curvature flow with the Neumann boundary condition, *J. Math. Pures Appl.*, 168 (2022), 143–167.

49. H. Dong, T. Phan, H. V. Tran, Degenerate linear parabolic equations in divergence form on the upper half space, *Trans. Amer. Math. Soc.*, 376, no. 6, 2023, 4421–4451.

48. T. Phan, H. V. Tran, On a class of divergence form linear parabolic equations with degenerate coefficients, arXiv:2106.07637 [math.AP].

47. M. Klibanov, L. H. Nguyen, H. V. Tran, Numerical viscosity solutions to Hamilton-Jacobi equations via a Carleman estimate and the convexification method, *Journal of Computational Physics*, 451 (2022) 110828.

46. T. Sprekeler, H. V. Tran, Optimal convergence rates for elliptic homogenization problems in nondivergence-form: analysis and numerical illustrations, *Multiscale Modeling and Simulation (MMS)*, 19 (2021), no. 3, 1453–1473.

45. H. V. Tran, Selection problems in Large Deviations in Games under the logit choice protocol, *Minimax Theory and its Applications*, 08 (2023), No. 1, 235–255.

44. D. Gomes, H. Mitake, H. V. Tran, The large time profile for Hamilton–Jacobi–Bellman equations, *Math. Ann.* 384, 1409–1459 (2022).

43. H. Mitake, H. V. Tran, T.-S. Van, Large time behavior for a Hamilton-Jacobi equation in a critical Coagulation-Fragmentation model, *Comm Math Sci.*, Vol. 19, No. 2, pp. 495–512.

42. X. Guo, H. V. Tran, Y. Yu, Remarks on optimal rates of convergence in periodic homogenization of linear elliptic equations in non-divergence form, *Partial Differential Equations and Applications*, (2020) 1:15.

41. H. V. Tran, T.-S. Van, Coagulation-Fragmentation equations with multiplicative coagulation kernel and constant fragmentation kernel, *Comm. Pure Appl. Math*, Vol. 75, No. 6, 2022, 1292–1331.

40. W. Jing, H. V. Tran, Y. Yu, Effective fronts of polytope shapes, *Minimax Theory and its Applications*, 05 (2020), No. 2, 347–360.

39. Y. Kim, H. V. Tran, S. N. T. Tu, State-constraint static Hamilton-Jacobi equations in nested domains, *SIAM J. Math. Anal.*, 52(5), 4161–4184.

38. Y. Giga, H. Mitake, H. V. Tran, Remarks on large time behavior of level-set mean curvature flow equations with driving and source terms, *DCDS-B*, 2020, 25 (10) : 3983–3999.

37. X. Guo, J. Peterson, H. V. Tran, Quantitative homogenization in a balanced random environment, *Electronic Journal of Probability*, (2022), no. 132, 1–31.

36. W. Jing, H. Mitake, H. V. Tran, Generalized ergodic problems: existence and uniqueness structures of solutions, *J. Differential Equations*, 268(2020), 2886–2909.

35. Y. Giga, H. V. Tran, L. Zhang, On obstacle problem for mean curvature flow with driving force, *Geometric Flows*, 4 (2019) 9–29.

34. Y. Giga, H. Mitake, T. Ohtsuka, H. V. Tran, Existence of asymptotic speed of solutions to birth and spread type nonlinear partial differential equations, *Indiana University Math Journal*, 2021, Vol 70(1), 121–156.

33. W. H. Sandholm, H.V. Tran, S. Arigapudi, Hamilton-Jacobi Equations with Semilinear Costs and State Constraints, with Applications to Large Deviations in Games, *Mathematics of Operations Research*, 47(1):72-99, 2021.

32. H. Mitake, H. V. Tran, On uniqueness sets of additive eigenvalue problems and applications, *Proc. Amer. Math. Soc.*, 146, no 11, 4813–4822.

