Vincent R. Martinez

Contact Information

CUNY Hunter College
Department of Mathematics & Statistics
East Building 918
New York, New York 10065

+1-212-772-5791
vrmartinez@hunter.cuny.edu
math.hunter.cuny.edu/vmartine/

Research Interests

Navier-Stokes, Euler, and related hydrodynamic equations, Geophys. fluid dynamics, Turbulence, Well-posedness and Regularity of deterministic and stochastic PDEs, Long-time behavior of dynamical systems, Dispersive equations, Chemotaxis, Data Assimilation and Inverse problems

Positions

Visiting Researcher, Isaac Newton Institute Satellite Programme — September 2022

Doctoral Faculty, CUNY Graduate Center — Fall 2021–current

Assistant Professor, CUNY Hunter College — Aug 2018–current

Postdoctoral Fellow, Tulane University — Jan 2015–Jul 2018

Visiting Scholar, Institute of Pure and Applied Mathematics — Sep–Dec 2014

Education

Indiana University

Ph.D., Pure Mathematics — August 2014
Doctoral Thesis: *On Gevrey regularity of equations of fluid and geophysical fluid dynamics with applications to 2D and 3D turbulence.*
Advisor: Michael S. Jolly

The College of New Jersey

B.A., Mathematics — May 2008
Magna Cum Laude with Departmental Honors
Dean's List, 2004-2008

Penn State University

Mathematics Advanced Study Semester (MASS) Program — Fall 2007
Best Performance on Analysis Final Exam

Awards & Grants

National Science Foundation

DMS Conference Grant: Four Decades of the Einstein Chair Seminar
Co-PI, Award Number 2303240, $35,000 — 2022-2023
DMS Applied Math, Collaborative Research: Effects of Rotation, Stratification, and Dissipation in Incompressible Fluid Flows
Lead PI, Award Number 2206491, $106,000 — 2022-2025
LEAPS-MPS: Dynamical Parameter Estimation for Hydrodynamic Equations
Lead PI, Award Number 2213363, $238,904 — 2022-2024

CUNY Academy for the Humanities and Sciences

Feliks Gross Award — 2023-2024

Mary P. Dolciani Halloran Foundation

Dolciani Faculty Research Fellowship — 2023-2024

Professional Staff Congress–City University of New York Research Award Program

PSC-CUNY Traditional A Research Award Cycle 53	2022-2023
PSC-CUNY Traditional A Research Award Cycle 52	2021-2022
PSC-CUNY Traditional A Research Award Cycle 50	2019-2020

Hunter College

Hunter College Travel Award	2018-2019

Tulane University

OGPS Postdoctoral Fellow Travel Award	2015-2017

Mathematisches Forschungsinstitut Oberwolfach

US Junior Oberwolfach Fellow	Summer 2015

Indiana University Bloomington

Glenn Schober Travel Award	Spring 2014
Rothrock Teaching Award	Spring 2012
Matias Ochoada Fellowship	Fall 2011
Graduate Scholars Fellowship	2008-2009

Published or Accepted Works

19. V.R. Martinez, "Convergence analysis of a parameter estimation algorithm for the 2D Navier-Stokes Equations" *Nonlinearity*, DOI 10.1088/1361-6544/ac5362, April 2022.

18. E. Carlson, J. Hudson, A. Larios, V.R. Martinez, E. Ng, J.P. Whitehead, "Dynamically learning the parameters of a chaotic system using partial observations" *Discrete Contin. Dyn. Sys.*, DOI 10.3934/dcds.2022033, March 2022.

17. M.S. Jolly, A. Kumar, V.R. Martinez, "On local well-posedness of logarithmic inviscid regularizations of generalized SQG equations in borderline Sobolev spaces," *Commun. Pure Appl. Anal.*, DOI 10.3934/cpaa.2021169, August 29, 2021.

16. A. Biswas, K.R. Brown, V.R. Martinez, "Mesh-Free Interpolant Observables for Continuous Data Assimilation," *Ann. Appl. Math.*, 38(3), 1–60, 2022.

15. M.S. Jolly, A. Kumar, V.R. Martinez, "On existence, uniqueness, and smoothing to the generalized SQG equation in critical Sobolev spaces," *Commun. Math. Phys.*, DOI 10.1007/s00220-021-04124-9, May 20, 2021.

14. P.F. Aguilera, V.R. Martinez, and K. Zhao, "A PDE model for chemotaxis with logarithmic sensitivity and logistic growth," accepted in *Contemp. Math. Appl., Monogr. Expo. Lect. Notes*, DOI 10.1142/12639.

