

David Michael Ambrose

Curriculum Vitae

Drexel University, Department of Mathematics
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Education

PhD Mathematics, 2002, Duke University
MA Mathematics, 1999, Duke University
MS Mathematics, 1997, Carnegie Mellon University
BS Mathematics and Economics, 1997, Carnegie Mellon University

Experience

Professor, Drexel University, Mathematics *Fall 2016 - present*
Associate Department Head, Drexel University, Mathematics *September 2013 - August 2023*
Associate Professor, Drexel University, Mathematics *Fall 2012 - Summer 2016*
Assistant Professor, Drexel University, Mathematics *Fall 2008 - Summer 2012*

Courses taught:

MATH 102	Introduction to Analysis II	Winter 2010
MATH 110	Precalculus	Fall 2012
MATH 121	Calculus I	Fall 2008, Fall 2009, Fall 2010
MATH 123	Calculus III	Winter 2013, Fall 2013, Winter 2014, Summer 2015
MATH 183	Mathematical Analysis III	Summer 2013
MATH 210	Differential Equations	Fall 2008, Winter 2009, Fall 2009, Winter 2010, Winter 2011, Fall 2011, Winter 2012, Fall 2012, Winter 2013, Winter 2016, Fall 2018, Spring 2019, Fall 2019, Fall 2020
MATH 283	Differential Equations II	(Independent Study: Winter 2010)
MATH 311	Probability and Statistics I	Fall 2022
MATH 323	Partial Differential Equations	Winter 2009, Winter 2011
MATH T480	ST: Mathematical Game Theory	Fall 2019
MATH 505	Principles of Analysis I	Fall 2011
MATH 506	Principles of Analysis II	Winter 2012
MATH 620	Partial Differential Equations I	Fall 2017
MATH 621	Partial Differential Equations II	Winter 2018, Spring 2022
MATH 622	Partial Differential Equations III	Spring 2015
MATH 633	Real Variables I	Spring 2014, Spring 2021, Spring 2023
MATH 634	Real Variables II	Fall 2014
MATH 640	Functional Analysis	Winter 2015
MATH 698	Special Topics: Fluid Dynamics	Fall 2010
MATH T880	ST: Stochastic Financial Models	Fall 2021

Assistant Professor, Clemson University, Mathematics *Fall 2005 - Fall 2008*
Undergraduate courses taught: Elementary Functions, Calculus of One Variable II, Linear Algebra, Advanced Calculus I, Advanced Calculus II. Graduate course taught: Linear Analysis.

Courant Instructor, Courant Institute, NYU *Fall 2002 - Spring 2005*
Instructor for one course per semester. Courses taught: Precalculus, Calculus I, Introduction to Mathematical Modeling, Advanced Calculus I, Vector Analysis.

Instructor, Duke University Talent Identification Program (TIP) *Summer 2002, 2004*
TIP courses are taught to academically gifted middle-school and high-school students during the summer in an intensive three-week setting. In 2002, taught a standard Algebra II course. In 2004, designed and taught There's Something About Infinity.

Graduate Instructor, Duke University *Spring 1998; Fall 1998, 2000, 2001*
Primary instructor for one first-year calculus course each semester.

Java Programmer, Duke University *various summers*
Developed Java applets for interactive calculus course materials for the Connected Curriculum Project under the supervision of Lawrence Moore and David Smith.

Teaching Assistant, Carnegie Mellon University, Duke University *various semesters*
Led discussion and problem sessions for three sections of calculus courses, in addition to one section of Models and Methods for Optimization and four sections of Principles of Economics.

Visiting Positions

Shapiro Visiting Scholar, Department of Mathematics, Pennsylvania State University. February 2024.

Senior Fellow, Institute for Pure and Applied Mathematics, University of California at Los Angeles. Program on High Dimensional Hamilton-Jacobi PDEs. May 2020–June 2020.

Research Fellow, Institute for Computational and Experimental Research in Mathematics, Brown University. Program on Singularities and Waves in Incompressible Fluids. January 2017–May 2017.

Visiting Fellow, Isaac Newton Institute for Mathematical Sciences, University of Cambridge. Program on Theory of Water Waves. July 2014–August 2014.

