

Daniel Ginsberg

CONTACT

INFORMATION

Department of Mathematics
Princeton University

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APPOINTMENTS

Sept 2021-: Postdoctoral research associate, Department of Mathematics, Princeton University.

Sept 2019-Sept 2021: Postdoctoral research associate, PACM, Princeton University.
Mentor: Peter Constantin.

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

- D. Ginsberg, I. Rodnianski, *On the Landau law of decay of 3D shocks*, in preparation.
- D. Ginsberg, H. Lindblad, *Local well-posedness for the relativistic Euler equations for a liquid body*, Preprint [arxiv.org:2109.01899](https://arxiv.org/abs/2109.01899) (2021).
- 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).
- 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)

INVITED TALKS

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

- *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

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