13. A. Farhat, N.E. Glatt-Holtz, V.R. Martinez, S. A. McQuarrie, and J. P. Whitehead, "Data assimilation in large-Prandtl Rayleigh-Bénard convection from thermal measurements," *SIAM J. Appl. Dyn. Syst.*, 19(1), 510–540, 2020.

12. M.S. Jolly, V.R. Martinez, E.J. Olson, and E.S. Titi "Continuous data assimilation with blurred-in-time measurements of the surface quasi-geostrophic equation," *Chin. Ann. Math., Ser. B*, 40, 721–764, 2019.

11. M.S. Jolly, V.R. Martinez, T. Sadigov, and E.S. Titi, "A determining form for the subcritical surface quasi-geostrophic equation," *J. Dyn. Differ. Equations*, 31, 1457–1494, 2019.

10. J. Blocher, V.R. Martinez, and E.J. Olson, "Data assimilation using noisy time-averaged measurements," *Physica D*, 376-377, 49–59, 2018.

9. L.T. Hoang and V.R. Martinez, "Asymptotic expansion for solutions of the Navier-Stokes equations with non-potential body forces," *J. Math. Anal. Appl.* 462(1), 84–113, 2018.

8. N. Zhu, Z. Liu. V.R. Martinez, and K. Zhao, "Global Cauchy problem of a system of parabolic conservation laws arising from a Keller-Segel type chemotaxis model," *SIAM J. Math. Anal.*, 50(5), 5380–5425, 2018.

7. V.R. Martinez, Z. Wang, and K. Zhao, "Asymptotic and viscous stability of large-amplitude solutions of a hyperbolic system arising from biology," *Indiana Univ. Math. J.*, 64(4), 1383–1424, 2018.

6. L.T. Hoang and V.R. Martinez, "Asymptotic expansion in Gevrey spaces for solutions of the Navier-Stokes equations," *Asymptotic Anal.*, 167–190, 2017.

5. V.R. Martinez and K. Zhao, "Analyticity and dynamics of a Keller-Segel-Navier-Stokes system," *Dyn. Partial Differ. Equ.*, 14(2), 125–158, 2017.

4. M.S. Jolly, V.R. Martinez, and E.S. Titi, "A data assimilation algorithm for the subcritical surface quasi-geostrophic equation," *Adv. Nonlinear Stud.*, 35, 167–192, 2017.

3. A. Biswas and V.R. Martinez, "Higher-order synchronization for a data assimilation algorithm for the 2D Navier-Stokes equations," *Nonlinear Anal., Real World Appl.*, 35, 132–157, 2017.

2. A. Biswas, V.R. Martinez, and P.S. Silva, "On Gevrey regularity of the supercritical SQG equation in critical Besov spaces," *J. Funct. Anal.*, 269(10), 3083–3119, 2015.

1. A. Biswas, M.S. Jolly, V.R. Martinez, E.S. Titi,"Dissipation length scale estimates for turbulent flows–a Wiener algebra approach," *J. Nonlinear Sci.*, 24, 441–471, 2014.

Submitted Works

6. A. Larios, V.R. Martinez, "Remarks on the large-scale stabilization of the 2D Kuramoto-Sivashinsky Equations," arXiv:2401.04888, pp. 1–19, Jan 2024.

5. A. Kumar, V.R. Martinez, "On well-posedness of a mildly dissipative family of active scalar equations in borderline Sobolev spaces," arXiv:2309.05844v1, pp. 1–48, Sep 11, 2023.

4. A. Farhat, A. Larios, V.R. Martinez, B. Pachev, J.P. Whitehead, "Conjuring the force from sparse observations in fluid flows," arXiv:2302.04701v1, pp. 1–15, Feb 9, 2023.

3. N.E. Glatt-Holtz, V.R. Martinez, and H. D. Nguyen, "The short memory limit for long-time statistics in a stochastic Coleman-Gurtin model of heat conduction," arXiv:2212.05646v1, pp. 1–71, Dec 12, 2022.

2. V.R. Martinez, "On the reconstruction of unknown driving forces from low-mode observations in the 2D Navier-Stokes Equations," arXiv:2208.00541v1, pp. 1–15, Jul 31, 2022.

1. N.E. Glatt-Holtz, V.R. Martinez, G.H. Richards, "On the long-time statistical behavior of smooth solutions of the weakly damped, stochastically-driven KdV equation," arXiv:2103.12942v1, pp. 1–70, Mar 23, 2021.