Mentoring Experience

Undergraduate Research Mentor: Research co-op students:
John Bonnes and Joshua Sin, Spring/Summer 2022.

Eesha Das Gupta, Valentina Ozornina, and Jacob Woods, Spring/Summer 2018.

Mark Kondrla, Jr. and Michael Valle, Spring/Summer 2011.

Graduate Student Advising:

- Current PhD: Anya Pant (Drexel University, expected graduation: June 2026)
Kayode Oluwasegun (Drexel University, expected graduation: June 2026)
Sultan Aitzhan (Drexel University, expected graduation: June 2025).
- Completed PhD: Hyeju Kim (Drexel University, June 2023),
Luke Brown (Drexel University, June 2023),
Benjamin Irwin (Drexel University, June 2021),
Keyang Zhang (New Jersey Institute of Technology, December 2020)
(co-advisor, with Michael Siegel serving as primary advisor for Zhang).
David Sulon (Drexel University, June 2018),
Shunlian Liu (Drexel University, December 2016),
Timur Milgrom (Drexel University, June 2011).
- Completed MS: Timur Milgrom (Clemson University, May 2007).

Postdoctoral Scholar Mentor: Mentor for Fazel Hadadifard, Fall 2019 – Summer 2021.
Mentor for Yang Liu, Winter 2012 – Fall 2013.

External Funding: Research Grants

PI for NSF Grant DMS-2307638, Well-Posedness and Singularity Formation in Applied Free Boundary Problems. \$300,000. August 1, 2023 – July 31, 2026.

PI for NSF Grant DMS-1907684, Partial Differential Equation Methods for Mean Field Games. \$316,981. August 1, 2019 – July 31, 2022.

PI for NSF Grant DMS-1515849, Dynamics of Dispersive PDE. \$269,987. August 15, 2015 – July 31, 2019.

PI for NSF Grant DMS-1016267, Collaborative Research: Efficient Surface-Based Numerical Methods for 3D Interfacial Flow with Surface Tension. \$269,989. October 1, 2010 – September 30, 2015.

PI for NSF Grant DMS-1008387, Dispersive PDE and Interfacial Fluid Dynamics. \$159,000. September 15, 2010 – August 31, 2014.

PI for NSF grant DMS-0707807, Long-Time Behavior of Free-Surface Problems in Fluid Dynamics. \$119,999. June 15, 2007 – May 31, 2010. [Renumbered as DMS-0926378.]

PI for NSF grant DMS-0406130, Analytical and Computational Approaches to Free-Surface Problems in Fluid Dynamics. \$81,143. June 1, 2004 – May 31, 2007. [Renumbered as DMS-0610898.]

External Funding: Conference Grants

PI for NSF Grant DMS-2247694, Conference: Second Drexel Waves Workshop. \$10,800. March 1, 2023 – February 29, 2024.

PI for NSF Grant DMS-1613965, 2016 Gene Golub SIAM Summer School at Drexel University. \$25,500. July 1, 2016 – June 30, 2017. (Co-PI: Xiaoming Song.)

PI for 2016 SIAM Gene Golub Summer School, Stochastic Differential Equations and Wave Propagation. \$95,000. May 1, 2016 – October 5, 2016. (Co-PI's: Shari Moskow, Gideon Simpson, Xiaoming Song, J. Douglas Wright.)

Awards and Other Funding

2018 T. Brooke Benjamin Prize in Nonlinear Waves, Society for Industrial and Applied Mathematics.

2016 Drexel University Award for Pedagogy and Assessment, for the project, "Increasing the effectiveness of precalculus remediation for calculus success," with Jason Aran.

Research Co-op Funding, Drexel University, Office of the Provost and Steinbright Career Development Center, \$7,052.50. 2011.

Antelo Devereux Award for Young Faculty, Drexel University, College of Arts and Sciences. \$10,000. 2010-2011.

Stein Fellow, \$12,120. Louis and Bessie Stein Family Fellowship for Exchanges with Israeli Universities, for the project Analysis of Nonlinear Dispersion, with J. Douglas Wright, to fund collaborative work with Philip Rosenau of Tel Aviv University. 2010-2011.

NYU Research Challenge Fund Grant. \$6,700. June 1, 2004 – May 31, 2005.

