Ian Tice

Professor

Carnegie Mellon University
Department of Mathematical Sciences
Pittsburgh, PA 15213 USA
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Employment

2012 + **Carnegie Mellon University**, *Department of Mathematical Sciences*
- Full Professor, 2024 – present
- Associate Professor (with tenure), 2019 – 2024
- Associate Professor (without tenure), 2018 – 2019
- Assistant Professor, 2012 – 2018

2011 - 2012 **Université Paris-Est Créteil**, *Laboratoire d'Analyse et de Mathématiques Appliquées*
- Postdoctoral Researcher
- Research mentor: Etienne Sandier

2008 - 2011 **Brown University**, *Division of Applied Mathematics*
- Prager Assistant Professor
- National Science Foundation Mathematical Sciences Postdoctoral Research Fellow
- Research mentor: Yan Guo

Education

2003 - 2008 **Courant Institute of Mathematical Sciences, New York University**, *Ph.D. in Mathematics*, May 2008
- Advisor: Sylvia Serfaty
- Dissertation Topic: Lorentz space estimates and applied current dynamics for Ginzburg-Landau
- National Science Foundation Graduate Research Fellow

1999 - 2003 **University of Kansas**, *B.S. in Mathematics*, May 2003
- Graduated with highest honors (top 3%), GPA 4.0/4.0
- Minor in physics
- Goldwater Scholar, 2002 – 2003

Research interests

Nonlinear partial differential equations, fluid mechanics, variational methods, free boundary problems, function spaces, the Ginzburg-Landau model of superconductivity

Publications

1. Y. Guo, I. Tice, L. Wu, Y. Zheng. Global well-posedness of contact lines: 2D Navier-Stokes flow. Preprint (2024), 77 pp. Available online: [arXiv.math.AP/2407.17895].
2. N. Stevenson, I. Tice. The traveling wave problem for the shallow water equations: well-posedness and the limits of vanishing viscosity and surface tension. Preprint (2023), 55 pp. Available online: [arXiv.math.AP/2311.00160]
3. N. Stevenson, I. Tice. Well-posedness of the traveling wave problem for the free boundary compressible Navier-Stokes equations. Preprint (2023), 158 pp. Available online: [arXiv.math.AP/2301.00773]
4. N. Stevenson, I. Tice. Well-posedness of the stationary and slowly traveling wave problems for the free boundary incompressible Navier-Stokes equations. To appear in *J. Funct. Anal.* (2024), 54 pp. Available online: [arXiv.math.AP/2306.15571]
5. J. Koganemaru, I. Tice. Traveling wave solutions to the free boundary incompressible Navier-Stokes equations with Navier boundary conditions. To appear in *J. Differential Equations*

(2024), 34 pp. Available online: [arXiv.math.AP/2311.01590]

