

Benjamin Pineau

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Courant Institute of Mathematical Sciences
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APPOINTMENTS

- **Courant Institute of Mathematical Sciences** September 2024 – August 2027
Simons Junior Postdoctoral Fellow
- **Simons Society of Fellows** September 2024 – August 2027
Simons Junior Postdoctoral Fellow

EDUCATION

- **University of California, Berkeley** September 2019 – May 2024
Ph.D. in Mathematics
- **University of Alberta** September 2014 – May 2019
Bachelor of Science, Mechanical Engineering

TEACHING EXPERIENCE

- **Instructor, NYU Courant, Spring 2026:** MATH-GA.2460 (Complex Variables II)
- **Graduate Student Instructor, UC Berkeley, Spring 2024:** Math 1B (Calculus)
- **Graduate Student Instructor, UC Berkeley, Spring 2023:** Math 53 (Multivariable Calculus)
- **Graduate Student Instructor, UC Berkeley, Spring 2022:** Math 1B (Calculus)
- **Graduate Student Instructor, UC Berkeley, Fall 2021:** Math 1B (Calculus)
- **Reader/Grader, UC Berkeley, Spring 2020:** Math 105 (Analysis II)
- **Teaching Assistant, University of Alberta, Fall 2017:** Math 117 (Honors Calculus)
- **Teaching Assistant, University of Alberta, Spring 2017:** Math Help Center
- **Graduate Student Researcher, UC Berkeley:** Fall 2022 and Fall 2023
- **NSERC Undergraduate Student Research Award:** Summers of 2016, 2017 and 2018

ACADEMIC SERVICE

- **Co-organizer, Zurich Fluid Days:** June 14–18, 2027. Forschungsinstitut für Mathematik (FIM), ETH Zürich, Switzerland. With Hyunju Kwon, Matthew Novack and Mitchell A. Taylor.
- **Co-organizer for the HADES seminar, UC Berkeley:** Spring 2024
- **Co-organizer for the HADES seminar, UC Berkeley:** Fall 2023
- **Referee for academic journals:** Archive for Rational Mechanics and Analysis, Advances in Mathematics, Annals of PDE, Communications in Nonlinear Science and Numerical Simulation, Inventiones Mathematicae, Journal of Differential Equations, Journal of the European Mathematical Society, Journal of Evolution Equations, Journal of Mathematical Analysis and Applications, Partial Differential Equations and Applications, SIAM Journal on Mathematical Analysis, Zeitschrift für Angewandte Mathematik und Physik.

SELECTED AWARDS

- Junior Postdoctoral Fellow in Simons Society of Fellows – 2024
- Herb Alexander Prize in Pure Mathematics – 2024
- Berkeley Fellowship – 2019
- Jason Lang Scholarship – 2018
- Jason Lang Scholarship – 2017
- Robert Tegler Undergraduate Scholarship – 2017
- A University of Alberta Undergraduate Scholarship – 2017
- Jason Lang Scholarship – 2016
- A University of Alberta Undergraduate Scholarship – 2016
- Louise McKinney Scholarship – 2015
- University of Alberta Academic Excellence Scholarship – 2014
- Alexander Rutherford Scholarship – 2014