Invited Talks: Seminars and Colloquia

New Jersey Institute of Technology (March 2024, April 2009, June 2004); Pennsylvania State University, State College (March 2024, February 2024, January 2016, December 2011, January 2009, March 2007); Air Force Institute of Technology (December 2023, May 2017, October 2014, May 2012); New York University Abu Dhabi (April 2023); Online Nonlinear Waves and Coherent Structures Colloquium (February 2023); University of Maryland, Baltimore County (April 2022); Online Seminar on Water Waves and Related Topics (March 2022); ShanghaiTech University (April 2021); Mathematical Sciences Research Institute (MSRI) (April 2021); King Abdullah University of Science and Technology (KAUST) (February 2021); Carnegie Mellon University (February 2020, February 2008); Norwegian University of Science and Technology (September 2019); University of California, Los Angeles (January 2019, May 2013); Universidade Federal do Rio de Janeiro (September 2018); ICERM, Brown University (March 2017); Oregon State University (November 2016, May 2013); University of Pittsburgh (April 2016, October 2010); University of Illinois-Chicago (April 2016, September 2014, April 2013, February 2012, April 2010, December 2007); Pennsylvania State University, State College (January 2016, December 2011, January 2009, March 2007); University of Pennsylvania (November 2015); University of Massachusetts Amherst (November 2014); Boston University (October 2014, November 2012, March 2011, January 2008); Princeton University (April 2014); University of Calgary (June 2013); University of Delaware (February 2013, October 2006); Temple University (January 2013, October 2010); University of Bath (December 2012, November 2006); Ohio State University (November 2012); McMaster University (March 2012); Fields Institute (March 2012); University of California, Riverside (October 2011); Courant Institute, NYU

(October 2010); Arizona State University (September 2010); University of California, Davis (May 2010, November 2006); Indiana University (April 2010); Florida State University (December 2009); University of Maryland, College Park (November 2009); University of Cincinnati (October 2009); Imperial College London (May 2009); University of Wisconsin-Madison (December 2007, March 2007, November 2004); University of North Carolina, Charlotte (November 2007); Université de Bordeaux (November 2006); Georgia Institute of Technology (October 2006); Institut Mittag-Leffler (September 2005); University of British Columbia (January 2005); Université Paris Dauphine (October 2004); Trinity College Dublin (April 2004); Brown University (February 2003)

Invited Talks: Conferences

14th AIMS Conference on Diff. Eq., Session on Mean Field Games for Crowds (December 2024)
Nonlinear Water Waves: Rigorous Analysis and Scientific Computing, Banff, AB (October 2024)
SIAM Conference on Nonlinear Waves, Minisymposium on Interfacial Flows (June 2024)
Equadiff 2024, Minisymposium on Water Waves and Free Boundary Problems (June 2024)
AMS Eastern Section Meeting, Special Sessions on PDEs in Control Theory (April 2024)
AMS Eastern Section Meeting, Special Session on Hamiltonian PDE (April 2024)
Workshop on Nonlinear Water Waves, Hayama, Japan (November 2023)
VI Workshop on Fluids and PDE, Campinas, Brazil (October 2023)
ICIAM 2023, Special Session on Moving Boundary Problems (August 2023)
AMS Southeastern Section Meeting, Special Session on Nonlinear PDE (March 2023)
Joint Mathematics Meetings, Special Session on Hamilton-Jacobi Equations (January 2023)
SIAM Conference on Nonlinear Waves, Minisymposium on Traveling Waves (September 2022)
12th IMACS Nonlinear Evolution Equations Conference, Session on Nonlinear Waves (March 2022)
SIAM Conference on Analysis of PDE, Minisymposium on Mean Field Games (March 2022)
High Dimensional Hamilton-Jacobi PDEs Reunion Program, IPAM, UCLA (January 2022)
5th Workshop on Fluids and PDEs, Campinas, Brazil (September 2021)
Pittsburgh PDE Workshop, University of Pittsburgh (May 2021)
Workshop on Mean Field Games and Applications, IPAM, UCLA (May 2020)
Conference on Mean Field Games, University of Chicago (February 2020)
SIAM Conference on Analysis of PDE, Minisymposium on Mean Field Games (December 2019)
SIAM Conference on Analysis of PDE, Minisymposium on Nonlinear Waves (December 2019)
Workshop on Mathematical Theory of Water Waves, Oberwolfach, Germany (July 2019)
11th IMACS Nonlinear Evolution Equations Conference, Keynote Speaker (April 2019)
11th IMACS Nonlinear Evolution Equations Conference, Session on Traveling Waves (April 2019)
SIAM Conference on Geosciences, Minisymposium on Subsurface Flows (March 2019)
AMS Eastern Section Meeting, Special Session on Nonlinear Water Waves (September 2018)
12th AIMS Conference on Diff. Eq., Session on Nonlinear Nonlocal Problems (July 2018)
12th AIMS Conference on Diff. Eq., Session on Nonlinear Evolution Equations (July 2018)
Summer School on Mean Field Games, IPAM, UCLA (June 2018)
AMS Central Section Meeting, Session on Coherent Structures in Interfacial Flows (March 2018)
SIAM Conference on Analysis of PDE, Minisymposium on Mean Field Games (December 2017)
Waves, Spectral Theory, and Applications – Part 2, UNC Chapel Hill (October 2017)
Workshop on Mean Field Games, IPAM, UCLA (August 2017)
Workshop on Water Waves, ICERM, Brown University (April 2017)
AMS Southeastern Section Meeting, Special Session on Long-term Behavior (March 2017)
AMS Southeastern Section Meeting, Special Session on Advances in Nonlinear Waves (March 2017)