31. H. Mitake, H. V. Tran, Y. Yu, Rate of convergence in periodic homogenization of Hamilton-Jacobi equations: the convex setting, *Arch. Ration. Mech. Anal.*, 2019, Volume 233, Issue 2, pp 901–934.

30. H. V. Tran, Y. Yu, A rigidity result for effective Hamiltonians with 3-mode periodic potentials, *Advances in Math.*, 334, 300–321.

29. H. Ishii, P. E. Souganidis, H. V. Tran, On the Langevin equation with variable friction *Calculus of Variations and PDE*, (2017) 56: 161.

28. J. Qian, H. V. Tran, Y. Yu, Min-max formulas and other properties of certain classes of nonconvex effective Hamiltonians, *Math. Ann.* (2018) 372: 91.

27. H. V. Tran, A Note on Nonconvex Mean Field Games, *Minimax Theory and its Applications*, 3 (2018), no. 2, 323–336.

26. H. Ishii, H. Mitake, H. V. Tran, The vanishing discount problem and viscosity Mather measures. Part 2: boundary value problems. *J. Math. Pures Appl.*, 108 (2017), no. 3, 261–305.

25. W. Jing, P. E. Souganidis, H. V. Tran, Stochastic homogenization of viscous superquadratic Hamilton-Jacobi equations in dynamic random environment, *Res. Math. Sci.* (2017) 4:6. *(Distinguished paper award, ICCM, 2017.)*

24. D. Gomes, H. Mitake, H. V. Tran, The Selection problem for discounted Hamilton-Jacobi equations: some non-convex cases, *Journal of the Mathematical Society of Japan*, 70, no 1 (2018), 345–364.

23. H. Ishii, H. Mitake, H. V. Tran, The vanishing discount problem and viscosity Mather measures. Part 1: the problem on a torus. *J. Math. Pures Appl. (9)*, 108 (2017), no. 2, 125–149.

22. W. Jing, H. V. Tran, Y. Yu, Inverse problems, non-roundedness and flat pieces of the effective burning velocity from an inviscid quadratic Hamilton-Jacobi model, *Nonlinearity*, 30 (2017) 1853–1875.

21. Y. Giga, H. Mitake, H. V. Tran, On asymptotic speed of solutions to level-set mean curvature flow equations with driving and source terms, *SIAM J. Math. Anal.* 48 (5), 3515–3546.

20. S. Luo, H. V. Tran, Y. Yu, Some inverse problems in periodic homogenization of Hamilton-Jacobi equations, *Arch. Ration. Mech. Anal.* 221 (2016), no. 3, 1585–1617.

19. H. Mitake, A. Siconolfi, H. V. Tran, N. Yamada, A Lagrangian Approach to Weakly Coupled Hamilton-Jacobi Systems, *SIAM J. Math. Anal.* 48(2), 821–846.

18. S. N. Armstrong, H. V. Tran, Y. Yu, Stochastic homogenization of nonconvex Hamilton-Jacobi equations in one space dimension, *J. Differential Equations* 261 (2016), 2702–2737.

17. H. Mitake, H. V. Tran, Selection problems for a discounted degenerate viscous Hamilton–Jacobi equation, *Advances in Math.* 306, 684–703.

16. W. Jing, P. E. Souganidis, H. V. Tran, Large time average of reachable sets and Applications to Homogenization of interfaces moving with oscillatory spatio-temporal velocity, *DCDS-S*, Volume 11, Number 5, October 2018, 915–939.

15. A. Ciomaga, P. E. Souganidis, H. V. Tran, Stochastic homogenization of interfaces moving with changing sign velocity, *J. Differential Equations* 258 (2015), 1025–1057.

14. H. Mitake, H. V. Tran, Weakly coupled systems of the infinity Laplace equations, *Trans. Amer. Math. Soc.* 369 (3), 1773–1795.

13. L. C. Evans, O. Kneuss, H. V. Tran, Partial regularity for minimizers of singular energy functionals, with application to liquid crystal models, *Trans. Amer. Math. Soc.* (2016), no. 5, 3389–3413.

