

Vincent R. Martinez

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| 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, Geophysical fluid dynamics, Turbulence, Data assimilation, Long-time behavior of dissipative systems, Dispersive equations, Stochastic PDEs, Ergodic theory, Mathematical biology, chemotaxis | |
| POSITIONS | Assistant Professor, CUNY-Hunter College Applied Math Graduate Adviser Postdoctoral Fellow, Tulane University Visiting Scholar, Institute of Pure and Applied Mathematics (IPAM) | Aug 2018–current Summer 2020–current Jan 2015–Jul 2018 Sep–Dec 2014 |
| EDUCATION | Indiana University , Bloomington, Indiana Ph.D., Pure Mathematics Doctoral Thesis: <i>On Gevrey regularity of equations of fluid and geophysical fluid dynamics with applications to 2D and 3D turbulence.</i> Advisor: Michael S. Jolly The College of New Jersey , Ewing, New Jersey B.A., Mathematics <i>Magna Cum Laude</i> with Departmental Honors, <i>Dean's List</i> , 2004-2008 Penn State University , University Park, Pennsylvania Mathematics Advanced Study Semester (MASS) Program <i>Best Performance on Analysis Final Exam</i> | August 2014 May 2008 |
| AWARDS | City University of New York PSC-CUNY Traditional A Research Award Hunter College Travel Award Tulane University OGPS Postdoctoral Fellow Travel Award Mathematisches Forschungsinstitut Oberwolfach US Junior Oberwolfach Fellow Indiana University-Bloomington Glenn Schober Travel Award Rothrock Teaching Award Matias Ochoada Fellowship Graduate Scholars Fellowship | 2019-2020 2018-2019 2015-2017 Summer 2015 Spring 2014 Spring 2012 Fall 2011 2008-2009 |

PAPERS IN
PREPARATION

7. R. Fuster-Aguilera, V.R. Martinez, K. Zhao, “Asymptotic behavior of a chemotaxis model with logistic growth”
6. A. Biswas, K. Brown, and V.R. Martinez, “Higher order synchronization for a data assimilation algorithm using nodal observables”
5. A. Biswas, V.R. Martinez, and L.T. Hoang, “Gevrey regularity and asymptotic expansion for weak solutions of the 3D Navier-Stokes-Boussinesq system”
4. A. Kumar, V.R. Martinez, and M.S. Jolly, “Existence, uniqueness, and smoothing effect of solutions to the supercritically dissipative generalized SQG equation in critical Sobolev spaces”
3. A. Kumar, V.R. Martinez, and M.S. Jolly, ‘On local well-posedness of logarithmic regularizations of generalized SQG equations in borderline Sobolev spaces”
2. N.E. Glatt-Holtz, V.R. Martinez, and G. Richards, “On the Lyapunov structure and long-time statistical behavior of the damped stochastically-driven KdV equation”
1. N.E. Glatt-Holtz, V.R. Martinez, and G. Richards, “On global approximate and exact controllability of the damped-driven KdV equation with applications to the stochastically forced case”

PUBLISHED
PAPERS

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,” (to appear in *SIAM J. Appl. Dyn. Syst.*, 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.

SEMINARS AND
COLLOQUIA

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| Clarkson Mathematics Colloquium | Potsdam, NY |
| | September 28, 2020 |
| CUNY GC Harmonic Analysis and PDE Seminar | New York, NY |
| | 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 |
| UCSD Analysis Seminar | San Diego, CA, |
| | May 15, 2018 |
| UCSB 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 |