6. S. Mukherjee, I. Tice. On a scale of anisotropic Sobolev spaces. To appear in *Comm. Pure Appl. Anal.* (2043), 17 pp. Available online: [arXiv.math.AP/2312.06044]
7. A. Remond-Tiedrez, I. Tice. Anisotropic micropolar fluids subject to a uniform microtorque: the stable case. *Anal. PDE* **17** (2024), no. 1, 41–132.
8. Y. Guo, I. Tice. Stability of contact lines in fluids: 2D Navier-Stokes flow. To appear in *J. Eur. Math. Soc.* **26** (2024), no. 4, 1445–1557.
9. H. Nguyen, I. Tice. Traveling wave solutions to the one-phase Muskat problem: existence and stability. *Arch. Ration. Mech. Anal.* **248**, no. 5 (2024).
10. J. Koganemaru, I. Tice. Traveling wave solutions to the inclined or periodic free boundary incompressible Navier-Stokes equations. *J. Funct. Anal.* **285** (2023), no.7, Paper No. 110057, 75 pp.
11. G. Leoni, I. Tice. Traveling wave solutions to the free boundary incompressible Navier-Stokes equations. *Comm. Pure Appl. Math.* **76** (2023), no.10, 2474–2576.
12. N. Stevenson, I. Tice. Traveling wave solutions to the multilayer free boundary incompressible Navier-Stokes equations. *SIAM J. Math. Anal.* **53** (2021), no. 6, 6370–6423.
13. A. Remond-Tiedrez, I. Tice. Anisotropic micropolar fluids subject to a uniform microtorque: the unstable case. *Comm. Math. Phys.* **381** (2021), no. 3, 947–999.
14. D. Bian, Y. Guo, I. Tice. Linear instability of Z-pinch in plasma: inviscid case. *Math. Models Methods Appl. Sci.* **31** (2021), no. 2, 409–472.
15. I. Tice, L. Wu. Dynamics and stability of sessile drops with contact points. *J. Differential Equations* **272** (2021), 648–731.
16. N. Stevenson, I. Tice. A truncated real interpolation method and characterizations of screened Sobolev spaces. *Comm. Pure Appl. Anal.* **19** (2020), no. 12, 5509–5566.
17. N. Stevenson, I. Tice. Analysis of micropolar fluids: existence of potential microflow solutions, nearby global well-posedness, and asymptotic stability. *Acta Appl. Math.* **170**, (2020), 903–945.
18. D. Bian, Y. Guo, I. Tice. Linear instability of Z-pinch in plasma: viscous case. *Math. Models Methods Appl. Sci.* **30** (2020), no. 14, 2827–2907.
19. I. Tice, S. Zbarsky. Decay of solutions to the linearized free surface Navier-Stokes equations with fractional boundary operators. *J. Math. Fluid Mech.* **22**, 48 (2020).
20. D. Altizio, I. Tice, X. Wu, T. Yasuda. The nonlinear stability regime of the viscous Faraday wave problem. *Quart. Appl. Math.* **78** (2020), 545–587.
21. G. Leoni, I. Tice. Traces for homogeneous Sobolev spaces in infinite strip-like domains. *J. Funct. Anal.* **277** (2019), no. 7, 2288–2380.
22. A. Remond-Tiedrez, I. Tice. The viscous surface wave problem with generalized surface energies. *SIAM J. Math. Anal.* (2019), no. 6, 4894–4952.
23. I. Tice, L. Wu. Dynamics and stability of surface waves with bulk-soluble surfactants. *Acta Appl. Math.* **161** (2019), 35–70.
24. I. Tice. Asymptotic stability of shear-flow solutions to incompressible viscous free boundary problems with and without surface tension. *Z. Angew. Math. Phys.* **69** (2018), no. 2, Art. 28, 39 pp.
25. Y. Guo, I. Tice. Stability of contact lines in fluids: 2D Stokes Flow. *Arch. Ration. Mech. Anal.* **227** (2018), no. 2, 767–854.
26. I. Tice, Y. Zheng. Local well-posedness of the contact line problem in 2D Stokes flow. *SIAM J. Math. Anal.* **49** (2017), no. 2, 899–953.
27. C. Kim, I. Tice. Dynamics and stability of surfactant-driven surface waves. *SIAM J. Math. Anal.* **49** (2017), no. 2, 1295–1332.
28. J. Jang, I. Tice, Y. J. Wang. The compressible viscous surface-internal wave problem: nonlinear Rayleigh-Taylor instability. *Arch. Ration. Mech. Anal.* **221** (2016), no. 1, 215–272.
29. J. Jang, I. Tice, Y. J. Wang. The compressible viscous surface-internal wave problem: stability and vanishing surface tension limit. *Comm. Math. Phys.* **343** (2016), no. 3, 1039–1113.
30. J. Jang, I. Tice, Y. J. Wang. The compressible viscous surface-internal wave problem: local

well-posedness. *SIAM J. Math. Anal.* **48** (2016), no. 4, 2602–2673.