12. S. N. Armstrong, H. V. Tran, Y. Yu, Stochastic homogenization of a nonconvex Hamilton-Jacobi equation, *Calculus of Variations and PDE* (2015), no. 2, 1507–1524.

11. S. N. Armstrong, H. V. Tran, Stochastic homogenization of viscous Hamilton-Jacobi equations and applications, *Analysis and PDE* 7-8 (2014), 1969–2007.

10. S. N. Armstrong, H. V. Tran, Viscosity solutions of general viscous Hamilton-Jacobi equations, *Mathematische Annalen*, 361 (2015), no. 3, 647–687.

9. H. Mitake, H. V. Tran, Large-time behavior for obstacle problems for degenerate viscous Hamilton–Jacobi equations, *Calculus of Variations and PDE* (2015) no. 2, 2039–2058.

8. F. Cagnetti, D. Gomes, H. Mitake, H. V. Tran, A new method for large time behavior of degenerate viscous Hamilton–Jacobi equations with convex Hamiltonians, *Annales de l'Institut Henri Poincaré - Analyse non linéaire* 32 (2015), 183–200.

7. H. Mitake, H. V. Tran, A dynamical approach to the large-time behavior of solutions to weakly coupled systems of Hamilton–Jacobi equations, *J. Math. Pures Appl.* 101 (2014), 76–93.

6. H. Mitake, H. V. Tran, Homogenization of weakly coupled systems of Hamilton–Jacobi equations with fast switching rates, *Arch. Ration. Mech. Anal.* 211 (2014), no. 3, 733–769.

5. H. Mitake, H. V. Tran, Remarks on the large time behavior of viscosity solutions of quasi-monotone weakly coupled systems of Hamilton-Jacobi equations, *Asymptotic Analysis* 77 (2012), no 1-2, 43–70.

4. F. Cagnetti, D. Gomes, H. V. Tran, Convergence of a semi-discretization scheme for the Hamilton–Jacobi equation: A new approach with the adjoint method, *Applied Numerical Mathematics* 73 (2013), 2–15.

3. F. Cagnetti, D. Gomes, H. V. Tran, Adjoint methods for obstacle problems and weakly coupled systems of PDE, *ESAIM: Control, Optimisation and Calculus of Variations* 19 (2013), no. 3, 754–779.

2. F. Cagnetti, D. Gomes, H. V. Tran, Aubry-Mather measures in the non convex setting, *SIAM Journal on Mathematical Analysis* 43 (2011), 2601–2629.

1. H. V. Tran, Adjoint methods for static Hamilton-Jacobi equations, *Calculus of Variations and PDE* 41 (2011), no. 3-4, 301–319.

Undergraduate publications

2. D. M. Duc, T. V. Hung, N. T. Khai, Critical points of non-C^2 functionals, *Topol. Methods Nonlinear Anal.* 29 (2007), no. 1, 35–68.

1. D. M. Duc, T. V. Hung, N. T. Khai, Morse-Palais lemma for nonsmooth functionals on normed spaces, *Proc. Amer. Math. Soc.* 135 (2007), no. 3, 921–927.

Mentoring

Graduate students

- Yeon-Eung Kim (Ph.D. in May 2019). Current position: Tenure-track Assistant Professor at Seoul National University of Science and Technology (SeoulTech) (3/2023-).

- Son Thai Nguyen Tu (Ph.D. in August 2022). Current position: Tenure-track Assistant Professor at Baylor University (8/2025-).
- Yuxi Han (Ph.D. in July 2024). Current position: Golomb Visiting Assistant Professor (postdoc) at Purdue University (8/2024-).
- Jiwoong Jang (Ph.D. in July 2024). Current position: Novikov postdoctoral fellow at University of Maryland (8/2024-).
- Qi Sun.
- Adrian Calderon.
- Seho Park.