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| CUNY GRADUATE CENTER & SEMINARIAL ACTIVITIES | Co-organizer of Data Science & Applied Topology Seminar with Azita Mayeli (CUNY-Queensboro Community College) and Mikael Vejdemo-Johansson (CUNY-Staten Island) | Fridays 11:45-12:45pm, Room 4419 | Fall 2020–current |
| | Co-organizer of Harmonic Analysis & PDEs Seminar with Azita Mayeli (CUNY-Queensboro Community College) | Fridays 2:00-3:00pm, Room 4419 | Summer 2020–current |
| | Co-organizer of Nonlinear Analysis & PDEs Seminar with Marcello Lucia (CUNY-Staten Island) | Thursdays 4:15-5:15pm, Room 6496 | Spring 2019–current |
| | Organizer of Hunter College Applied Math (HCAM) Seminar | Thursdays 4:30-5:30pm, HE 920 | Fall 2019–current |
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| SELECTED CONFERENCES, WORKSHOPS, & SUMMER SCHOOLS | SIAM Conference on Mathematics of Data Science (Remote) Mini symposium co-organizer (with A. Farhat) | | Cincinnati, OH June 29-30, 2020 |
| | AMS-MAA Joint Mathematics Meeting (JMM) | | Denver, CO |
| | <i>Invited speaker in Det. & Prob. Approaches for Nonlin. PDEs</i> | | January 15-18, 2020 |
| | SIAM Conference on Analysis of Partial Differential Equations | | La Quinta, CA |
| | Mini symposium co-organizer (with T. Drivas and H. Nguyen) | | |
| | <i>Invited speaker in Rig. & Comp. Stud. of Data Assimilation</i> | | 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 |
| | 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 |
| | SIAM Northern States Sectional Meeting | | Laramie, WY |
| | <i>Invited speaker in Recent Trends in SPDEs</i> | | September 27-29, 2019 |
| | 2019 International Conf. on Industrial & Appl. Math. (ICIAM) | | Valencia, Spain |
| | Minisymposium co-organizer (with M.S. Jolly and K. Zhao) | | July 15-19, 2019 |
| | Recent Advances in Pure and Applied Stochastics | | New Orleans, LA |
| | <i>Invited Speaker</i> | | March 14-16, 2019 |
| | AMS Fall Western Sectional Meeting | | Fayetteville, AR |
| | <i>Invited Speaker in Recent Advances in Math. Fluid Mech.</i> | | November 3-4, 2018 |
| | AMS Fall Western Sectional Meeting | | Ann Arbor, MI |
| | <i>Invited Speaker in Anal. and Num. Aspects of Turb. Trans.</i> | | 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 |
| | <i>Invited Speaker</i> | | July 9, 2018 |
| | AMS-MAA Joint Mathematics Meetings (JMM) | | San Diego, CA |
| | <i>Invited Speaker</i> | | January 9-13, 2018 |
| SIAM Conference on Analysis of Partial Differential Equations | | Baltimore, MD | |
| Minisymposium co-organizer (with A. Farhat) | | December 9-12, 2017 | |
| 2017 Mathematical Congress of the Americas (MCA) | | Montreal, Canada | |
| <i>Invited Speaker</i> | | July 24-28, 2017 | |
| Workshop on Probabilistic Perspectives in Nonlinear PDEs | | Edinburgh, Scotland | |
| <i>Invited Speaker</i> | | June 5-9, 2017 | |
| SIAM Conference on Applications of Dynamical Systems | | Snowbird, UT | |
| Minisymposium co-organizer (with J. Maclean and C. Mondaini) | | May 21-25, 2017 | |
| Essence of $(u \cdot \nabla)u$: Reflections on Math. Fluid Dyn. | | Charlottesville, VA | |
| <i>Invited Speaker</i> | | 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
 Participant March 17-19, 2017
 IPAM Workshop on Turbulent Dissip., Mixing and Predictability Los Angeles, CA
 Participant January 9-13, 2017
 2017 Joint Mathematics Meeting (JMM) Atlanta, GA
Invited Speaker in SS 60A on 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
 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
 SIAM Conference on Analysis of Partial Differential Equations Scottsdale, AZ
 Minisymposium co-organizer (with A. Biswas and M.S. Jolly) December 7-10, 2015
 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
 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 SS on 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
 2014 JMM, Baltimore, MD
 Participant January 15-18, 2014
 SIAM Conference on Analysis of Partial Differential Equations Orlando, FL
Invited talk in MS20 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 Special Session on 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 2 dimensions Princeton, NJ
 Participant March 13-15, 2013

