Dongxiao Yu

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Research Interest

PDE's, especially nonlinear wave and dispersive equations.

Employment

- **Hausdorff Center for Mathematics**, Bonn, Germany
  Postdoc, 2021 October – 2023 September (Expected)
  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.* To appear in **Pure Appl. Anal.**. 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

1. *Nontrivial global solutions to some quasilinear wave equations in three space dimensions.* **Oberwolfach Rep.** 19 (2022), no. 2, 1710 - 1712. Link.

Talks

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) Student Harmonic Analysis and PDE Seminar, UC Berkeley, 2020 October 13. Abstract.

1. Student Harmonic Analysis and PDE Seminar, UC Berkeley, 2019 March 12. Abstract.

Awards and Fellowships

- 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. Guided an undergraduate student to read a textbook in Fourier analysis.