

# Daniel Ginsberg

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## CONTACT

### INFORMATION

Department of Mathematics  
Brooklyn College – CUNY

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## APPOINTMENTS

Sept 2023: Assistant Professor, Department of Mathematics, Brooklyn College – CUNY  
Sept 2021-Aug 2023: Postdoctoral research associate, Department of Mathematics, Princeton University.  
Sept 2019-Sept 2021: Postdoctoral research associate, PACM, Princeton University.

## EDUCATION

**Johns Hopkins University** Baltimore, Maryland  
PhD. , Mathematics (May 2019)

- Research Topic: The free boundary problem for Euler's equations with vorticity
- Advisor: Dr. Hans Lindblad

**University of Toronto**, Toronto, Ontario

- MSc., Mathematics, May 2013  
Research Topic: Stability of the Abrikosov Lattice Solutions to the Ginzburg-Landau equations  
Advisor: Dr. I.M. Sigal
- H. B. Sc. Specialist, Mathematics; Major, Physics, 2007-2012

## RESEARCH INTERESTS

Partial differential equations, Water waves, General relativity, Magnetohydrodynamics

## PUBLICATIONS

- T. D. Drivas, D. Ginsberg, M. Nualart, *On the fragility of laminar flow*, Preprint <https://arxiv.org/abs/2505.17817>
- K. Abe, D. Ginsberg, I. Jeong, *Stationary self-similar profiles for the two-dimensional inviscid Boussinesq equations*, Preprint [arxiv.org/abs/2410.21765](https://arxiv.org/abs/2410.21765)
- D. Ginsberg, I. Rodnianski, *The Stability of Irrotational Shocks and the Landau Law of Decay*, Preprint [arxiv.org/abs/2403.13568](https://arxiv.org/abs/2403.13568)
- D. Ginsberg, F. Pusateri, *Long time regularity for 3d gravity waves with vorticity*, Preprint [arxiv.org/abs/2401.10096](https://arxiv.org/abs/2401.10096), To appear, Annals of PDE.
- T. D. Drivas, D. Ginsberg, *Islands in stable fluid equilibria*, Proceedings of the AMS (2024) 152.11
- T. D. Drivas, D. Ginsberg, H. Grayer II, *On the distribution of heat in fibered magnetic fields*, Communications in Mathematical Physics (2024), 405.57
- D. Ginsberg, H. Lindblad, *Local well-posedness for the relativistic Euler equations for a liquid body*, Annals of PDE 9, 23 (2023)
- P. Constantin, T. Drivas, and D. Ginsberg, *Flexibility and rigidity of free boundary MHD equilibria*, Nonlinearity (2022), 35.5: 2363.

- P. Constantin, T. Drivas, and D. Ginsberg, *On quasisymmetric plasma equilibria sustained by small force*, Journal of Plasma Physics 87.1 (2021). n
- P. Constantin, T. Drivas, and D. Ginsberg, *Flexibility and rigidity in steady fluid motion*, Communications in Mathematical Physics (2021): 1-43
- D. Ginsberg, H. Lindblad, and C. Luo, *Local well-posedness for the motion of a compressible, self-gravitating liquid with free surface boundary*, Archive for Rational Mechanics and Analysis (2019): 1-131.
- D. Ginsberg, *On the breakdown of solutions to the incompressible Euler equations with free surface boundary*, SIAM Journal on Mathematical Analysis (2021) 53 (3), 3366-3384
- D. Ginsberg, *A priori estimates for the relativistic Euler equations with free surface boundary*, Journal of Hyperbolic Differential Equations 16.03 (2019): 401-442.
- D. Ginsberg, *On the lifespan of three-dimensional gravity water waves with vorticity*, Preprint [arxiv.org:1812.01583](https://arxiv.org/abs/1812.01583)
- D. Ginsberg and G. Simpson, *Analytical and Numerical Results on the Positivity of Steady State Solutions of a Thin Film Equation*, DCDS-B, 18(5):1305-1321, 2013. (Undergraduate work)

#### WORKSHOPS ORGANIZED

*Winter School on Boundary and Singularity in Fluid Motion*, Simons Center for Geometry and Physics, Stony Brook NY, Jan 6-10, 2025.

#### INVITED TALKS

*Long time regularity for 3d gravity waves with vorticity*, AMS Spring Eastern Sectional Meeting, Hartford CT, Apr 6, 2025

*Long time regularity for 3d gravity waves with vorticity* Analysis Seminar, Duke University, Oct 11, 2024

*The Stability of Irrotational Shocks and the Landau Law of Decay* Nonlinear Waves and Fluids Workshop and Summer School, University College London, June 25, 2024

*The Stability of Irrotational Shocks and the Landau Law of Decay* PDE Seminar, Stanford University, May 28, 2024

*The Stability of Irrotational Shocks and the Landau Law of Decay* PDE Seminar, Vanderbilt University, Apr 12, 2024

*The Stability of Irrotational Shocks and the Landau Law of Decay* AMS Spring Eastern Sectional Meeting, Howard University, Apr 7, 2024

*The Stability of Irrotational Shocks and the Landau Law of Decay* UMass Amherst Analysis and PDE seminar, Apr 3, 2024

*The Stability of Irrotational Shocks and the Landau Law of Decay* Courant Analysis Seminar, Feb 29, 2024

*The Stability of Irrotational Shocks and the Landau Law of Decay* Johns Hopkins Mathematical Physics Seminar, Johns Hopkins University, Feb 21, 2024

*The Stability of Model Shocks and the Landau Law of Decay* Stony Brook Mathematics Colloquium, Stony Brook University, Feb 15, 2024,

*The Stability of Model Shocks and the Landau Law of Decay* Cretan Waves Conference, University of Crete, Oct 11, 2023,

*The Stability of Model Shocks and the Landau Law of Decay* UC Davis PDE Seminar, UC Davis, Jun 8, 2023,

*On the distribution of heat in a steady magnetic field* Simons Collaboration on Hidden Symmetries and Fusion Annual Team Meeting, Mar 24, 2023,

*The Stability of Model Shocks and the Landau Law of Decay* The 8th KTGU Mathematics Workshop for Young Researchers, Kyoto University, Jan 31, 2023.