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| IU Dissipative Systems Workshop | Bloomington, IN |
| <i>Invited speaker</i> | February 8-10, 2013 |
| 9th AIMS Conference | Orlando, FL |
| <i>Invited talk in Special Session #30</i> | 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 | |
| <i>Invited speaker</i> | 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 |

TEACHING
EXPERIENCE

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| CUNY-Hunter College, Instructor | |
| MATH 795 Analysis of Partial Differential Equations | 1 semester, 10 students |
| MATH 777 Distribution Theory & Analytic Functions | 1 semester, 6 students |
| MATH 750 Calculus on Manifolds | 1 semester, 15 students |
| MATH 746 Functions of a Real Variable I | 1 semester, 15 students |
| MATH 254 Ordinary Differential Equations | 1 semester, 30 students |
| STAT 701 Advanced Probability I | 1 semester, 25 students |
| Tulane University, Instructor | |
| M4470 Analytical Methods in Applied Mathematics | 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

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| Hunter College | |
| Nathan Taylor | Applied Math M.A. |
| <i>Conditioned Parameter Estimation</i> | Fall 2020-current |
| Bart Rosenzweig | Applied Math M.A. |
| <i>Numerical Analysis of Exact Factorization Models of Schrödinger Equations</i> | Spring 2020-current |
| Kenneth Brown | Pure Math M.A. |
| <i>Higher-order synchronization for a nudging algorithm with nodal-value observables</i> | Spring 2020-current |
| Eunice Ng | Pure Math M.A. |
| <i>Parameter Estimation for Rayleigh-Bénard Convection</i> | Spring 2020-current |
| Sanjit Gill | Applied Math M.A. |
| <i>Asynchronous Discrete Data Assimilation</i> | Fall 2020-current |
| Melissa DiMaio | Applied Math M.A. |
| <i>Microscopic to Macroscopic Limits of Hydrodynamics Equation</i> | Fall 2020-current |
| Paul Popa | Applied Math M.A. |
| <i>Dynamic Mean-Adjustment for Filtering Noise in Data Assimilation</i> | |

Spring 2019-Spring 2020

Ariel Glassberg
Bayesian Parameter Estimation for the Lorenz Equations Spring 2019-Summer 2020
 PhD student (UNC-Chapel Hill)
 Pure Math M.A.

Weiyang Lin
Electron Orbitals for the Hydrogenic Atom Fall 2019
 PhD student (UC-Riverside)
 Pure Math M.A.

Jared Berman
Bayesian Data Assimilation for Brand Attraction Spring 2019-Fall 2019
 Applied Math M.A.
 Data Analyst at Spark Foundry

Aidin Murtha
Ill-posed. of the 2D Incomp. Euler Eqn in the Critical Sobolev Space Fall 2019
 Pure Math M.A.
 PhD student (CUNY-GC)

Michael Ferguson
Adaptive Nudging Schemes for DA of the Lorenz Equations Spring 2019
 Applied Math M.A.

Tulane University

Rosa 'Padi' Fuster-Aguilera Math Ph.D Candidate
 Co-advising with Kun Zhao Spring 2018-current

Kui Zhang Quant Analyst for 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. Student (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

EDITORIAL
 ACTIVITIES

Reviewer for *Applicable Analysis, Complex Analysis & Operator Theory, Discrete & Continuous Dynamical Systems, Indiana University Mathematics Journal, Journal of Evolution Equations, Journal of Mathematical Analysis & Applications, Journal of Mathematical Physics, Journal of Nonlinear Science, Journal of Physics A, Journal of Pure & Applied Functional Analysis, Mathematische Nachrichten, Nonlinearity, Physica D, Physica Scripta, PSC-CUNY Research Award Program, Results in Applied Mathematics*