Works in Preparation

3. Q. Lin, V.R. Martinez, "Inferring anistropic viscosity and thermal diffusivity in the 3D Primitive Equations for the Ocean and Atmosphere via low-mode observations"
2. V.R. Martinez, J. Murri, B. Pachev, and J.P. Whitehead, "Relax, then punch: A unified approach to parameter recovery in nonlinear PDEs"
1. J. Broecker, G. Carigi, T. Kuna, V.R. Martinez "Nudging-based algorithms for inferring unknown external forces of quasi-finite type in transport-diffusion and 2D Navier-Stokes equations"

Seminars and Colloquia

BYU Applied Analysis Seminar	Provo, UT November 16, 2023
UMBC Differential Equations Seminar	Baltimore, MD October 30, 2023
CU Boulder Geometry & Analysis Seminar	Boulder, CO October 27, 2023
UNL PDE & Applied Analysis Seminar	Lincoln, NE October 4, 2023
University of Virginia Probability Seminar	Charlottesville, VA April 28, 2023
UC Santa Barbara Applied/PDE/Data Science Seminar	Santa Barbara, CA April 21, 2023
SUNY New Paltz Harrington Lectures	New Paltz, NY March 7, 2023
Florida State University Mathematics Colloquium	Tallahassee, FL March 3, 2023
Florida State University PDE Seminar	Tallahassee, FL February 27, 2023
CUNY GC Graduate Student Colloquium	New York, NY November 14, 2022
CCNY Mechanical Engineering Seminar	New York, NY October 20, 2022
University of Surrey Dynamical Systems and PDE Seminar	Guildford, UK September 16, 2022
Brigham Young University PDE Seminar	Provo, UT July 8, 2022
University of Arkansas Analysis Seminar	Fayetteville, AR April 7, 2022
Washington University St. Louis Analysis Seminar	(Remote) December 6, 2021
Penn State Probability and Financial Mathematics Seminar	(Remote) December 3, 2021
Oregon State University Analysis Seminar	(Remote) November 15, 2021
SUNY Stony Brook Analysis Seminar	Stony Brook, NY November 5, 2021
Texas A&M Nonlinear PDEs Seminar	(Remote) November 2, 2021
IU PDE Seminar	Bloomington, IN October 25, 2021
SUNY New Paltz Machine Learning Seminar	(Remote) October 20, 2021
University of Southern California CAMS Colloquium	(Remote) October 18, 2021

University of Cincinnati Analysis and PDE Seminar	Cincinnati, OH October 15, 2021
Texas Tech Probability, Differ. Geometry and Math. Physics Seminar	(Remote) October 6, 2021
University of Bremen Applied Analysis Seminar	(Remote) June 15, 2021
Pavia-Milano Seminar on Probability and Math. Statistics	(Remote) June 14, 2021
Tulane University Applied and Computational Math Seminar	(Remote) April 23, 2021
CUNY GC Einstein Chair Mathematics Seminar	(Remote) March 30, April 13, May 4, 2021
UI Chicago Analysis and Applied Math Seminar	(Remote) March 15, 2021
Rutgers University–Newark Physics Colloquium	(Remote) February 26, 2021
CUNY GC Data Science and Applied Topology Seminar	(Remote) Oct 23, Nov 13 2020
UMBC Differential Equations Seminar	(Remote) October 19, 2020
CUNY GC Harmonic Analysis and PDE Seminar	(Remote) October 2, 2020
Clarkson Mathematics Colloquium	(Remote) September 28, 2020
CUNY GC Harmonic Analysis and PDE Seminar	(Remote) May 1, 2020
Drexel PDE and Applied Mathematics Seminar	Philadelphia, PA March 5, 2020
Princeton University Analysis of Fluids Seminar	Princeton, NJ February 6, 2020
IU PDE Seminar	Bloomington, IN April 8, 2019
CUNY GC Nonlinear Analysis and PDE Seminar	New York, NY February 28, 2019
Queensborough Community College Mathematics Colloquium	Queens, NY February 27, 2019
CCNY Mathematics Colloquium	Manhattan, NY February 21, 2019
UMBC Applied Mathematics Colloquium	Baltimore, MD December 7, 2018
NJIT Fluids and Waves Seminar	Newark, NJ, October 29, 2018
Bronx Community College Mathematics Colloquium	Bronx, NY, October 23, 2018
UC San Diego Analysis Seminar	San Diego, CA, May 15, 2018
UC Santa Barbara Applied Math & PDE Seminar	Santa Barbara, CA, January, 19, 2018
Xavier University of Louisiana Mathematics Seminar	New Orleans, LA November 7, 2017
Utah State University Mechanical & Aerospace Engineering Seminar	Logan, UT November 2, 2016
UCLA Analysis & PDE Seminar	Los Angeles, CA October 28, 2016

University of Nevada-Reno Colloquium — Reno, NV — October 13, 2016

Brigham Young University PDE Seminar — Provo, UT — October 10, 2016

University of Virginia Harmonic Analysis & PDE Seminar — Charlottesville, VA — December 1, 2015