31. J. Jang, I. Tice. Passive scalars, moving boundaries, and Newton's law of cooling. *Discrete Contin. Dyn. Syst.* **36** (2016), no. 3, 1383–1413.
32. C. Kim, I. Tice, Y. Wang. The viscous surface-internal wave problem: global well-posedness and decay. *Arch. Rational Mech. Anal.* **212** (2014), no. 1, 1–92.
33. J. Jang, I. Tice. Instability theory of the Navier-Stokes-Poisson equations. *Anal. PDE* **6** (2013), no. 5, 1121–1181.
34. Y. Guo, I. Tice. Almost exponential decay of periodic viscous surface waves without surface tension. *Arch. Rational Mech. Anal.* **207** (2013), no. 2, 459–531.
35. Y. Guo, I. Tice. Decay of viscous surface waves without surface tension in horizontally infinite domains. *Anal. PDE* **6** (2013), no. 6, 1429–1533.
36. Y. Guo, I. Tice. Local well-posedness of the viscous surface wave problem without surface tension. *Anal. PDE* **6** (2013), no. 2, 287–369.
37. I. Tice, Y. Wang. The viscous surface-internal wave problem: nonlinear Rayleigh-Taylor instability. *Comm. PDE* **32** (2012), no. 11, 1967–2028.
38. Y. Guo, I. Tice. Compressible, inviscid Rayleigh-Taylor instability. *Indiana Univ. Math. J.* **60** (2011), no. 2, 677–712.
39. S. Serfaty, I. Tice. Lorentz space estimates for the Coulombian renormalized energy. *Commun. Contemp. Math.* **14** (2011), no. 4, 1250027 [23 pages].
40. S. Serfaty, I. Tice. Ginzburg-Landau vortex dynamics with pinning and strong applied currents. *Arch. Rational Mech. Anal.* **201** (2011), no. 2, 413–464.
41. Y. Guo, I. Tice. Linear Rayleigh-Taylor instability for viscous, compressible fluids. *SIAM J. Math. Anal.* **42** (2010), no. 4, 1688–1720.
42. I. Tice. Ginzburg-Landau vortex dynamics driven by an applied boundary current. *Comm. Pure Appl. Math.* **63** (2010), no. 12, 1622–1676.
43. I. Tice. Lorentz space estimates and Jacobian convergence for the Ginzburg-Landau energy with applied magnetic field. *J. Anal. Math.* **106** (2008), 129–190.
44. S. Serfaty, I. Tice. Lorentz space estimates for the Ginzburg-Landau energy. *J. Funct. Anal.* **254** (2008), no. 3, 773–825.

Grant support

- National Science Foundation Grant, DMS #2204912, Jul. 2022 – Jun. 2025, $368,549
- National Science Foundation Faculty Early Career Development Program (CAREER) Grant, DMS #1653161, Jul. 2017 – Jun. 2022, $420,000
- Simons Foundation Collaboration Grant, #401468, Sep. 2016 – Aug. 2021, $35,000

Students and postdocs

Postdocs

- Jae Choi, 2024 – present
- Lei Wu, 2015 – 2018

Ph.D. students

- Antoine Remond-Tiedrez, graduated May 2020
- Junichi Koganemaru, graduated May 2023

MS students

- David Altizio, graduated May 2019
- Subhasish Mukherjee, graduated December 2023
- Noah Stevenson, graduated May 2021
- Thomas Swayze, graduated May 2019
- Annie Xu, graduated May 2019
- Taisuke Yasuda, graduated May 2019
- Samuel Zbarsky, graduated May 2017

Undergraduate researchers

David Altizio, Jonathan Jenkins, Carolyn Lee, Ethan Lu, Yuxuan Liu, Subhasish Mukherjee, Desmond Reed, Jonathan Spivak, Noah Stevenson, Robert Trosten, Xinyu Wu, Taisuke Yasuda, Samuel Zbarsky

Awards

Julius Ashkin Teaching Award	*2019*
National Science Foundation Postdoctoral Research Fellowship	*2008 – 2011*
National Science Foundation Graduate Research Fellowship	*2003 – 2008*
NYU MacCracken Fellowship	*2003 – 2008*
Barry M. Goldwater Scholarship for undergraduate research	*2002 – 2003*
University of Kansas Undergraduate Research Awards	*2000 – 2002*
University of Kansas Young Award for best research proposal	*2001*
University of Kansas Prosser Award for top physics sophomore	*2001*
University of Kansas Black-Babcock Mathematics Award	*2001 – 2003*
Southwestern Bell Undergraduate Scholarship	*1999 – 2003*