Postdocs

- Xiaoqin Guo (Van Vleck assistant prof. 8/2017-7/2020). Next position: Tenure-track Assistant Professor, University of Cincinnati (8/2020-).
- Dohyun Kwon (Van Vleck assistant prof. 8/2020-1/2023). Next position: Tenure-track Assistant Professor, University of Seoul (3/2023-).
- Timo Sprekeler (informal mentee during postdoc time at NUS, 2021-2024). Next position: Tenure-track Assistant Professor, Texas A&M University (8/2024-).
- Sarah Strikwerda (RTG postdoc 8/2024-).
- Yang Yang (Van Vleck assistant prof. 8/2025-).

Undergraduate students

- Hoang Nguyen-Tien (University of Science, May 2023). His undergrad thesis was published as a paper at Asymptotic Analysis.
- Fanchen Meng (UW, May 2025).
- Junkai Qi (Nanjing University).

Further detail is on my webpage (mentoring).

Editorial works

- Associate Editor, SIAM Journal on Mathematical Analysis (January 2025-).
- Associate Editor, Advances in Continuous and Discrete Models (February 2024-now).
- Editor, Minimax Theory and its Applications (January 2020–January 2025).

- Guest Editor of Discrete and Continuous Dynamical System - Series S, Volume 11, Number 5, October 2018.
- Editor of Lecture Notes in Mathematics 2183, Springer.

Teaching

Invited topic courses

- A short course on "Periodic homogenization of Hamilton-Jacobi equations: basic theory and some recent progresses", Summer Program in Partial Differential Equations 2022, August 15-19, 2022, UT Austin.
- YMSC-BIMSA Minicourse in Analysis and Applications on "Optimal rates of convergence in periodic homogenization of linear elliptic equations in non-divergence form", Tsinghua University, June 2021.
- Basics about Laplace equation and harmonic functions, Winter School on PDEs 2020, VIASM and Saigon University, Ho Chi Minh city, December 2020.
- Optimal control theory and Hamilton-Jacobi equations, DatAI@SG Math Webinar series: 5 lectures via Zoom, August-September 2020.
- A short course on "Level set method and mean curvature flow equation", University of Science, Ho Chi Minh city, Vietnam, July 2018.
- Short course on "Some new methods in viscosity solutions", University of Science, Ho Chi Minh city, Vietnam, July 2017.
- Short course on "Some fixed point results and applications to ODEs, PDEs", UW-Madison Undergraduate PDE Summer School 2017, May 15–June 9, 2017.
- Short course on "Weak convergence methods for nonlinear PDEs", University of Science, Ho Chi Minh city, Vietnam, July 2016.
- Short course on "periodic homogenization of Hamilton-Jacobi equations", University of Science, Ho Chi Minh city, Vietnam, July 6-14, 2015.
- Short course on "Stochastic homogenization for first order Hamilton-Jacobi equations", FMSP lectures, The University of Tokyo, September 8-12, 2014.
- Short course on "An introduction to viscosity solutions", summer program on "PDEs and Applied Mathematics", Vietnam Institute for Advanced Study in Mathematics, July 14-25, 2014.

Regular teaching

- 2025-2026: Math 619 (undergraduate PDEs).
- 2024-2025: Math 521 (Analysis I), Math 720 (graduate PDE 2).
- 2023-2024: Math 821(Topic course in PDEs), Math 619 (undergraduate PDEs).
- 2022-2023: Math 719 (graduate PDE 1), Math 807 (graduate dynamical system), UW Madison.
- 2021-2022: no teaching, sabbatical year, funded partly by a Simons Fellowship.
- 2020-2021: Math 619 (undergraduate PDEs), Math 807 (graduate dynamical system), UW Madison.
- 2019-2020: Math 521 (Analysis I), Math 821 (Topic course in PDEs), UW Madison.
- 2018-2019: Math 375-376, Math 819 (graduate PDE I), UW Madison.
- 2017-2018: Math 521 (Analysis I), Math 619 (undergraduate PDEs), UW Madison.
- 2016-2017: Math 821(Topic course in PDEs), Math 211 (Calculus), Math 522 (Analysis II), UW Madison.
- 2015-2016: Math 319 (ODEs), Math 521 (Analysis I), UW Madison.
- 2014-2015: Math 161-163 (Honor Calculus–IBL style), The University of Chicago.
- 2013-2014: Math 161-163 (Honor Calculus–IBL style), The University of Chicago.
- 2012-2013: Math 200 (Math Methods for Physical Sciences), Math 204 (Analysis in $\mathbb{R}^n$–accelerated style), Math 270 (Basic Complex Variables), The University of Chicago.