University of Wyoming Analysis Seminar — Laramie, WY — September 3, 2014

Tulane University, Applied and Computational Math Seminar — New Orleans, LA — March 28, 2014

Seminarial Activities

Einstein Chair Seminar with Dennis Sullivan (CUNY Graduate Center)
Tuesdays 1:45-2:50pm — Summer 2021–current

Harmonic Analysis & PDEs Seminar with Ioakeim Ampatzoglou, Dan Ginsberg, Azita Mayeli (CUNY Queensboro Community College), Weilin Li (CUNY City College)
Fridays 2:00-3:00pm — Summer 2020–current

Hunter College Mathematics Colloquium (HCMC)
Thursdays 4:30-5:30pm — Fall 2019–current

Data Science & Applied Topology Seminar with Azita Mayeli (CUNY Queensboro Community College) and Mikael Vejdemo-Johansson (CUNY Staten Island)
Fridays 12:00-1:00pm — Fall 2020–Spring 2021

Nonlinear Analysis & PDEs Seminar with Marcello Lucia (CUNY Staten Island)
Thursdays 4:15-5:15pm — Spring 2019–Spring 2020

Conferences, Workshops, & Summer Schools

AMS-MAA Joint Mathematics Meeting — San Francisco, CA
Invited Speaker in Dynamics and Regularity of PDEs — January 3-6, 2024

4th Annual OURFA2M2 Conference — (Remote)
Crash Course Lecturer — November 18-19, 2023

AIMS Workshop: Small Scale Dynamics in Incompress. Fluid Flow — Pasadena, CA
Invited Participant — November 6-10, 2023

9th ISDA 2023 (International Symposium on Data Assimilation) — Bologna, Italy
Invited Speaker in Novel Mathematical Ideas in D.A. — October 16-20, 2023

8th SIAM Central States Section Annual Meeting — Lincoln, Nebraska
Invited Speaker in Rec. Dev. Det. Sto. PDE: Theo. Num. Anal. — October 7-8, 2023
Invited Speaker in Rec. Adv. Anal. Learn. Differ. Equ. & Oper. — October 7-8, 2023

ICIAM 2023 (International Congress on Industrial & Appl. Math.) — Tokyo, Japan
Invited Speaker in Theory, Num. & Data-driv. meth. for fluids — August 20-25, 2023

Symposium on Applied Mathematics and Data Science — July 18-19, 2023
Invited Speaker in Theory and Application of Nonlinear PDEs — Hong Kong (Hybrid)

SIAM Conference on Applications of Dynamical Systems — Portland, OR
Invited Speaker in Rig. & Comp. Stud. of D.A. & Parameter Est. — May 14-18, 2023

Second Drexel Waves Workshop — Philadelphia, PA
Invited Speaker — March 30-31, 2023

BIRS Workshop on Mathematical Approaches of Atmospheric Constituents Data Assimilation and Inverse Modeling — Virtual
Invited Speaker — March 20-24 2023

AMS Spring Southeastern Sectional Meeting — Atlanta, GA
Invited Speaker in Qual. Asp. Nonlin. PDE: Well-posed. & Asy. — Mar 18-19, 2023
Invited Speaker in Stochastic Analysis and its Applications — Mar 18-19, 2023

AMS Fall Western Sectional Meeting — Salt Lake City, UT
Invited Speaker in Recent Adv. in the Theory of Fluid Dynamics — Oct 22-23, 2023