Talks

- Special Session on Fluids, Equadiff 2024, Karlstad, Sweden (Jun. 12, 2043)
- Fluids Session, AMS Sectional, San Francisco, California (May 4, 2024)
- Fluids Conference, RIMS, Kyoto, Japan (Dec. 12, 2023)
- Madison PDE Seminar, University of Wisconsin - Madison, Madison, Wisconsin (Oct. 16, 2023)
- Fluids Workshop, BIRS, Banff, Canada (Oct. 4, 2023)
- Pitt Applied Math Seminar, University of Pittsburgh, Pittsburgh, Pennsylvania (Mar. 20, 2023)
- Vanderbilt PDE Seminar, Vanderbilt University, Nashville, Tennessee (Oct. 21, 2022)
- Maryland PDE Seminar, University of Maryland, College Park, Maryland (Dec. 8, 2021)
- Davis PDE Seminar, UC Davis, Online seminar (Dec. 2, 2021)
- DKU PDE Seminar, Duke Kunshan University, Online seminar (Sep. 30, 2021)
- Special Session on Fluids, Free Boundary Problems 2021, Online seminar (Sep. 15, 2021)
- Special Session on Fluids, Mathematical Congress of the Americas 2021, Online seminar (Jul. 19, 2021)
- Cortona Summer School, Scuola Matematica Interuniversitaria, Online summer school (Jul. 5–16, 2021)
- PDE Seminar, TU Dresden, Online seminar (Jun. 22, 2021)
- Special Session on Fluids, SIAM Bilbao, Online seminar (May 19, 2021)
- PDE Seminar via Zoom, Shanghai Tech University, Online seminar (May 13, 2021)
- PDEA Webinar, Online seminar (May 6, 2021)
- Tulane Mathematics Colloquium, Tulane University, Online seminar (Apr. 15, 2021)
- Princeton Fluids Seminar, Princeton University, Online seminar (Mar. 4, 2021)
- MU/MST Joint Analysis Seminar, University of Missouri, Online seminar (Feb. 26, 2021)
- UCL/ICL Pure Analysis and PDE Seminar, University College London, Online seminar (Dec. 4, 2020)
- Madison PDE Seminar, University of Wisconsin - Madison, Madison, Wisconsin (Mar. 9, 2020)
- Special Session on Fluids, 12th Americas Conference on Differential Equations, Guanajuato, Mexico (Dec. 13, 2019)