Theoretical and Computational Aspects of Nonlinear Surface Waves, Banff, AB (November 2016)
Franco-Romanian Applied Math Conference, Free Boundaries Session, Iasi, Romania (August 2016)
SIAM Annual Meeting, Minisymposium on Cellular Flows (July 2016)
ICSCA 2016, Session on High-Performance Computing, Fields Institute, Toronto, ON (June 2016)
Analysis of PDE using Dynamical Systems Techniques, Boston University (June 2016)
Mixing and Mixtures in Geo- and Biophysical Flows, CSCAMM, Maryland (May 2016)
2nd KUMU Conference on PDE, Dynamical Systems and Applications (April 2016)
SIAM Conference on Analysis of PDE, Minisymposium on Coherent Structures (December, 2015)
Free Surface and Geophysical Flows, Rennes, France (January, 2015)
SIAM Conference on Nonlinear Waves, Minisymposium on Capillary Waves (August 2014)
Summer School on Water Waves, Isaac Newton Institute, Cambridge, UK (August 2014)
Theory of Water Waves, Isaac Newton Institute, Cambridge, UK (July 2014)
Workshop on Dynamics in Geometric Dispersive Equations, Banff, AB (May 2014)
SIAM Southeastern Atlantic Section Meeting, Special Session on Multiphase Flows (March 2014)
Joint Mathematics Meetings, Special Session on Regularity Problems for Fluids (January 2014)
Novel Directions in Inverse Scattering, Minisymposium on Computation, Newark, DE (July 2013)
Workshop on Computational Approaches for Water Waves, Banff, AB (July 2013)
Workshop on Wave Interactions and Turbulence, Fields Institute, Toronto, ON (May 2013)
8th IMACS Nonlinear Evolution Equations Conference, Session on Climate Science (March 2013)
Joint Mathematics Meetings, Special Session on Water Waves (January 2013)
SIAM Conference on Nonlinear Waves, Minisymposium on Water Waves (June 2012)
AMS Southeastern Section Meeting, Special Session on Dispersive Equations (September 2011)
Frontiers in Applied and Computational Mathematics, NJIT (June 2011)
7th IMACS Nonlinear Evolution Equations Conference, Session on Water Waves (April 2011)
SIAM Conference on Nonlinear Waves, Minisymposium on Modulated Equations (August 2010)
SIAM Conference on Nonlinear Waves, Minisymposium on Water Waves (August 2010)
Second Franco-Brazilian Fluids Summer School, Lyon, France (July 2010)
Fluid Dynamics, Analysis, and Numerics (FAN2010), Durham, NC (June 2010)
AMS Southeastern Section Meeting, Special Session on Dispersive PDE (March 2010)
AMS Western Section Meeting, Special Session on Fluid Mechanics (November 2009)
SIAM Annual Meeting, Minisymposium on Mathematical Hydrodynamics (July 2009)
AMS Central Section Meeting, Special Session on Nonlinear PDE (March 2009)
Joint Meeting of AMS and SMS, Special Session on Waves, Shanghai, China (December 2008)
International Conference on Dispersive and Kinetic Equations, Jinhua, China (December 2008)
Shanks Workshop on Interfaces and Structures in Fluid Flows, Vanderbilt (October 2008)
Joint Meeting of AMS and SBM, Special Session on Fluids, IMPA, Brazil (June 2008)
6th International Conference DEDS, Special Session on Interfaces, Baltimore, MD (May 2008)
SIAM Conference on Analysis of PDE, Minisymposium on Oceanography (December 2007)
AMS Southeastern Section Meeting, Special Session on Nonlinear PDE (November 2007)
AMS Central Section Meeting, Special Session on Fluids (October 2007)
5th IMACS Nonlinear Evolution Equations Conference, Session on NLW Equations (April 2007)
Workshop on Water Waves, Oberwolfach, Germany (November 2006)
SIAM Conference on Nonlinear Waves, Minisymposium on Water Waves (September 2006)
Conference on Asymptotic Behavior in Fluid Dynamics, Lausanne, Switzerland (July 2006)
International Conference on Mathematical Hydrodynamics, Steklov Institute, Moscow (June 2006)
Lefschetz Center Conference on Fluid Dynamics, Brown University (April 2006)