SIAM Central States Section — Stillwater, OK

Invited speaker in PDEs and Dynamical Systems Oct 1-2, 2022
CRM Workshop: Unifying Concepts in PDEs with Randomness Montreal, Canada
Invited Participant May 15-28, 2022
AIMS Workshop: Crit. & Stoch. in Quasilinear Fluid Systems San José, CA
Invited Participant May 2-6, 2022
12th IMACS International Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory Athens, GA
Invited Speaker in Asymptotics and Integrable systems March 30-April 1
SIAM Conference on Analysis of PDEs Virtual
Invited Speaker in Th. Appl. of Data Assim. with Param. Est. March 14-18, 2022
MCA 2021 (Mathematical Congress of the Americas) Virtual
Invited Speaker July 15, 16, 19, 2021
AMS-MAA Joint Mathematics Meeting Virtual
Invited speaker in Geo. Fluid Dyn., Turb., and D.A January 6-9, 2021
AMS Fall Western Sectional Meeting Virtual
Invited speaker in PDEs, Data Assim., & Inverse Problems October 24-25, 2020
AMS Fall Central Sectional Meeting Virtual
Invited speaker in Th. & Comp. Stud. of PDEs of Fluids September 12-13, 2020
AMS-MAA Joint Mathematics Meeting Denver, CO
Invited speaker in Det. & Prob. Approaches for Nonlin. PDEs January 15-18, 2020
SIAM Conference on Analysis of Partial Differential Equations La Quinta, CA
Invited speaker in Rig. & Comp. Stud. of Data Assimilation December 11-14, 2019
Hausdorff Institute of Mathematics (HIM) Trimester Program on Randomness, PDEs & Nonlinear Fluctuations Bonn, Germany
Invited Speaker in Workshop on Stochastic Fluid Dynamics November 10-15, 2019
SIAM Northern States Sectional Meeting Laramie, WY
Invited speaker in Recent Trends in SPDEs September 27-29, 2019
ICIAM 2019 (International Congress on Industrial & Appl. Math.) Valencia, Spain
Invited Speaker in Recent Adv. in Infinite Dim. Stoch. Analysis July 15-19, 2019
Recent Advances in Pure and Applied Stochastics New Orleans, LA
Invited Speaker March 14-16, 2019
AMS Fall Southeastern Sectional Meeting Fayetteville, AR
Invited Speaker in Recent Advances in Math. Fluid Mech. November 3-4, 2018
AMS Fall Western Sectional Meeting Ann Arbor, MI
Invited Speaker in Anal. and Num. Aspects of Turb. Trans. October 20-21, 2018
Banff Int. Research Station: Reg. & Blow-up of NS-Type PDEs Alberta, CA
Participant August 19-24, 2018
AIMS Conference Series on Dyn. Sys. and Differ. Eqns. Taipei, Taiwan
Invited Speaker July 9, 2018
AMS-MAA Joint Mathematics Meetings San Diego, CA
Invited Speaker January 9-13, 2018
MCA 2017 (Mathematical Congress of the Americas) Montreal, Canada
Invited Speaker July 24-28, 2017
Workshop on Probabilistic Perspectives in Nonlinear PDEs Edinburgh, Scotland
Invited Speaker June 5-9, 2017
Essence of $(u \cdot \nabla)u$: Reflections on Math. Fluid Dyn. Charlottesville, VA
Invited Speaker May 11-13, 2017
AMS Spring Eastern Sectional Meeting New York, NY
Invited speaker May 6-7, 2017
Workshop on Nonlinear Waves: Analysis and Applications Pittsburgh, PA
Invited Participant March 17-19, 2017
IPAM Workshop on Turbulent Dissip., Mixing and Predictability Los Angeles, CA
Invited Participant January 9-13, 2017
AMS-MAA Joint Mathematics Meeting Atlanta, GA

Invited Speaker in PDEs for Fluid flow January 4-7, 2017
1st Northeastern Analysis Meeting (NEAM) Brockport, NY
Invited Speaker October 14-16, 2016
AMS Fall Western Sectional Meeting Denver, CO
Invited Speaker in Nonlinear and Stochastic PDEs October 8-9, 2016
2016 IMA Summer Graduate Program: Mathematics and Climate Lawrence, KS
Mentor and Teaching Assistant July 18-August 5, 2016
IMA Special Workshop: "Dynamics and Differential Equations" Minneapolis, MN
Invited Participant June 22-25, 2016.
IPAM Long Program Reunion: Mathematics of Turbulence Lake Arrowhead, CA
Invited Speaker June 5-10, 2016.
Analysis & Beyond: Celebrating J. Bourgain's Work & Impact Princeton, NJ
Participant May 21-24, 2016.
2016 International Conf. on Evol. Eqn. & 31st Ann. Shanks Lecture Nashville, TN
Invited Speaker May 16-20, 2016
The Foias Lectures: Peter Constantin College Station, TX
Participant April 25-28, 2016
Analysis of PDEs of Fluid Mechanics and Related Models Workshop Houston, TX
Participant October 10-13, 2015
MFO Mathematical Aspects of Hydrodynamics Oberwolfach-Walke, Germany
Invited Participant August 9-15, 2015
CIRM Summer School on Transport, Fluids, and Mixing Levico Terme, Italy
Participant July 19-24, 2015
AMS Spring Western Sectional Meeting Las Vegas, NV
Invited Speaker in Nonlinear Conservation Laws April 19, 2015
NSF-CBMS RRC: Problems of PDEs related to fluids Stillwater, OK
Participant July 21 - 25, 2014
MSRI Summer Graduate School in Dispersive PDE Berkeley, CA
Participant June 16-27, 2014
4th Workshop on Fluids and PDE at IMPA Rio de Janeiro, Brazil
Invited speaker May 26-30, 2014
Workshop on Analysis of Nonlinear PDEs and Fluid Flows Baltimore, MD
Invited speaker January 19-20, 2014
AMS-MAA Joint Mathematics Meeting Baltimore, MD
Participant January 15-18, 2014
SIAM Conference on Analysis of Partial Differential Equations Orlando, FL
Invited talk in Analysis of NSE and Related Fluid Models December 7-10, 2013
72nd Midwest PDE Seminar West Lafayette, IN
Participant November 16-17, 2013
AMS Fall Southeastern Sectional Meeting Louisville, KY
Invited talk in PDEs from Fluid Mechanics October 5-6, 2013
Stanford Summer School: Recent Adv. in PDEs & Fluids Palo Alto, CA
Participant and *Contributed talk* August 5-18, 2013
AMS MRC: Regularity Problems for PDEs Modeling Fluids Snowbird, UT
Participant June 25-July 1, 2013
Geostrophic Turb. and Active Tracer Transport in 2D Princeton, NJ
Participant March 13-15, 2013
IU Dissipative Systems Workshop Bloomington, IN
Invited speaker February 8-10, 2013
9th AIMS Conference Orlando, FL
Invited talk in SS#30: Recent Developments on Turbulence July 1-5, 2012
AMS Spring Central Section Meeting Lawrence, KS
Participant March 30-April 1, 2012
Workshop on Study of Turb. in Phys. Sys. Through Complex Sing. & Det. Modes