- Applied Math Colloquium, New Jersey Institute of Technology, Newark, New Jersey (Oct. 18, 2019)
- Special Session on Free Boundary Flows, Equadiff 2019, Leiden, Netherlands (Jul. 10, 2019)
- Brown PDE Seminar, Brown University, Providence, Rhode Island (May 10, 2019)
- CAMS Colloquium, USC, Los Angeles, California (Mar. 18, 2019)
- Lehigh Colloquium, Lehigh University, Bethlehem, Pennsylvania (Mar. 6, 2019)
- Courant Analysis Seminar, Courant Institute, New York, New York (Feb. 14, 2019)
- UIC PDE Seminar, University of Illinois at Chicago, Chicago, Illinois (Nov. 26, 2018)
- Workshop on Nonlinear Equations, University of Kansas, Lawrence, Kansas (Oct. 20, 2018)
- Smith Colloquium, University of Kansas, Lawrence, Kansas (Oct. 18, 2018)
- Xiamen PDE Seminar, Xiamen University, Xiamen, China (Jul. 27, 2018)
- Xiamen Fluids Seminar, Xiamen University, Xiamen, China (Jul. 25, 2018)
- IAPCM PDE Seminar, IAPCM, Beijing, China (Jul. 18, 2018)
- PDE Seminar, Beijing Institute of Technology, Beijing, China (Jul. 16, 2018)
- PDE Seminar, Pennsylvania State University, State College, Pennsylvania (Jan. 15, 2018)
- Workshop on PDEs in Fluid Mechanics, University of Pittsburgh, Pittsburgh, Pennsylvania (Nov. 3, 2017)
- London Analysis Seminar, King's College London, London, England (Jun. 22, 2017)
- Oxford PDE Seminar, Oxford University, Oxford, England (Jun. 12, 2017)
- USC Summer School on Mathematical Fluids, Los Angeles, California (May 22–26, 2017)
- Workshop on Water Waves, ICERM, Providence, Rhode Island (Apr. 27, 2017)
- Semester Seminar, ICERM, Providence, Rhode Island (Mar. 27, 2017)
- SUAMI Undergraduate Seminar, Carnegie Mellon University, Pittsburgh, Pennsylvania (Jul. 19, 2016)
- Indiana PDE Seminar, Indiana University, Bloomington, Indiana (Oct. 12, 2015)
- Special Session on PDEs, International Congress of Mathematical Physics, Santiago, Chile (Jul. 31, 2015)
- IAPCM PDE Seminar, IAPCM, Beijing, China (Jul. 14, 2015)
- Peking University Summer School, Beijing, China (Jul. 13–24, 2015)
- SUAMI Undergraduate Seminar, Carnegie Mellon University, Pittsburgh, Pennsylvania (Jun. 16, 2015)
- Princeton Fluids Seminar, Princeton University, Princeton, New Jersey (Mar. 3, 2015)
- Brown Undergraduate PDE Workshop, Brown University, Providence, Rhode Island (Feb. 22, 2015)
- Mathematical Hydrodynamics 2014, ENS, Paris, France (Jun. 16–20, 2014)
- PDE Seminar, Pennsylvania State University, State College, Pennsylvania (Apr. 11, 2014)
- Pitt PDE Seminar, University of Pittsburgh, Pittsburgh, Pennsylvania (Mar. 24, 2014)
- Brown PDE Seminar, Brown University, Providence, Rhode Island (Mar. 7, 2014)
- Complex Fluids Working Group, Carnegie Mellon University, Pittsburgh, Pennsylvania (Feb. 26, 2014)
- CNA Homogenization Working Group, Carnegie Mellon University, Pittsburgh, Pennsylvania (Feb. 18, Mar. 4, 2014)
- Minisymposia, SIAM Conference on PDE, Orlando, Florida (Dec. 7, 2013)
- PDE Seminar, Drexel University, Philadelphia, Pennsylvania (Oct. 17, 2013)

