

Dongxiao Yu

Department of Mathematics
University of California, Berkeley
Berkeley, CA 94720, USA

Email: yudx@math.berkeley.edu
Webpage: <https://math.berkeley.edu/~yudx/>

Research Interest

PDE's, especially nonlinear wave and dispersive equations.

Employment

- **University of California, Berkeley**, Berkeley, CA, USA
Postdoc, 2023 November – 2024 July
Faculty Sponsor: Daniel Tataru
- **Hausdorff Center for Mathematics**, Bonn, Germany
Postdoc, 2021 October – 2023 August
Mentor: Herbert Koch

Education

- **University of California, Berkeley**, Berkeley, CA, USA
Ph.D. in Mathematics, 2016 August – 2021 May
Advisor: Daniel Tataru
Dissertation ([link](#)): *Modified scattering for a scalar quasilinear wave equation satisfying the weak null condition.*
- **Sun Yat-Sen (Zhongshan) University**, Guangzhou, China
B.Sc. in Mathematics and Applied Mathematics, 2012 September – 2016 June
Member of Top-Notch Undergraduate Program for Pure Science

Papers

Research papers

5. *Asymptotic stability of the sine-Gordon kinks under perturbations in weighted Sobolev norms*, joint with Herbert Koch. Preprint. [arXiv:2308.07679](#).
4. *Nontrivial global solutions to some quasilinear wave equations in three space dimensions*. Preprint. [arXiv:2204.12870](#).
3. *A uniqueness theorem for 3D semilinear wave equations satisfying the null condition*. **Pure Appl. Anal.** 5 (2023), no. 3, 601–641. [arXiv:2109.15041](#).
2. *Asymptotic completeness for a scalar quasilinear wave equation satisfying the weak null condition*. To appear in **Mem. Amer. Math. Soc.** [arXiv:2105.11573](#).
1. *Modified wave operators for a scalar quasilinear wave equation satisfying the weak null condition*. **Comm. Math. Phys.** 382 (2021), no. 3, 1961 – 2013. [arXiv:2002.05355](#).

Proceedings and reports

2. *John's blow up examples and scattering solutions for semi-linear wave equations*, joint with Louie Bernhardt and Volker Schlue. To appear in *MATRIX Annals*. [arXiv:2404.12878](#).
1. *Nontrivial global solutions to some quasilinear wave equations in three space dimensions*. **Oberwolfach Rep.** 19 (2022), no. 2, 1710 - 1712. [Link](#).

Talks

20. Analysis and PDE Seminar, UC Berkeley, 2024 April 22. [Abstract](#).
19. AMS Special Session on Nonlinear Waves, University of Wisconsin-Milwaukee, 2024 April 20. [Abstract](#).
18. Spring School on Soliton Dynamics, lightning talk, Texas A&M University, 2024 March 15. [Abstract](#).
17. Harmonic Analysis and Differential Equations Seminar, UC Berkeley, 2024 February 13. [Abstract](#).
16. Analysis and PDE Seminar, Stanford University, 2024 February 6. [Abstract](#).
15. Analysis and PDE Seminar, Beijing International Center for Mathematical Research, Peking University, 2023 October 16. [Abstract](#).
14. Sun Yat-Sen University, 2023 October 9. [Abstract](#).
13. MATRIX program: Hyperbolic PDEs and Nonlinear Evolution Problems, University of Melbourne, 2023 September 21. Talk on [arXiv:2204.12870](#).
12. (Online) PDE Seminar, Georgia Institute of Technology, 2023 April 11. [Abstract](#).
11. (Online) PDE Seminar, Vanderbilt University, 2022 October 7. [Abstract](#).
10. Summer School 2022: Geometric dispersive PDEs, University Center Obergurgl, 2022 September 30. Talk on [arXiv:2204.12870](#).
9. Nonlinear PDE Seminar, Karlsruher Institut für Technologie, 2022 July 26. [Abstract](#).
8. Oberwolfach Workshop: Nonlinear Waves and Dispersive Equations, MFO, 2022 June 30. Talk on [arXiv:2204.12870](#).
7. (Online) Analysis and PDE Seminar, Beijing International Center for Mathematical Research, Peking University, 2021 December 9. [Abstract](#).
6. (Online) University of Kentucky, 2021 November 3. Talk on [arXiv:2109.15041](#).
5. Graduate Seminar on Advanced Topics in PDE, University of Bonn, 2021 October 22. [Abstract](#).
4. (Online) University of Science and Technology of China, 2021 March 15. [Abstract](#).
3. (Online) Graduate Student Working Group in MSRI Program “Mathematical problems in fluid dynamics”, MSRI, 2021 February 24. [Abstract and video](#).
2. (Online) Harmonic Analysis and Differential Equations Seminar, UC Berkeley, 2020 October 13. [Abstract](#).
1. Harmonic Analysis and Differential Equations Seminar, UC Berkeley, 2019 March 12. [Abstract](#).

Awards and Fellowships

- MATRIX-Simons Travel Grant funding, 2023 September
- Oberwolfach Leibniz Graduate Students Grant, 2022 June
- James H. Simons Fellowship, 2020 Spring
- Honors Graduate at Sun Yat-Sen University, 2016 June
- National Scholarship, China, 2013 September

Academic Services

- Reporter of the Oberwolfach Workshop 2226: Nonlinear Waves and Dispersive Equations
- Referee for Comm. Partial Differential Equations and SIAM J. Math. Anal.

Teaching

- **University of Bonn**

Instructor for a graduate topic course.

- V5B8 – Selected Topics in Analysis – The vector field method and quasilinear wave equations. 2022 Summer.

- **UC Berkeley**

Teaching Assistant (Graduate Student Instructor) for undergraduate courses. Duties include teaching discussion sections, holding office hours, grading students' work, etc.

- Math 1A (Calculus I): 2016 Fall, 2017 Fall, 2018 Fall
- Math 1B (Calculus II): 2018 Spring, 2019 Fall
- Math 53 (Multivariable Calculus): 2017 Spring
- Math 55 (Discrete Mathematics): 2019 Spring

Teaching Assistant (Graduate Student Instructor) for a graduate course. Duties include holding office hours, grading students' work, etc.

- Math 202B (Introduction to Topology and Analysis): 2021 Spring

Mentor for the Directed Reading Program: 2020 Fall. Met an undergraduate student weekly and guided him through the textbook on Fourier analysis by Stein and Shakarchi.