Workshop on Partial Differential Equations, LNCC, Petropolis, Brazil (August 2005)
SIAM Conference on Analysis of PDE, Minisymposium on Fluids (December 2004)
AMS Southeastern Section Meeting, Special Session on Nonlinear PDE (October 2004)
Workshop on Wave Motion, Oberwolfach, Germany (January 2004)
AMS Central Section Meeting, Special Session on Fluids (April 2003)

Contributed Conference Presentations

Contributed Talks:

4th IMA (UK) Conference on Nonlinearity and Coherent Structures (July 2021)
Joint Mathematics Meetings (January 2018)
10th IMACS Nonlinear Evolution Equations Conference (March 2017)
SIAM Conference on Nonlinear Waves and Coherent Structures (August 2016)
AMS Eastern Section Meeting (October 2013)
9th AIMS Conference on Dynamical Systems and Differential Equations (July 2012)
3rd Workshop on Fluids and PDEs, Campinas, Brazil (June 2011)
AMS Eastern Section Meeting (April 2011)
13th International Conference on Hyperbolic Problems, Beijing, China (June 2010)
6th IMACS Nonlinear Evolution Equations Conference (April 2009)
SIAM Southeastern-Atlantic Section Conference (May 2007)
11th International Conference on Hyperbolic Problems, Lyon, France (July 2006)
10th International Conference on Hyperbolic Problems, Osaka, Japan (September 2004)
23rd Southeastern-Atlantic Regional Conference on Differential Equations (October 2003)

Contributed Posters:

Variational and Topological Methods and Water Waves, Bath, England (May 2009)

Departmental Service

Undergraduate Curriculum Committee 2014-2020, 2021-2024. Chair, 2014-2016, 2021-2023.
Teaching Innovations Committee, 2014-2015.
Program Alignment and Review Committee, 2013-2014.
Tenure-Track Faculty Hiring Committee, 2008-2009, 2012-2013, 2017-2018.
Graduate Curriculum Committee, including Qualifying Exam Subcommittee, 2009-2014, 2020-present.
Teaching Faculty Hiring Committee, 2009-2010.
Colloquium Coordinator, 2011- 2012.
Assistant Scheduling Coordinator, 2011-2013.

College and University Service

College of Arts and Sciences Undergraduate Curriculum Committee, 2014-2016.
University Working Group on Precalculus, Student Success, and Retention, 2015-2016.
College of Arts and Sciences Committee on Student Success and Retention, 2017-2018.