College Station, TX
Invited speaker February 17-20, 2012
Incomp. Fluids, Turb. & Mix.: P. Constantin's 60th Birthday Pittsburgh, PA
Participant October 13-16, 2011
3rd Workshop on Fluids and PDE at UNICAMP Campinas, Brazil
Participant June 27-July 1, 2011

Community Service

16. ICIAM 2023 (International Congress on Industrial & Appl. Math.) Tokyo, Japan
Minisymposium co-organizer: Data-driven and Physics-informed Techniques in Data Assimilation (with J. Broecker and S. Pathiraja) August 20-25, 2023
15. ICIAM 2023 (International Congress on Industrial & Appl. Math.) Tokyo, Japan
Minisymposium co-organizer: Recent Advances on Regularity and Irregularity of Fluids Flows (with A. Farhat and E. Lunasin) August 20-25, 2023
13. AMS Spring Central Sectional Meeting Cincinnati, OH
Special session co-organizer: Recent Developments in the Study of Fluid Flows, Turbulence, and its Applications (with S. Punshon-Smith) April 15-16, 2023
12. AMS Spring Eastern Sectional Meeting Virtual
Special session co-organizer: Recent Advances in Infinite-Dimensional Stochastic Analysis, (with N. Glatt-Holtz and H. Nguyen) April 1-2, 2023
11. Four Decades of the Einstein Chair Seminar New York, NY
Conference co-organizer (with A. Basjmajian, B. Ferlengez, F. Gardiner, Y. Jiang, J. Hu, L. Keen, I. Kofman, S. Wilson, M. Zeinalian) January 17-19, 2023
10. AMS Fall Western Sectional Meeting Salt Lake City, UT
Special Session co-organizer: Data, Parameters & Inverse Problems for Dissipative Systems (with A. Larios and J.P. Whitehead) Oct 22-23, 2022
9. AMS Spring Central Sectional Meeting Virtual
Special Session co-organizer: Analytical, Computational, and Data-Driven Appr. in Fluid Dynamics (with A. Farhat and A. Pakzad) March 26-27, 2022
8. SIAM Conference on Dynamical Systems Virtual
Mini symposium co-organizer: Mathematics of Fluids: Analysis & Comput. (with C.F. Mondaini) May 23-27, 2021
7. SIAM Conference on Mathematics of Data Science Virtual
Mini symposium co-organizer: Bridging Data Assim. with Data-Driven Analysis (with A. Farhat) June 29-30, 2020
6. SIAM Conference on Analysis of Partial Differential Equations La Quinta, CA
Mini symposium co-organizer (with T. Drivas and H. Nguyen)
5. AMS Fall Eastern Sectional Meeting Binghamton, NY
Special Session co-organizer: Anal. & Appl. of Det. & Stoch. Evol. Eqns. (with K. Yamazaki) October 12-13, 2019
4. ICIAM 2019 (International Congress on Industrial & Appl. Math.) Valencia, Spain
Minisymposium co-organizer: Recent developments in nonlinear PDEs of hydro. and mathematical biology (with M.S. Jolly and K. Zhao)
3. SIAM Conference on Analysis of Partial Differential Equations Baltimore, MD
Minisymposium co-organizer: Regularity and Long-time Behavior of Fluid Flows (with A. Farhat) December 9-12, 2017
2. SIAM Conference on Applications of Dynamical Systems Snowbird, UT
Minisymposium co-organizer: Recent Developments in Data Assimilation (with J. Maclean and C. Mondaini) May 21-25, 2017
1. SIAM Conference on Analysis of Partial Differential Equations Scottsdale, AZ
Minisymposium co-organizer: Fluid Models, Turbulence and Data Assimilation (with A. Biswas & M.S. Jolly) Dec 7-10, 2015

