Benjamin Pineau

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APPOINTMENTS

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

EDUCATION

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

TEACHING EXPERIENCE

- **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 for the HADES seminar, UC Berkeley**: Spring 2024
- **Co-organizer for the HADES seminar, UC Berkeley**: Fall 2023

- **Referee for academic journals**:

  Advances in Mathematics, Annals of PDE. Communications in Nonlinear Science and Numerical Simulation, Journal of the European Mathematical Society, 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

PUBLICATIONS AND PREPRINTS

1. *On the optimal Sobolev threshold for evolution equations with rough nonlinearities*, with Mitchell A Taylor. arXiv:2505.14966 [math.AP].

2. *Global solutions for cubic quasilinear ultrahyperbolic Schrödinger flows*, with Mihaela Ifrim and Daniel Tataru. arXiv:2504.06230 [math.AP].

3. *Sharp well-posedness for the free boundary MHD equations*, with Mihaela Ifrim, Daniel Tataru and Mitchell A Taylor. arXiv:2412.15625 [math.AP].

4. *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**.

5. *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].

6. *Stable phase retrieval in function spaces*, with Daniel Freeman, Timur Oikhberg, and Mitchell A Taylor. Accepted in **Math. Ann**. arXiv:2210.05114 [math.FA].

7. *Examples of Hölder-stable phase retrieval*, with Michael Christ and Mitchell A Taylor. Accepted in **Math. Res. Lett**. arXiv:2112.04648 [math.AP].

8. *Global well-posedness for the generalized derivative nonlinear Schrödinger equation*, with Mitchell A Taylor. Accepted in **Nonlinearity** arXiv:2112.04648 [math.AP].

9. *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].

10. *On Prodi–Serrin type conditions for the 3D Navier–Stokes equations*, with Xinwei Yu, **Nonlinear Analysis**. Vol. 190, (2020), link.

11. *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.

12. *New Regularity Criteria for the Navier-Stokes Equations in Terms of Pressure*, with Xinwei Yu. arXiv:1910.08911 [math.AP].

INVITED CONFERENCE TALKS AND SEMINAR TALKS

- 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. Dec. 2nd, 2024. University of Chicago, Chicago, IL, USA
- NYU Analysis Seminar. September 19, 2024, Courant Institute for 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 28th, 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. Nov. 14th, 2023. ETH, Zürich, Switzerland
- UC Berkeley Analysis and PDE seminar. Sept. 25th, 2023, Berkeley, CA, USA
- MSRI, FD2 Reunion seminar. August 10th, 2023. Simons Laufer Institute, Berkeley, CA, USA
- Wisconsin PDE seminar. April. 24th, 2023. University of Wisconsin–Madison, Madison, WI, USA
- ICMAT PDE and Fluid Mechanics seminar. Nov. 3rd, 2022. ICMAT, Madrid, Spain

- Oberwolfach seminar: Free Boundary Problems in Fluid Dynamics . October, 2022. Oberwolfach, Germany
- Harmonic Analysis and Differential Equations Seminar (HADES). May 10th, 2022. UC Berkeley, Berkeley, CA, USA
- PDE Learning Seminar (Fall 2021) Nonlinear wave equations and general relativity. Nov. 3rd, 2021; via Zoom. UC Berkeley, Berkeley, CA, USA
- Harmonic Analysis and Differential Equations Seminar (HADES). Oct. 26th, 2021. UC Berkeley, Berkeley, CA, USA
- MSRI program on Mathematical problems in fluid dynamics. Spring 2021. MSRI, Berkeley, CA, USA
- MSRI, Mathematical problems in fluid dynamics graduate student working group. May. 12th, 2021; via Zoom.
- MSRI program on Mathematical problems in fluid dynamics. Spring 2021. MSRI, Berkeley, CA, USA
- Seminar on wave packets in dispersive PDE. Nov. 17th, 2020; via Zoom. UC Berkeley, Berkeley, CA, USA
- Introduction to water waves, MSRI summer school. July-August 2020
- Harmonic Analysis and Differential Equations Seminar (HADES). Nov. 19th, 2019. UC Berkeley, Berkeley, CA, USA
- The XI Americas Conference on Differential Equations and Nonlinear Analysis. August 19, 2017, University of Alberta, Edmonton, Canada