Other Activities

Referee: Served as a referee for over 70 journals, including the following: *Acta Mathematica*; *American Journal of Mathematics*; *Analysis & PDE*; *Annales de l'Institut Henri Poincaré (C) Analyse Non Linéaire*; *Annales Polonici Mathematici*; *Annals of PDE*; *Archive for Rational Mechanics and*

Analysis; Cambridge Journal of Mathematics; Communications in Mathematical Sciences; Communications in Partial Differential Equations; Communications on Mathematical Physics; Communications on Pure and Applied Mathematics; Indiana University Mathematics Journal; International Mathematics Research Notices; Journal d'Analyse Mathématique; Journal of Computational Physics; Journal of the European Mathematical Society; Journal of Fluid Mechanics; Journal of Functional Analysis; Journal of Mathematical Fluid Mechanics; Journal of Nonlinear Science; Mathematische Annalen; Memoirs of the AMS; New Journal of Physics; Nonlinearity; Physica D; Physics of Fluids; Proceedings of the Royal Society A; SIAM Journal on Applied Mathematics; SIAM Journal on Mathematical Analysis; Studies in Applied Mathematics; Transactions of the American Mathematical Society; Water Waves. Also served as a referee for book proposals for the American Mathematical Society, CRC Press, Elsevier, and Springer.

Reviewer: Reviewer of mathematical research papers for Mathematical Reviews/MathSciNet.
Reviewer of mathematical research papers for Zentralblatt MATH.

Editor: Guest Editor for an issue of *Mathematics and Computers in Simulation*.
Guest Editor for an issue of *Discrete and Continuous Dynamical Systems, Series B*.
Associate Editor, *Journal of Mathematical Analysis and Applications*, 2012-2014.
Division Editor, *Journal of Mathematical Analysis and Applications*, 2014-present.

Memberships: Life member of the Society for Industrial and Applied Mathematics (SIAM), including the SIAM Activity Group on Analysis of Partial Differential Equations and the SIAM Activity Group on Nonlinear Waves and Coherent Structures. Life member of the American Mathematical Society (AMS). Member of the Mathematical Association of America (MAA) and the Special Interest Group of the MAA on Undergraduate Research.

Professional Society Service: Chair, SIAM Activity Group Prize Committee (APDE Best Paper Prize), December 2020.
Member, SIAM Activity Group Prize Committee (NWCS Benjamin Prize), March 2020.
Vice Chair, SIAM Activity Group on Analysis of Partial Differential Equations, January 2019–December 2020.

Organizer:

Organizing Committee, 2024 SIAM Annual Meeting; Spokane, WA; July 2024.
Organizer of a session at AMS Central Sectional Meeting; Omaha, NE; October 2023.
Scientific Committee, VI Workshop on Fluids and PDE, Campinas, Brazil; October 2023.
Co-organizer of the Second Drexel Waves Workshop, March 2023.
Organizer of a session at IMACS Nonlinear Waves conferences; Athens, GA; March 2022.
Organizer of a session at AMS Virtual Central Sectional Meeting; October 2021.
Co-organizer of a session at 12th AIMS Conference on Diff. Eq.; Taipei; July 2018.
Co-organizer of IPAM Summer School on Mean Field Games, June 2018.
Co-organizer of First Drexel Waves Workshop, May 2018.
Co-organizer of a session at Joint Mathematics Meetings; January 2018.
Co-organizer of a session at IMACS Nonlinear Waves conference; Athens, GA; March 2017.
Co-chair of SIAM Conference on Nonlinear Waves and Coherent Structures, 2016.
Co-organizer of Gene Golub SIAM Summer School, Drexel University, Summer 2016.

Co-organizer of a session at AMS Eastern Sectional Meeting; Philadelphia, PA; October 2013.
Co-organizer of the PDE/Applied Math Seminar; Drexel University; 2008-2012.
Co-organizer of a session at 9th AIMS Conference on Diff. Eq.; Orlando, FL; July 2012.
Organizer of a session at IMACS Nonlinear Waves conference; Athens, GA; April 2011.
Co-organizer of a session at SIAM Nonlinear Waves conference; Philadelphia, PA; August 2010.
Organizing committee for Fluid Dynamics, Analysis, and Numerics; Durham, NC; June 2010.
Co-organizer of a session at AMS Eastern Sectional Meeting; State College, PA; October 2009.
Co-organizer of a session at IMACS Nonlinear Waves conference; Athens, GA; April 2009.
Organizer of the Analysis Seminar; Clemson University; 2006-2008.
Co-organizer of the Applied Mathematics Laboratory Seminar; Courant Institute; 2004-2005.