Contributions to service at UW

University-wide

- Senator, Faculty Senate (2022-now).
- Quantitative Reasoning Assessment Committee (2024-now).
- Physical Science Divisional Committee (2025-now).

Recent departmental service

- Director of Graduate Admissions (2024-now).
- Graduate Admissions Committee (2019-2020, 2020-2021, 2022-2023, 2024-now).
- Caucus Contact of Differential Equation Caucus (2019-2020, 2020-2021, 2022-now).
- Budget and Planning Committee (2020-2021, 2024-2025).
- TA Evaluation Committee (2024-2025).
- Awards Committee (2023-2024).
- Chair of Colloquium Committee (2022-2023).
- Sabbatical Leave Committee (2022-2023).
- Salary and Post-Tenure Review Committee (2020-2021).
- Conferences and Special Lectures Committee (2019-2020, 2020-2021).
- Hiring Committee (2019-2020, 2023-2024, 2025-now).

PDE graduate courses at UW

- I contributed to the creation of the graduate topics in PDE course (Math 821), which has been taught annually since the 2016-2017 academic year.
- I contributed to the standardization of the regular graduate PDE courses (formerly Math 819–820, now Math 719–720), making them accessible to master's and first-year graduate students.

Some Invited talks

- Smith Colloquium, University of Kansas, April 2026.
- Math Club Talk, UW-Madison, March 2026.
- Colloquium, Michigan State University, February 2026.
- CELG seminar, The University of Economics Ho Chi Minh city, December 2025.
- Young Il colloquium, CM2LA, POSTECH, South Korea, December 2025.
- Plenary talk, KAIST-VIASM Annual Meeting on Mathematical Sciences, KAIST, South Korea, October 2025.
- Analysis Seminar, Ho Chi Minh City University of Technology, VNUHCM, August 2025.

- Summer Meeting, Saigon University, Vietnam, August 9, 2025.
- Group PDE seminar (organized by Wenjia Jing), Tsinghua University, July 19, 2025.
- International Workshop on Stochastic Homogenization: From Local to Non-Local, Institute of Applied Mathematics, Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing, China, July 14-18, 2025.
- Recent progress in Hamilton-Jacobi equations and related topics, Nanjing University, China, June 2-6, 2025.
- Recent Advances on Elliptic and Parabolic Equations, HKUST IAS Focused Program, Hong Kong, May 19-23, 2025.
- Probability seminar, University of Cincinnati, January 2025.
- Workshop on Stability Analysis for Nonlinear PDEs and Multiscale Applications, UW-Madison, November 2024.
- Nonlinear Analysis seminar, Rutgers University, October 2024.
- Plenary talk, Conference "Mathematics Meeting 2024 - Scientific Conference for Young Researchers", Hanoi Pedagogical University 2, Vietnam, September 2024.
- Workshop "Homogenization in PDE and Stochastic Processes", University of Tokyo, Japan, August 2024.
- Plenary talk, Conference "Resonances in the Mathematical World", University of Science and High School for the Gifted, Vietnam, August 2024.
- Workshop on "Theory and Applications for Mean-Field Control and Deep Generative Models", Purdue University, August 2024 (declined).
- Differential Equations Seminar, NCSU, March 2024.
- Analysis seminar, University of Pennsylvania, March 2024.
- Analysis and PDE seminar, UCLA, February 2024.
- Probabilistic and game theoretical interpretation of PDEs, ICMAT & UAM, Madrid, Spain, November 2023.
- Mathematical Physics and Harmonic Analysis Seminar, Texas A&M University, October 2023.
- Invited talk, 10th Vietnam Mathematics Congress, August 2023.
- Public Lecture, Saigon University, August 2023.
- Applied Analysis Seminar, Louisiana State University, April 2023.