- Special Session on Complex Fluids, AMS Section Meeting, University of Louisville, Louisville, Kentucky (Oct. 5, 2013)
- PDE Seminar, Paris 13, Paris, France (Jul. 1, 2013)
- ICMAT Fluids Summer School, ICMAT, Madrid, Spain (Jun. 24–28, 2013)
- SUAMI Undergraduate Seminar, Carnegie Mellon University, Pittsburgh, Pennsylvania (Jun. 18, 2013)
- CNA Summer School, Carnegie Mellon University, Pittsburgh, Pennsylvania (Jun. 6, 2013)
- Minisymposium, Nonlinear Waves 2013, Athens, Georgia (Mar. 26, 2013)
- Basel Junior Analysis Symposium, University of Basel, Basel, Switzerland (Feb. 2, 2013)
- CNA Fluids Working Group, Carnegie Mellon University, Pittsburgh, Pennsylvania (Nov. 20, 2012)
- Pitt PDE Seminar, University of Pittsburgh, Pittsburgh, Pennsylvania (Nov. 12, 2012)
- PDE Seminar, Paris 13, Paris, France (May 25, 2012)
- Applied Math Seminar, College de France, Paris, France (Apr. 6, 2012)
- Nice PDE Seminar, Université Nice Sofia Antipolis, Nice, France (Mar. 22, 2012)
- Cambridge PDE Seminar, Cambridge University, Cambridge, England (Feb. 28, 2012)
- Indiana PDE Seminar, Indiana University, Bloomington, Indiana (Jan. 20, 2012)
- USC PDE Seminar, USC, Los Angeles, California (Jan. 18, 2012)
- Michigan PDE Seminar, University of Michigan, Ann Arbor, Michigan (Jan. 12, 2012)
- McGill PDE Seminar, McGill University, Montreal, Canada (Jan. 10, 2012)
- Minisymposia, AMS National Meeting, Boston, Massachusetts (Jan. 5, 2012)
- CMU PDE Seminar, Carnegie Mellon University, Pittsburgh, Pennsylvania (Dec. 13, 2011)
- Madison PDE Seminar, University of Wisconsin - Madison, Madison, Wisconsin (Dec. 9, 2011)
- Paris 6 / IHP Nonlinear Analysis Seminar, Paris 6, Paris, France (Dec. 6, 2011)
- UPEC Colloquium, UPEC, Créteil, France (Dec. 1, 2001)
- Minisymposia, SIAM Conference on PDE, San Diego, California (Nov. 14–15, 2011)
- International Workshop on PDE and Dynamical Systems, Kunming, China (Aug. 8, 2011)
- IAPCM PDE Seminar, IAPCM, Beijing, China (Jul. 26, 2011)
- Peking University Summer School, Beijing, China (Jul. 18–29, 2011)
- Davis PDE Seminar, UC Davis, Davis, California (Apr. 28, 2011)
- Riverside PDE Seminar, UC Riverside, Riverside, California (Apr. 20, 2011)
- Oxford PDE Seminar, Oxford University, Oxford, England (Apr. 5, 2011)
- Undergraduate Math Club, University of Connecticut, Storrs, Connecticut (Mar. 23, 2011)
- WPI PDE Seminar, WPI, Worcester, Massachusetts (Feb. 10, 2011)
- Ohio State PDE Seminar, Ohio State University, Columbus, Ohio (Jan. 26, 2011)
- Courant Analysis Seminar, Courant Institute, New York, New York (Dec. 2, 2010)
- Madison PDE Seminar, University of Wisconsin - Madison, Madison, Wisconsin (Nov. 29, 2010)
- Brown PDE Seminar, Brown University, Providence, Rhode Island (Sep. 24, 2010)
- Minisymposium, SIAM Conference on Materials Science, Philadelphia, Pennsylvania (May 25, 2010)
- Brown and BU PDE Seminar, Brown University, Providence, Rhode Island (Mar. 17, 2010)
- Midwest PDE Seminar, Purdue University, West Lafayette, Indiana (Nov. 7, 2009)
- Minnesota PDE Seminar, University of Minnesota, Minneapolis, Minnesota (Oct. 14, 2009)
- Brown and Paris 6 PDE Seminar, Brown University, Providence, Rhode Island (Oct. 5, 2009)

- Bonn PDE Seminar, University of Bonn, Bonn, Germany (Jun. 18, 2009)
- LJLL PDE Seminar, Paris 6, Paris, France (Jun. 4, 2009)
- Minisymposium, 6th European Conference on Elliptic and Parabolic Problems, Gaeta, Italy (May 28, 2009)
- MIT PDE Seminar, MIT, Boston, Massachusetts (Oct. 29, 2008)
- Brown PDE Seminar, Brown University, Providence, Rhode Island (Sep. 12, 2008)
- Materials Seminar, Courant Institute, New York, New York (Mar. 2, 2008)
- Minisymposium, SIAM Conference on PDE, Mesa, Arizona (Dec. 11, 2007)
- Mathematical Physics Seminar, Université Paris-Sud Orsay, Orsay, France (Nov. 8, 2007)
- Special Session on Variational Methods in Condensed Matter, AMS Section Meeting, University of New Mexico, Albuquerque, New Mexico (Oct. 14, 2007)

Invited visits

- IBM Visiting Professor, Brown University, Division of Applied Mathematics, Providence, Rhode Island (Apr. 4 – May 15, 2019)
- Institute for Applied Physics and Computational Mathematics, Beijing, China (Jul. 4 – Aug. 2, 2018)
- Institute for Computational and Experimental Research in Mathematics, Providence, RI (Jan. 23 – May 5, 2017)
- Peking University, Beijing, China (Jul. 13 – Jul. 24, 2015)
- Laboratoire Jacques-Louis Lions, Université Pierre-et-Marie-Curie (Paris 6), Paris, France (Jul. 1 – Jul. 24, 2013)
- Peking University, Beijing, China (Jul. 17 – Aug. 7, 2011)
- Laboratoire Jacques-Louis Lions, Université Pierre-et-Marie-Curie (Paris 6), Paris, France (Jun. 2 – Jul. 1, 2009)
- Laboratoire Jacques-Louis Lions, Université Pierre-et-Marie-Curie (Paris 6), Paris, France (Nov. 2 – Dec. 5, 2007)