1. *Global well-posedness for non-localized 3D gravity water waves*, with Mihaela Ifrim and Daniel Tataru. In final preparation.
2. *On rotated backwards self-similar solutions of the incompressible 3D Navier-Stokes equations*, with Vlad Vicol. [arXiv:2607.09619 \[math.AP\]](#).
3. *L^2 -Stability for STFT phase retrieval*, with Susanna Bertolini, Jaume de Dios Pont, Mitchell A. Taylor and João P. G. Ramos. [arXiv:2605.20527 \[math.FA\]](#).
4. *Cheeger's constant for the Gabor transform and ripples*, with Rima Alaifari, Mitchell A. Taylor and Matthias Wellershoff. [arXiv:2512.18058 \[math.CA\]](#).
5. *A Poisson formula for the wave propagator on Schwarzschild-de Sitter backgrounds*, with Izak Oltman. [arXiv:2512.16054 \[math.AP\]](#).
6. *On the optimal Sobolev threshold for evolution equations with rough nonlinearities*, with Mitchell A. Taylor. [arXiv:2505.14966 \[math.AP\]](#). Accepted in **Journal of the European Mathematical Society**.
7. *Global solutions for cubic quasilinear ultrahyperbolic Schrödinger flows*, with Mihaela Ifrim and Daniel Tataru. [arXiv:2504.06230 \[math.AP\]](#). Accepted in **Duke Mathematical Journal**.
8. *Sharp well-posedness for the free boundary MHD equations*, with Mihaela Ifrim, Daniel Tataru and Mitchell A. Taylor. [arXiv:2412.15625 \[math.AP\]](#).
9. *Low regularity solutions for the general quasilinear ultrahyperbolic Schrödinger equation*, with Mitchell A. Taylor. [arXiv:2310.19221 \[math.AP\]](#). Accepted in **Archive for Rational Mechanics and Analysis**.
10. *Sharp Hadamard local well-posedness, enhanced uniqueness, and pointwise continuation criterion for the incompressible free boundary Euler equations*, with Mihaela Ifrim, Daniel Tataru and Mitchell A. Taylor. Accepted in **Annals of PDE**. [arXiv:2309.05625 \[math.AP\]](#).
11. *Stable phase retrieval in function spaces*, with Daniel Freeman, Timur Oikhberg, and Mitchell A. Taylor. Accepted in **Math. Ann.** [arXiv:2210.05114 \[math.FA\]](#).
12. *Examples of Hölder-stable phase retrieval*, with Michael Christ and Mitchell A. Taylor. Accepted in **Math. Res. Lett.** [arXiv:2205.00187 \[math.CA\]](#).
13. *Global well-posedness for the generalized derivative nonlinear Schrödinger equation*, with Mitchell A. Taylor. Accepted in **Nonlinearity**. [arXiv:2112.04648 \[math.AP\]](#).
14. *No pure capillary solitary waves exist in 2D finite depth*, with Mihaela Ifrim, Daniel Tataru and Mitchell A. Taylor. Accepted in **SIAM Journal on Mathematical Analysis**. [arXiv:2104.07845 \[math.AP\]](#).
15. *On Prodi-Serrin type conditions for the 3D Navier-Stokes equations*, with Xinwei Yu, **Nonlinear Analysis**. Vol. 190, (2020), [link](#).
16. *A New Prodi-Serrin Type Regularity Criterion in Velocity Directions*, with Xinwei Yu. **Journal of Mathematical Fluid Mechanics**. Vol. 20, pages 1737–1744 (2018), [link](#).
17. *New Regularity Criteria for the Navier-Stokes Equations in Terms of Pressure*, with Xinwei Yu. [arXiv:1910.08911 \[math.AP\]](#).
18. *On low regularity dynamics for quasilinear dispersive equations and free boundary problems*, ProQuest LLC, Ann Arbor, MI, 2024. Thesis (Ph.D.)—University of California, Berkeley.

INVITED CONFERENCE TALKS AND SEMINAR TALKS

- BIRS Workshop: Dynamics in Geometric Dispersive Equations and the Effects of Trapping, Scattering and Weak Turbulence, III. November 29–December 4, 2026. Banff, Canada.
- UC Berkeley Analysis and PDE Seminar. November 16, 2026. UC Berkeley, Berkeley, CA, USA.
- Caltech Analysis Seminar. November 13, 2026. Caltech, Pasadena, CA, USA.
- Workshop on “Phase Retrieval: Connecting Theory and Applications”. September 21–25, 2026. RWTH Aachen University, Aachen, Germany.
- 2026 SUMIRFAS Seminar. July 31–August 2, 2026. Texas A&M University, College Station, TX, USA.
- Northwestern Analysis Seminar. May 25, 2026. Northwestern University, Evanston, IL, USA.
- Courant Analysis Seminar. April 23, 2026. NYU Courant, New York City, NY, USA.