- Geometric PDEs and Applications, Okinawa Institute of Science and Technology, Japan, January 2023.
- Colloquium, Indiana University, September 2022.
- Plenary talk, International Conference on Differential Equations and Applications, dedicated to Professor Dinh Nho Hao on the Occasion of his 60th Birthday, Hanoi, August 17-20, 2022.
- Workshop on PDE and related topics, Vietnam Institute for Advanced Study in Mathematics, July 2022.
- Colloquium, Institute of Mathematics, Vietnam Academy of Science and Technology, July 2022.
- Colloquium, University of Pennsylvania, April 2022.
- Colloquium, UNCC, March 2022.
- Analysis seminar, UCSD, February 2022.
- New Trends in Geometric PDEs, 1-5 November 2021, Münster, Germany.
- SIAM Southeastern Atlantic Section Conference, September 2021.
- Workshop "PDEs and Probability Theory-beyond boundaries-", Tokyo and Tohoku universities, Japan, online, June 2021.
- Web seminar at Fudan and Nanjing Universities, May 2021.
- Springer Nature PDE and Applications webinar, May 2021.
- PDE seminar, Purdue University, April 2021.
- Brown PDE Seminar, Brown University, April 2021.
- Pure Mathematics Colloquium, Texas Tech University, February 2021.
- Seminar, Da Lat University, Vietnam, December 2020.
- Colloquium, Loyola University Chicago, December 2020.
- Plenary talk, Annual Meeting of Vietnam Institute for Advanced Study in Mathematics (VIASM) 2020, November 2020.
- IPAM Workshop III: Mean Field Games and Applications, May 2020.
- Differential Equations Seminar, NCSU, March 25, 2020.
- Applied and Computational Mathematics Seminar, UW Madison, January 31, 2020.
- CNA seminar, Carnegie Mellon University, January 16, 2020.

- Fall Western AMS Sectional Meeting, Riverside, California, November 9-10, 2019.
- 84th Midwest PDE seminar, Illinois Institute of Technology, Chicago, IL, October 26-27, 2019.
- New trends in Hamilton-Jacobi: PDE, Control, Dynamical Systems and Geometry, Shanghai, July 1-5, 2019.
- Recent Progress in Nonlinear Partial Differential Equations, June 26-29 2019, Beihang University, Beijing, China.
- Southern California Analysis and PDE Conference: Reaction, Diffusion, and Homogenization, UC Irvine, June 1-2, 2019.
- Colloquium, Southern Methodist University, March 2019.
- Conference on Analysis and Applied Mathematics, Ho Chi Minh City University of Technology, January 2019.
- Analysis seminar, University of Texas Austin, October 2018.
- EPSRC Durham Symposium Homogenisation in Disordered Media, Durham University, UK, August 19-25, 2018.
- Weak KAM 2018 – Rio 2018 ICM Satellite Conference, Brazil, July 23-27, 2018.
- Special Session 107, AIMS meeting 2018, Taipei, Taiwan, July 2018.
- Analysis seminar, University of Science, Ho Chi Minh city, Vietnam, January 2018.
- CAM seminar, Tsinghua University, Beijing, China, December 2017.
- PDE seminar, Tsinghua University, Beijing, China, December 2017.
- Analysis seminar, UC San Diego, November 2017.
- Viscosity solution approach to asymptotic problems in front propagation, dynamical system and related topics, RIMS, Kyoto University, July 3-5, 2017.
- Colloquium, West Virginia University, April 2017.
- AMS sectional meeting, Indiana University, April 2017.
- Differential Equations seminar, NCSU, March 2017.
- Analysis and PDE seminar, UC Berkeley, March 2017.
- Colloquium, UTK, February 2017.
- Probability seminar, UW Madison, October 2016.