Teaching experience: CMU

21-235 **Math Studies: Analysis I (Honors)**
Fall 2014, Fall 2016, Fall 2019, Fall 2021, Fall 2023, Fall 2024

21-236 **Math Studies: Analysis II (Honors)**
Spring 2015, Spring 2020, Spring 2022, Spring 2024

21-269 **Vector Analysis (Honors)**
Spring 2014, Spring 2016, Spring 2018, Spring 2021, Spring 2023

21-355 **Real Analysis I**
Fall 2013, Fall 2015

21-435 **Applied Harmonic Analysis**
Fall 2018

21-632 **Introduction to Differential Equations (Graduate)**
Fall 2016, Fall 2017, Fall 2022

21-723 **Advanced Real Analysis (Graduate)**
Spring 2018, Spring 2020, Spring 2021, Spring 2023

21-732 **Partial Differential Equations I (Graduate)**
Fall 2012, Spring 2015, Fall 2021, Fall 2023

21-830 **Fluid Mechanics (Graduate)**
Summer 2015, Spring 2016

21-832 **Partial Differential Equations II (Graduate)**
Spring 2013, Fall 2015

21-900 **Reading and Research (Graduate)**
Spring 2014, Spring 2016, Spring 2018, Spring 2022

Teaching experience: pre-CMU

Brown **Methods of Applied Math I**
Fall 2008, Fall 2009 (Honors)

Brown **Methods of Applied Math II (Honors)**
Spring 2010

Brown **Introduction to Variational Methods (Graduate)**
Spring 2009, Summer 2010

NYU **Calculus I**
Fall 2005

NYU **Calculus III**
Fall 2006

NYU **Linear Algebra**
Spring 2006

Academic service

Director of Honors Program	*2019 – present*
Member, Undergraduate Awards Committee	*2017 – present*
Organizer, Math Department Poster Competition	*2016 – present*
Organizer, Departmental Colloquium	*2019 – 2023*
Organizer, CNA Colloquium	*2015 – 2022*
Member, Tenure Track Hiring Committee	*2022*
Member, SURF/SURG Selection Committee	*2021*
Organizer, ONEPAS seminar	*2020 – 2021*
Member, Teaching Track Hiring Committee	*2019*
Organizer, MCS Center for Theoretical Sciences	*2017 – 2019*
SURF Advisor	*2016*
Organizer, CNA Working Group	*2014, 2016*
Organizer, CNA Summer School	*2012 – 2013*
Organizer, Brown PDE Seminar	*2010 – 2011*
Organizer, Brown/Paris 6 Video Seminar	*2009 – 2010*
Organizer, Courant GSPD Seminar	*2006 – 2008*

Journal referee

- Acta Applicandae Mathematicae
- Advances in Mathematics
- Annales de l'Institut Henri Poincaré, Analyse Non Linéaire
- Annales Scientifiques de l'École Normale Supérieure
- Annals of PDE
- Archive for Rational Mechanics and Analysis
- Calculus of Variations and Partial Differential Equations
- Communications on Pure and Applied Mathematics
- Communications in Mathematical Physics
- Communications in Mathematical Sciences

- Communications in Partial Differential Equations
- Discrete and Continuous Dynamical Systems
- Duke Mathematical Journal
- International Mathematics Research Notices
- Journal de l'École polytechnique. Mathématiques
- Journal of Differential Equations
- Journal of the American Mathematical Society
- Journal of the European Mathematical Society
- Journal of Functional Analysis
- Journal of Mathematical Analysis and Applications
- Journal of Mathematical Fluid Mechanics
- Journal of Mathematical Physics
- Journal of Nonlinear Science
- Journal of Partial Differential Equations
- Mathematische Nachrichten
- Memoirs of the American Mathematical Society
- Nonlinearity
- Physica D
- Proceedings of the American Mathematical Society
- Quarterly Journal of Mechanics and Applied Mathematics
- SIAM Journal of Applied Mathematics
- SIAM Journal of Mathematical Analysis
- Zeitschrift für angewandte Mathematik und Physik