Submitted Journal Publications

(72) **Improved regularity and analyticity of Cannone-Karch solutions of the three-dimensional Navier-Stokes equations on the torus.**

D.M. Ambrose, M.C. Lopes Filho, and H.J. Nussenzweig Lopes. Submitted, 2024.

(71) **The velocity field and Birkhoff-Rott integral for non-decaying, non-periodic vortex sheets.**

D.M. Ambrose. Submitted, 2024.

(70) **Existence and analyticity of solutions of the Kuramoto-Sivashinsky equation with singular data.**

D.M. Ambrose, M.C. Lopes Filho, and H.J. Nussenzweig Lopes. Submitted, 2023.

(69) **Equilibria in the large-scale competition for market share in a commodity with resource-buying.**

L.C. Brown and D.M. Ambrose. Submitted 2022.

Refereed Journal Publications

(68) **Contour dynamics and global regularity for periodic vortex patches and layers.**

D.M. Ambrose, F. Hadadifard, and J.P. Kelliher. Accepted, *SIAM Journal on Mathematical Analysis*, 2023.

(67) **Well-posedness of a model equation for water waves in fluids with odd viscosity.**

S. Liu and D.M. Ambrose. Accepted, *Journal of Dynamics and Differential Equations*, 2023.

(66) **Global existence and singularity formation for the generalized Constantin-Lax-Majda equation with dissipation: The real line vs. periodic domains.**

D.M. Ambrose, P.M. Lushnikov, M. Siegel, and D.A. Silantyev. *Nonlinearity*, **37**:025004, 2024.

(65) **Existence and analyticity of the Lei-Lin solution of the Navier-Stokes equations on the torus.**

D.M. Ambrose, M.C. Lopes Filho, and H.J. Nussenzweig Lopes. *Proceedings of the American Mathematical Society*, **152**:781-795, 2024.

(64) **Existence and computation of stationary solutions for congestion-type mean field games via bifurcation theory and forward-forward problems.**

J. Sin, J.W. Bonnes, L.C. Brown, and D.M. Ambrose. *Journal of Dynamics and Games*, **11**:48-62, 2024.

(63) **Existence of solutions to fluid equations in Hölder and uniformly local Sobolev spaces.**

D.M. Ambrose, E. Cozzi, D. Erickson, and J.P. Kelliher. *Journal of Differential Equations*, **364**:107-151, 2023.

(62) **Well-posedness of mean field games master equations involving non-separable local Hamiltonians.**

D.M. Ambrose and A.R. Meszaros. *Transactions of the American Mathematical Society*, **376**:2481-2523, 2023.

(61) **Well-posedness of a two-dimensional coordinate-free model for the motion of flame fronts.**

S. Liu and D.M. Ambrose. *Physica D*, **447**:133682, 2023.

(60) **Convergence of the boundary integral method for interfacial Stokes flow.**

D.M. Ambrose, M. Siegel, and K. Zhang. *Mathematics of Computation*, **92**:695-748, 2023.

(59) **Well-posedness, ill-posedness, and traveling waves for models of pulsatile flow in viscoelastic vessels.**