- The 41st Sapporo Symposium on Partial Differential Equations, Hokkaido university, August 2016.
- CAMP seminar, The University of Chicago, May 2016.
- PDE/Applied Math Seminar, Indiana university, April 2016.
- Minisymposium, SIAM Conference on Analysis of PDEs, December 2015.
- 76th Midwest PDE seminar, Michigan State University, November 21-22, 2015.
- Central Fall Sectional Meeting of the AMS, Loyola University Chicago, Chicago, IL October 2-4, 2015.
- PDE and GA seminar, UW Madison, September 2015.
- Developments in the theory of homogenization, Banff, July 26-31, 2015.
- 6th Symposium on Analysis and PDEs, Purdue university, June 2015.
- Analysis seminar, Northwestern, May 2015.
- PDE seminar, UCLA, April 2015.
- BU/Brown Dynamics and PDE Seminar, March 2015.
- Colloquium, Miami university, March 2015.
- University of Warwick, January 2015.
- Colloquium, University of Southern California, December 2014.
- Analysis seminar, University of Texas Austin, December 2014.
- Colloquium, University of Wisconsin Madison, November 2014.
- PDE seminar, Loyola University Chicago, October 2014.
- PDE seminar, UC Berkeley, September 2014.
- PDE seminar, Waseda university, September 2014.
- PDE seminar, Hiroshima university, September 2014.
- Plenary speaker, Summer meeting 2014, University of Science, Ho Chi Minh city, Vietnam.
- PDE seminar, UC Irvine, May 2014.
- PDE seminar, Purdue university, April 2014.
- International Workshop on PDEs and Related Topics in Nonlinear Problems, Hiroshima university, Japan, February 2014.

- Minisymposium, SIAM Conference on Analysis and PDEs, December 2013.
- Fall Southeastern Sectional Meeting of the AMS, University of Louisville, Kentucky, October 2013.
- 33rd Southeastern-Atlantic Regional Conference on Differential Equations, University of Tennessee at Knoxville, September 2013.
- PDE seminar, Fukuoka university, Japan, June 2013.
- PDE seminar, UC Irvine, April 2013.
- CAMP seminar, The University of Chicago, 2012.
- Analysis seminar, Loyola University Chicago, 2012.
- Ohio River Analysis Meeting, University of Kentucky, April 2012.
- Minisymposium, SIAM Conference on Analysis and PDEs, December 2011.
- OxPDE, Oxford university, UK, October 2011.
- PDE seminar, Padova university, September 2011.
- INDAM workshop, Weak KAM theory in Italy, Cortona, September 11-17, 2011.

Short visits

- Hokkaido university, August 1-10, 2016. Host: Professor Hideo Kubo.
- Hiroshima university and Tokyo university, September 1-14, 2014. Host: Professors Y. Giga, H. Mitake.
- Vietnam Institute for Advanced Study in Mathematics, July 14-25, 2014.
- Fukuoka university, Japan, June 2-June 13, 2013. Host: Professor H. Mitake.
- Oxford Centre for Nonlinear PDE, October, 2011 (1 month). Host: Professor John Ball.
- Department of Pure and Applied Math, Padova University, Sep 17-Oct 5, 2011.
- ICE-AMSI Summer School, University of Sydney, Sydney, Australia (fully funded by AMSI), 2007.