*On the distribution of heat in a steady magnetic field* Simons Collaboration on Hidden Symmetries and Fusion Power Weekly Meeting, Jan 5, 2023,

*On the magnetic confinement of a plasma* Hunter College Applied Math Seminar, December 8, 2022,

*The Stability of Model Shocks and the Landau Law of Decay* CUNY GC Harmonic Analysis & PDE Seminar, Nov 4, 2022,

*Flexibility and rigidity of steady fluid motion and the distribution of heat in a fibered magnetic field* Duke University, November 2, 2022,

*The Stability of Model Shocks and the Landau Law of Decay* Simons Center Workshop on Small Scale Dynamics in Fluid Motion, June 20, 2022,

*The Stability of Model Shocks and the Landau Law of Decay* AMS JMM Special Session on Fluid Mechanics, April 6, 2022,

*The Stability of Model Shocks and the Landau Law of Decay* Penn State PDE Seminar, March 2, 2022,

*Flexibility and Rigidity of Fluid Equilibria* Simons Collaboration on Hidden Symmetries and Fusion Power (Virtual) Annual Team Meeting, June 2, 2021,

*The Stability of Model Shocks and the Landau Law of Decay* Princeton Analysis Seminar, April 26, 2021,

*Flexibility and Rigidity in Steady Fluid Motion*, ICL/UCL joint Pure Analysis and PDE Seminar, Dec 11 2020,

*On Quasisymmetric Plasma Equilibria With Small Force*, Simons Collaboration on Hidden Symmetries and Fusion Power (Virtual) Annual Team Meeting, August 4, 2020,

*Construction of approximate quasisymmetry equilibria sustained by a small force*, Simons Collaboration on Hidden Symmetries and Fusion Power Weekly Meeting, April 6, 2020,

*3D gravity water waves with vorticity*, Courant Analysis Seminar, Feb 6, 2020

*3D gravity water waves with vorticity*, SIAM Conference on Analysis of Partial Differential Equations (PD19), December 12, 2019

*3D gravity water waves with vorticity*, Princeton Fluids Seminar, Oct 3, 2019

*3D gravity water waves with vorticity*, USC Seminar, May 2019

*A priori estimates for a relativistic liquid*, SIAM Conference on Analysis of Partial Differential Equations, Baltimore, MD, December 2017.

#### SELECTED AWARDS

- *NSF Grant DMS-2406852*, Sept 2024-.
- *William Kelso Morrill Award*, May 2018. Teaching award.
- *Professor Joel Dean Award*, May 2016. Teaching award.
- *Krieger School of Arts and Sciences, "Owens Fellowship"*, Sept. 2013-Sept. 2016. Awarded to the department's most competitive applicants.
- *NSERC Postgraduate Scholarship*, Sept. 2013-May 2014.

#### TEACHING EXPERIENCE

*Brooklyn College: Instructor*

Math 4201: Advanced Calculus, Fall 2024

Math 5001: Independent Study (Spherical harmonics and nodal sets), Fall 2024

CSC 4900 VC1B: Independent Project (Harmonic and percussive source separation), Fall 2024

Math 4211: Partial Differential Equations, Spring 2024

Math 1206: Calculus 2, Fall 2023 *Princeton University: Instructor*

Math 322: Introduction to Differential Equations, Spring 2022

Math 104: Calculus 2, Fall 2021

*Johns Hopkins University: Instructor*

Math 302: Differential equations with applications, Summer 2018 (online)

Math 302: Differential equations with applications, Summer 2016 (online)

Math 302: Differential equations with applications, Summer 2015 (online)

Math 108: Calculus 1 (Physical Sciences & Engineering), Summer 2014.

*Johns Hopkins University: Graduate Teaching Assistant*

Math 439: Introduction to differential geometry, Fall 2018.

Math 201: Linear algebra, Spring 2018

Math 109: Calculus for physical sciences and engineering, Fall 2017

Math 302: Differential equations with applications, Spring 2017

Math 201: Linear algebra, Fall 2016

Math 302: Differential equations with applications, Spring 2016

Math 302: Differential equations with applications, Fall 2015

Math 109: Calculus for physical sciences and engineering, Spring 2015

Math 108: Calculus 1, Fall 2014

Math 108: Calculus 1, Fall 2013

*University of Toronto, Teaching Assistant*

Math 337: Introduction to Real Analysis, Fall 2012

Math 133: Calculus and linear algebra for commerce students, Fall 2012 and Spring 2013

Math 188: Linear algebra for engineering students, Fall 2012

Math 135: Calculus for life sciences, Fall 2010-Spring 2012

SERVICE

*Member, Brooklyn College Mathematics Department Committee on curriculum (Sept 2024-) Member, Brooklyn College Mathematics Department Committee on outreach (Sept 2024-)*

*Organizer, CUNY Graduate Center PDE/Harmonic Analysis Learning Seminar (Jan 2023-)*

*Organizer, CUNY Graduate Center PDE/Harmonic Analysis Research Seminar (Sept 2023-)*

*Organizer, Brooklyn College Mathematics Colloquium (Sept 2023-)*

*Member, Brooklyn College Mathematics Department Committee on committees (Sept 2024-)*