

Matei P. Coiculescu

CONTACT INFORMATION	New York University Courant Institute Warren Weaver Hall, 251 Mercer Street New York, NY 10012	E-Mail: m.coiculescu@nyu.edu
RESEARCH INTERESTS	My research interest is in Mathematical Fluid Dynamics, Geometric Analysis, and Partial Differential Equations. I am especially interested in regularity and uniqueness problems related to the Navier-Stokes and Euler Equations. I also work on the Riemannian geometry of Lie groups, on geometric flows on curves, and on the theory of viscosity solutions. Recently, I have been interested in the mathematical theory of turbulence.	
EDUCATION	Princeton University, 2021-2026, Ph.D. Mathematics Dissertation Title: Partial Regularity, Uniqueness, and Non-Uniqueness for the Navier-Stokes Equations Advisor: Camillo De Lellis, Ph.D., IBM von Neumann Professor, IAS Brown University, 2017-2021, Sc.B. Mathematics Honors, Magna Cum Laude, GPA 4.0/4.0 Thesis Title: Some New Results in Geometric Analysis Advisor: Richard E. Schwartz, Ph.D., Chancellor's Professor, Brown University	
PUBLICATIONS	1. Stationary Solutions of the Curvature Preserving Flow on Space Curves Archiv der Mathematik. 116, 457-467, (2021). 2. Some New Results In Geometric Analysis Honors Thesis, Brown University, (2021). 3. An Interpolation from Sol to Hyperbolic Space Experimental Mathematics. 31, 1150-1176, (2022). 4. The Spheres of Sol Joint with R.E. Schwartz. Geometry & Topology 26, 2103-2134, (2022). 5. An Application of the Theory of Viscosity Solutions to Higher Order Differential Equations. Monatshefte für Mathematik. 203, 825-841, (2024). 6. The Affine Shape of a Figure-Eight Under the Curve Shortening Flow Joint with R.E. Schwartz. Journal of Differential Geometry. 127, 945-968, (2024). 7. Non-Uniqueness of Smooth Solutions of the Navier-Stokes Equations from Critical Data. Joint with S. Palasek. Inventiones Mathematicae. (2025). 8. Conditional Liouville Theorems for the Navier-Stokes Equations. Joint with J. Yang. Calculus of Variations and Partial Differential Equations. 65:22, (2026). 9. Partial Regularity and Blowup for an Averaged Three-Dimensional Navier-Stokes Equation. Submitted. 10. Stability of the Inviscid Power-Law Vortex. Joint with T. Binz. Submitted. 11. A Two-Sink Solution to the Self-Similar Euler Equations. Joint with H. Choi. Submitted.	

12. Homothetic Self-Similar Solutions to the Incompressible Navier-Stokes Equations. Joint with T. Binz. Submitted.
13. Ill-Posedness of the Euler Equations Linearized around Homogeneous Steady States. Submitted.
14. Extending the Córdoba-Martínez-Zoroa IPM Blow-Up to Uniformly Space-Time Smooth Forcing. Joint with L. Alpöge and T. Buckmaster. Submitted.

FELLOWSHIPS & AWARDS

- Simons Junior Fellowship.
3 Year Award.
- Graduate Teaching Award (Princeton University) \$ 1,000
- NSF Graduate Research Fellowship
3 Year Award, \$ 34,000 Per Year
- Centennial Fellowship (Princeton University)
4 Year Award, \$ 4,000 Per Year
- David Howell Premium for Excellence in Mathematics
and Natural Philosophy (Brown University) \$ 1,000

INVITED TALKS

- September 24, 2026, Analysis Seminar at NYU-Courant
- April 8, 2026, Workshop at Brin Institute-U. Maryland
- March 13, 2026, Analysis Seminar at Columbia
- January 29, 2026, Fluids Seminar at Princeton
- September 11, 2025, Workshop at EPFL Bernoulli Center
- April 10, 2025, Analysis Seminar at NYU-Courant
- March 27, 2024, Geometry Seminar at Penn State
- February 23, 2024, PDE Seminar at Brown
- October 5, 2023, Graduate Student Seminar at Princeton
- November 11, 2021, Graduate Student Seminar at Princeton
- October 20, 2021, Geometry and Topology Seminar at Brown
- April 28, 2021, Honors Thesis Presentation at Brown
- March 24, 2021, Geometry and Topology Seminar at Brown
- December 8, 2020, Group Theory Seminar at École Normale Supérieure

RESEARCH INSTITUTES AND CONFERENCES

- Graduate Student Visitor at the IAS, Fall 2021-2026.
- Periodic Visitor at the IAS, Fall 2020-Spring 2021
- Periodic Visitor at ICERM, Fall 2019
- Attended Geometry Labs United Conference at ICERM, July 2020
- Attended Small Scale Dynamics in Fluids Workshop, Stony Brook, June 2022
- Attended the Summer School in Fluids, Brin Institute, U. Maryland, July 2023
- Attended the Simons Math Summer Workshop: PDE, Stony Brook, July 2025
- Attended the NSF-FRG Summer School on Fluids and CAP, August 2025
- Attended the Workshop in Fluids, Brin Institute, U. Maryland, April 2026
- Attended the ICM, Philadelphia, July 2026

TEACHING

Spring	2025	Preceptor, Multivariable Calculus, MAT 201 (Two Sections)
Fall	2024	Preceptor, Multivariable Calculus, MAT 201 (Two Sections)
Spring	2020	Teaching Assistant, Linear Algebra, MATH 520
Fall	2019	Teaching Assistant, Honors Linear Algebra, MATH 540
Spring	2019	Grader, Linear Algebra, MATH 520

SERVICE	• Directed Reading Program Advisor: Spring 2023, AY23-24, Spring 2025 Mentored undergraduate students in advanced topics. • Curricular Advising Fellow AY19-20
LANGUAGES	English, Romanian, German
COMPUTER SKILLS	L ^A T _E X, Mathematica, MatLab, HTML/CSS/Javascript, Python, Java
PROFESSIONAL MEMBERSHIPS	American Mathematical Society
REFERENCES	• Camillo De Lellis, IBM von Neumann Professor, Institute for Advanced Study, camillo.delellis@math.ias.edu • Tristan Buckmaster, Professor, Courant Institute, New York University, buckmaster@cims.nyu.edu • Vladimir Sverak, Distinguished University Professor, University of Minnesota, sverak@umn.edu • Richard E. Schwartz, Chancellor's Professor, Brown University, res@math.brown.edu