Synergistic Activities

- Organizer, Summer Meeting 2025, Saigon University, August 2025.
- Organizer, Summer school in PDE and applications 2024, Saigon University and VIASM, July 2024.
- Organizer, Summer Meeting 2024, Saigon University, July 2024.
- High school for the gifted alumni Talk&Share # 1: Research and Untold stories, August 2023.
- Organizer, Virtual Analysis and PDE Seminar (VAPS), 2020-now.
- Organizer, Conference on Analysis and Applied Mathematics 3, Saigon University, December 2022.
- Organizer, Summer Meeting 2022, Saigon University, July 2022.
- Organizer, Workshop on PDE and related topics, Vietnam Institute for Advanced Study in Mathematics, July 2022.
- Reviewer for Simons Foundation Fellowship Program, 2021.
- Reviewer for the Scientific Prize 2021 of Institute of Mathematics, Vietnam Academy of Science and Technology.
- Organizer, Summer Meeting 2021 via Zoom.
- Organizer, Winter School on PDEs 2020, VIASM and Saigon University, Ho Chi Minh city, December 2020 (in person).
- Organizer, Conference on Analysis and Applied Mathematics 2, December 2020 (via Zoom).
- NSF panelist, 2020.
- Organizer, PDE and Geometric Analysis, UW-Madison, 2015-2021.
- Organizer, Madison Workshop in PDE 2020, May 18-21, 2020.
- Organizer, Summer Meeting 2020, University of Science, Ho Chi Minh city, Vietnam, July 2020.
- Organizer, Summer Meeting 2019, University of Science, Ho Chi Minh city, Vietnam, July 2019.
- Committee member of dissertation defenses at UW-Madison: Tau Shean Lim (Math, May 2017), Ruiwen Shu (Math, April 2018), Jingrui Cheng (Math, May 2018), Keith Dsouza (Math, May 2018), Srinivas Arigapudi (Econ, April 2021), Xiao Shen (Math, May 2021), Michael Cervia (Physics, August 2021), Jianhui Li (Math, May 2023), Evan Sorrensen (Math, June 2023).

- Organizer, Summer Meeting 2018, University of Science, Ho Chi Minh city, Vietnam, July 2018.
- Organizer, Special session on Viscosity solutions: beyond the well-posedness theory, AIMS meeting 2018.
- Organizer, 81st Midwest PDE seminar, UW Madison, April 21-22, 2018.
- Organizer, Summer Meeting 2017, University of Science, Ho Chi Minh city, Vietnam, July 2017.
- Organizer, UW-Madison Undergraduate PDE Summer School, May 15-June 9, 2017.
- Organizer, Madison Workshop in Analysis and PDE, UW Madison, October 1-2, 2016.
- Organizer, Summer Meeting 2016, University of Science, Ho Chi Minh city, Vietnam, July 23-24, 2016.
- Organizer, special session on "Recent developments related to conservation laws and Hamilton-Jacobi equations", AIMS 2016 Meeting, Orlando, Florida, USA, July 1-5, 2016.
- Organizer, Summer Meeting 2015, University of Science, Ho Chi Minh city, Vietnam, August 8-9, 2015.
- Organizer of the student PDE seminar, The University of Chicago, 2014-2015.
- Organizer of the summer program on "PDEs and Applied Mathematics", Vietnam Institute for Advanced Study in Mathematics, July 14-25, 2014.
- Organizer of the one-day workshop, summer program on "PDEs and Applied Mathematics", Vietnam Institute for Advanced Study in Mathematics, July 18, 2014.
- AWM Postdoc Panel, Department of Mathematics, University of Chicago, May 2014.
- Instructor for some summer math camps, Ho Chi Minh city, Vietnam, 2008-2010.
- Coordinator for the 48th International Mathematical Olympiad (IMO), Vietnam, 2007.
- Referee for various mathematics journals such as Annali SNS, Analysis and PDE, Applications and Applied Mathematics, Bulletin of Mathematical Sciences, Calculus of Variations and PDE, Communications in PDE, Communications on Pure and Applied Analysis, Communications on Pure and Applied Mathematics, Journal of Differential Equations, Nonlinearity, Nonlinear Analysis Series A: Theory, Methods & Applications, Proceedings AMS, SIAM Journal on Mathematical Analysis, Taiwanese Journal of Mathematics, Probability Theory and Related Fields.