Teaching Experience

CUNY Graduate Center, Instructor

MATH 856 Introduction to Partial Differential Eq.	1 semester, 10 students

CUNY Hunter College, Instructor

MATH 795 Analysis of Partial Differential Eq.	1 semester, 10 students
MATH 750 Calculus on Manifolds	1 semester, 10 students
MATH 746 Functions of a Real Variable I	2 semesters, 15 students
MATH 742 Analytic Functions	2 semesters, 10 students
MATH 685 Numerical Analysis	1 semester, 10 students
MATH 454 Calculus on Manifolds	1 semester, 10 students
MATH 385 Numerical Analysis	1 semester, 20 students
MATH 254 Ordinary Differential Equations	1 semester, 30 students
STAT 702 Advanced Probability II	1 semester, 15 students
STAT 701 Advanced Probability I	1 semester, 20 students

Tulane University, Instructor

M4470 Analytical Methods in Applied Math.	2 semesters, 20 students
M2240 Introduction to Applied Mathematics	1 semester, 80 students
M2210 Calculus III, Honors	1 semester, 10 students
M2210 Calculus III	1 semester, 30 students

Indiana University, Instructor

M119 Brief Survey of Calculus I	3 semesters, 90 students
J113 Introduction to Calculus with Applications	3 semesters, 20 students
J112 Introduction to College Math I	2 semesters, 30 students
J111 Introduction to College Math I	1 semester, 30 students
J110 Introductory Problem Solving	1 semester, 20 students
M014 Basic Algebra	1 semester, 10 students

Indiana University, Teaching Assistant

T101 Math for Elementary Teachers	2 semesters, 90 students

Mentoring

Polymath Jr. — Project Mentor, Summer 2023-current

Math Alliance — Alliance Mentor, Fall 2020-current

Raymond Saldana	Fall 2023
Jose Armando Sanchez Diaz	Fall 2022
Isabella Chittumuri	Spring 2021
Statistics PhD (Colorado School of Mines)	Fall 2023–current

Hunter College

Katie Trimper	Applied Math M.A.
Machine Learning techniques for parameter estimation	Fall 2023–current
Sergey Kurbakov	Applied Math M.A.
Physics-Informed Neural Networks for SDEs	Summer 2023–current
Gabe Levine	Applied Math M.A.
Physics-Informed Neural Networks & Data Assimilation	Summer 2023–current
Sanjay Bajnath	Applied Math M.A.
Finite-dimensional steady states of inviscid fluids	Summer 2023–current
Brian Holliday	Applied Math M.A.
Model Identification of the Lorenz 63 equations	Summer 2023–current
Michael Pallante	Pure Math M.A.
Observability and Parameter Recovery	Summer 2022–current
Hassami Sawadogo	Applied Math M.A.
Kalman Filter in Financial Applications	Fall 2023
Jose Armando Sanchez Diaz	Applied Math M.A.
Parameter recovery for nonlinear systems	Fall 2022–Fall 2023
Bastian Sierra	Applied Math M.A.
Special Topics in Numerical Methods	Spring 2023
Thomas Joy	Applied Math M.A.