- AMS Spring Central Sectional Meeting on Nonlinear Waves. April 18–19, 2026. North Dakota State University, Fargo, ND, USA.
- Rutgers Hyperbolic & Dispersive PDE Seminar. April 2, 2026. Rutgers University, New Brunswick, NJ, USA.
- Courant Student Analysis Seminar. March 30, 2026. NYU Courant, New York City, NY, USA.
- Oberwolfach Workshop: Nonlinear Waves and Dispersive Equations. March 1–6, 2026. Oberwolfach, Germany.
- Yale Analysis Seminar. November 20, 2025. Yale University, New Haven, CT, USA.
- The 21st Prairie Analysis Seminar. November 7–8, 2025. Kansas State University, Manhattan, KS, USA.
- Second Atlantic Conference in Nonlinear PDEs. November 3–7, 2025. Instituto Superior Técnico – Universidade de Lisboa, Lisbon, Portugal.
- Princeton Analysis Seminar. November 3, 2025. Princeton University, Princeton, NJ, USA.
- Conference on Nonlinear Dispersive Equations: Advances and Perspectives. May 12–16, 2025. Centre National de la Recherche Scientifique, Marseille, France.
- Plenary speaker at FIM Workshop on Phase Retrieval and Banach Lattices. May 5–9, 2025. ETH Zürich, Switzerland.
- Simons Society of Fellows Retreat. March 31–April 2, 2025. Savannah, Georgia, USA.
- Conference on Mathematics of Wave Phenomena. February 24–28, 2025. KIT, Karlsruhe, Germany.
- Calderón-Zygmund Analysis Seminar. December 2, 2024. University of Chicago, Chicago, IL, USA.
- Courant Analysis Seminar. September 19, 2024. Courant Institute of Mathematical Sciences, New York City, NY, USA.
- Plenary speaker at Lattice Structures in Analysis and Applications Conference. May 6–10, 2024. ICMAT, Madrid, Spain.
- AMS Spring Central Sectional Meeting on Nonlinear Waves. April 20–21, 2024. University of Wisconsin-Milwaukee, Milwaukee, WI, USA.
- UCLA Analysis and PDE Seminar. November 28, 2023. UCLA, Los Angeles, CA, USA.
- Oberwolfach Seminar: Scattering Resonances in Quantum Mechanics, General Relativity and Hyperbolic Dynamics. November 2023. Oberwolfach, Germany.
- ETH Zürich Analysis Seminar. November 14, 2023. ETH Zürich, Switzerland.
- UC Berkeley Analysis and PDE Seminar. September 25, 2023. UC Berkeley, Berkeley, CA, USA.
- MSRI, FD2 Reunion Seminar. August 10, 2023. Simons Laufer Mathematical Sciences Institute, Berkeley, CA, USA.
- Wisconsin PDE Seminar. April 24, 2023. University of Wisconsin–Madison, Madison, WI, USA.
- ICMAT PDE and Fluid Mechanics Seminar. November 3, 2022. ICMAT, Madrid, Spain.
- Oberwolfach Seminar: Free Boundary Problems in Fluid Dynamics. October 2022. Oberwolfach, Germany.
- Harmonic Analysis and Differential Equations Seminar (HADES). May 10, 2022. UC Berkeley, Berkeley, CA, USA.
- PDE Learning Seminar (Fall 2021): Nonlinear Wave Equations and General Relativity. November 3, 2021; via Zoom. UC Berkeley, Berkeley, CA, USA.
- Harmonic Analysis and Differential Equations Seminar (HADES). October 26, 2021. UC Berkeley, Berkeley, CA, USA.
- MSRI, Mathematical Problems in Fluid Dynamics Graduate Student Working Group. May 12, 2021; via Zoom. MSRI, Berkeley, CA, USA.
- MSRI Program on Mathematical Problems in Fluid Dynamics. Spring 2021. MSRI, Berkeley, CA, USA.
- Seminar on Wave Packets in Dispersive PDE. November 17, 2020; via Zoom. UC Berkeley, Berkeley, CA, USA.
- Introduction to Water Waves, MSRI Summer School. July–August 2020.
- Seminar on Singularity Formation for Incompressible Euler. March 2020. UC Berkeley, Berkeley, CA, USA.
- Harmonic Analysis and Differential Equations Seminar (HADES). November 19, 2019. UC Berkeley, Berkeley, CA, USA.
- The XI Americas Conference on Differential Equations and Nonlinear Analysis. August 19, 2017. University of Alberta, Edmonton, Canada.