H. Kim and D.M. Ambrose. *Zeitschrift für angewandte Mathematik und Physik (ZAMP)*, **73**:247, 2022.

- (58) **Numerical algorithms for water waves with background flow over obstacles and topography.**
D.M. Ambrose, R. Camassa, J.L. Marzuola, R. McLaughlin, Q. Robinson, and J. Wilkening. *Advances in Computational Mathematics*, **48**:46, 2022.
- (57) **Existence theory for non-separable mean field games in Sobolev spaces.**
D.M. Ambrose. *Indiana University Mathematics Journal*, **71**:611-647, 2022.
- (56) **Well-posedness and ill-posedness for linear fifth-order dispersive equations in the presence of backwards diffusion.**
D.M. Ambrose and J. Woods. *Journal of Dynamics and Differential Equations*, **34**:897-917, 2022.
- (55) **A perturbation problem for transmission eigenvalues.**
D.M. Ambrose, F. Cakoni, and S. Moskow. *Research in the Mathematical Sciences*, **9**:11, 2022
- (54) **Global solutions of the two-dimensional Kuramoto-Sivashinsky equation with a linearly growing mode in each direction.**
D.M. Ambrose and A.L. Mazzucato. *Journal of Nonlinear Science*, **31**:96, 2021.
- (53) **Well-posedness and asymptotics of a coordinate-free model of flame fronts.**
D.M. Ambrose, F. Hadadifard, and J.D. Wright. *SIAM Journal on Applied Dynamical Systems*, **20**:2261-2294, 2021.
- (52) **Efficient computation of coordinate-free models of flame fronts.**
B.F. Akers and D.M. Ambrose. *The ANZIAM Journal*, **63**:58-69, 2021.
- (51) **Existence theory for a time-dependent mean field games model of household wealth.**
D.M. Ambrose. *Applied Mathematics & Optimization*, **83**:2051-2081, 2021.
- (50) **The zero surface tension limit of three-dimensional interfacial Darcy flow.**
S. Liu and D.M. Ambrose. *Journal of Differential Equations*, **268**:3599-2645, 2020.
- (49) **Detection of thin high contrast dielectrics from boundary measurements.**
D.M. Ambrose, E. Das Gupta, S. Moskow, V. Ozornina, and G. Simpson. *Journal of Physics Communications*, **3**:115016, 2019.
- (48) **The radius of analyticity for solutions to a problem in epitaxial growth on the torus.**
D.M. Ambrose. *Bulletin of the London Mathematical Society*, **51**: 877-886, 2019.
- (47) **Well-posedness of fully nonlinear KdV-type evolution equations.**
T. Akhunov, D.M. Ambrose, and J.D. Wright. *Nonlinearity*, **32**:2914-2954, 2019
- (46) **Periodic traveling interfacial hydroelastic waves with or without mass II: Multiple bifurcations and ripples.**
B.F. Akers, D.M. Ambrose, and D.W. Sulon. *European Journal of Applied Mathematics*, **30**:756-790, 2019.
- (45) **Global existence and analyticity for the 2D Kuramoto-Sivashinsky equation.**
D.M. Ambrose and A.L. Mazzucato. *Journal of Dynamics and Differential Equations*, **31**:1525-1547, 2019.
- (44) **Global solutions and ill-posedness for the Kaup system and related Boussinesq systems.**
D.M. Ambrose, J.L. Bona, and T. Milgrom. *Indiana University Mathematics Journal*, **68**:1173-1198, 2019.
- (43) **Sufficiently strong dispersion removes ill-posedness in truncated series models of water waves.**
S. Liu and D.M. Ambrose. *Discrete and Continuous Dynamical Systems*, **39**:3123-3147, 2019.

- (42) **Nonexistence of small, smooth, time-periodic, spatially periodic solutions for nonlinear Schrödinger equations.**
D.M. Ambrose and J.D. Wright. *Quarterly of Applied Mathematics*, **77**:579-590, 2019.
- (41) **Existence theory for magma equations in dimension two and higher.**
D.M. Ambrose, G.R. Simpson, J.D. Wright, and D.G. Yang. *Nonlinearity*, **31**:4724-4745, 2018.
- (40) **Confinement of vorticity for the 2D Euler-alpha equations.**
D.M. Ambrose, M.C. Lopes Filho, and H.J. Nussenzweig Lopes. *Journal of Differential Equations*, **265**:5472-5489, 2018.
- (39) **Strong solutions for time-dependent mean field games with non-separable Hamiltonians.**
D.M. Ambrose. *Journal de Mathématiques Pures et Appliquées*, **113**:141-154, 2018.
- (38) **Periodic traveling interfacial hydroelastic waves with or without mass.**
B.F. Akers, D.M. Ambrose, and D.W. Sulon. *Zeitschrift für angewandte Mathematik und Physik (ZAMP)*, **68**:141, 2017.
- (37) **Well-posedness of two-dimensional hydroelastic waves with mass.**
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