Customization of YOLOv5 & Analysis of MTA Turnstile Data Spring-Fall 2022
Fardous Sabnur Applied Math M.A.
Robust Object Tracking and Re-Identification Spring 2022
Tatiana Mross Applied Math M.A.
Assessing Economic Impact of NJ Transit Villages Spring 2022
Caihua Chen Applied Math M.A.
Parameter Identifiability for Linear Dynamical Systems Spring 2022
Adjunct Lecturer at Hunter College Fall 2022–current
Yanlin Ou Applied Math M.A.
Parameter Identifiability for Linear Dynamical Systems Spring 2022
Adjunct Lecturer at Hunter College Fall 2022–current
Keven Calderón Applied Math M.A.
Numerical Compar. of Param. Est. Tech. for Dyn. Sys. Fall 2021-Spring 2022
Nathan Taylor Applied Math M.A.
Dynamical Parameter Estimation in Linear Systems Fall 2020-Spring 2021
ML Researcher at Redesign Science 2021-current
Bart Rosenzweig Applied Math M.A.
MA Thesis: Anal. & Comp. of Exact Factorization for NLS Spring 2020-2021
Math PhD (The Ohio State University) 2021-current
Kenneth Brown Pure Math M.A.
MA Thesis: Higher-order Synch. for Nudging 2D NSE Spring 2020-2021
Math PhD (UC Davis) 2021-current
Eunice Ng Pure Math M.A.
MA Thesis: Dynamical Parameter Estimation for Lorenz 63 Spring 2020-2021
Math PhD (Stony Brook University) 2021-current
Sanjit Gill Applied Math M.A.
Markov Chain Monte Carlo Methods for DA Fall 2020-Spring 2021
Director at Mackay Shields LLC
Melissa DiMaio Applied Math M.A.
On the Fermi-Pasta-Ulam-Tsingou paradox and the KdV equation Fall 2020
Adjunct Lecturer at Hunter College
Daniel Grange Applied Math M.A.
Steady States of 2D Euler with Finite Frequency Support Fall 2019-Fall 2020
Applied Math PhD (Stony Brook University) 2021-current
Paul Popa Applied Math M.A.
Dynamic Mean-Adjustment for Filtering Noise in DA Spring 2019-2020
Analyst System2
Ariel Glassberg Pure Math M.A.
Bayesian Parameter Estimation for Lorenz 63 Spring 2019-Summer 2020
Math MA (UNC Chapel Hill) 2020-2023
Raytheon Technologies 2023-current
Weiyan Lin Pure Math M.A.
Electron Orbitals for the Hydrogenic Atom Fall 2019
Math PhD (CUNY GC) 2021-current
Jared Berman Applied Math M.A.
Bayesian DA for a model of Brand Attraction Spring 2019-Fall 2019
Senior Data Engineer at The RealReal
Aidin Murtha Pure Math M.A.
Adjunct Lecturer at Hunter College Spring 2020–current
Ill-posed. of the 2D Incomp. Euler Eqn in the Critical Sobolev Space Fall 2019
Michael Ferguson Applied Math M.A.
Adaptive Nudging Schemes for DA of Lorenz 63 Spring 2019

Tulane University

Rosa 'Padi' Fuster Aguilera Postdoctoral Fellow (UC Boulder)

Co-advised with Kun Zhao — Spring 2018-Spring 2021
Kui Zhang — Vice President at Wells Fargo
Ph.D Thesis Committee — Spring 2017
Parker Evans — Math Ph.D. Student (Rice University)
Guided reading in Linear Algebra, Real Analysis — Spring 2015-Spring 2016
Skylar Deckoff-Jones — Physics Ph.D. (M.I.T)
Undergraduate Senior Thesis Committee — Spring 2016

2016 IMA Summer Graduate Program: Mathematics and Climate

Mentor: group project mentor on Lagrangian Data Assimilation involving three graduate students (Colin Guider (UNC-Chapel Hill), Kiwon Lee, (Seoul National University), Luyu Sun (UMD-College Park))

Teaching Assistant: lead group discussions and problem solving sessions

University & Departmental Service

Hunter College Fulbright Scholar-in-Residence Planning Committee — Spring 2024
Train and prepare application to host scholar-in-residence at Hunter College

Awards Committee — Spring 2023-current
Deliberate on distribution of various student awards

Graduate Admissions Committee Chair — Fall 2022-current
Finalize decisions on graduate admissions

Dolciani Depute Director Search Committee — Fall 2022
Review applications and interview candidates for position

Applied Math MA Graduate Advisor — Summer 2020-current
Course advisement and approvals, Recruitment, Project & Thesis adviser

Department Educational Policy Committee — Fall 2019–current
Curriculum review, revision, and approval

Editorial Activities

Reviewer for *AIMS Math., AMS MathSciNet, Amer. Math. Monthly, Anal. Appl., Ann. of Appl. Math., Applicable Anal., Bull. des Sciences Mathématiques, Commun. Math. Phys., Commun. Math. Res., Commun. Math. Sci., Complex Analysis & Operator Theory, Computer Methods in Appl. Mech. & Engin., Computers & Math. with Appl., Discrete & Contin. Dyn. Syst., Dyn. Sys., Evol. Equ. Control Theory, Indiana University Math. Journal, Int. Math. Res., J. Comput. Sci., Journal of Differ. Equ., J. Evol. Equ., J. Math. Anal. Appl., J. Math. Phys., J. Nonlinear Anal., J. Nonlinear Sci., J. Phys. A, J. Pure Appl. Funct. Anal., J. Theor. Probab., Math. Methods in Appl. Sci., Mathematische Nachrichten, Mathematische Zeitschrift, Nonlinearity, Nonlinear Anal., Open Math., Physica D, Physica Scripta, Proc. A of the Roy. Soc. Edinburgh, Results in Appl. Math., Revista de la Real Academia de Ciencias Exactas: Físicas y Naturales. Serie A. Matemáticas* (40 journals)

Review Panelist

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