YUNLEI WANG

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RESEARCH INTERESTS

My primary research focuses on partial differential equations and harmonic analysis. In particular, I study spectral inequalities for Schrödinger operators, non-harmonic trigonometric polynomials, and their applications to control theory for heat equations and the observability of dispersive equations.

I also have strong interests in microlocal and semiclassical analysis.

EDUCATION

Université de Bordeaux *September 2022 - Present*
PhD candidate in Mathematics
Advisor: Philippe Jaming

China University of Geosciences, Wuhan *September 2019 - July 2022*
Master of Science in Mathematics
Advisor: Ming Wang

Harbin Institute of Technology *September 2012 - July 2016*
Exchange student in the Department of Physics, Fudan University *February 2015 - July 2015*
Bachelor of Science in Applied Physics

RESEARCH PAPERS

1. Philippe Jaming, Karim Kellay, Chadi Saba, and Yunlei Wang. On l^1-norms for non-harmonic trigonometric polynomials with sparse frequencies. *arXiv:2409.07093*, 2024, submitted.
2. Yunlei Wang. Quantitative 2D propagation of smallness and control for 1D heat equations with power growth potentials. *arXiv:2403.07643*, 2024, to appear in *ESAIM: Control, Optimisation and Calculus of Variations*.
3. Philippe Jaming and Yunlei Wang. Null-controllability of the generalized Baouendi-Grushin heat like equations. *arXiv:2310.11215*, 2023, to appear in *Journal of Evolution Equations*.
4. Yunlei Wang and Ming Wang. Observability of dispersive equations from line segments on the torus. *Evolution Equations and Control Theory*, 13(3):925–949, 2024
5. Yunlei Wang and Ming Wang. Observability inequality at two time points for the kdv equation from measurable sets. *Journal of Mathematical Analysis and Applications*, 505(2):125643, 2022

RESEARCH TALKS

- Quantitative 2D propagation of smallness and spectral estimates for Schrödinger operators, Second Analysis Mathematica Conference, Budapest, 29 July-02 August, 2024.
- Spectral inequalities and their application to control of PDEs, MARGAUx PhD Days, Poitiers, 22 - 24 May 2023.

SEMINARS

- Oberseminar Analysis, Mathematische Physik und Dynamische Systeme, TU Dortmund, 12 November, 2024.
- APDE seminar, BCAM, Bilbao, 31 October, 2024.
- Groupe de Travail Analyse, Institut de Mathématiques de Bordeaux, 14 October, 2024.

CONFERENCES ATTENDED

- 2nd Analysis Mathematica Conference Rényi Institute, Budapest, Hungary 29 July - 02 August, 2024. (**Contributed talk**)
- International Congress of Mathematical Physics (ICMP), Strasbourg, 01 - 06 July, 2024.
- ICMP Young Researcher Symposium (YRS), Strasbourg, 28 - 29 June, 2024.
- Paris-Saclay conference in Analysis and PDE, Orsay, 27 - 31 May, 2024.
- Semiclapp: Semiclassical analysis and applications, Nice, 13 - 17 May, 2024. (**Poster**)
- Harmonic analysis, operator and function theory, and their applications, Bordeaux, 08 - 10 April, 2024.
- Workshop for young researchers in analysis and mathematical physics, LMU Munich, 09 - 11 October, 2023.
- Summer school on unique continuation and applications, Castro Urdiales, Cantabria, 03 - 07 July, 2023.
- Real analysis and geometry, CIRM, Marseille, 12 - 16 June, 2023.
- MARGAUx PhD Days, Poitiers, 22 - 24 May, 2023. (**Short talk**)

RESEARCH VISITS

- Central South University (CSU), Changsha, Hunan, China, 27 December - TBD, 2024.
  Working with Ming Wang.
- Universidad del País Vasco (UPV/EHU), Bilbao, Spain, 24 October - 20 December, 2024.
  Working with Aingeru Fernández Bertolin and Yann Bourroux.

TEACHING

- Real Analysis, China University of Geosciences (Wuhan), teaching asistant, Fall 2019.

LANGUAGE PROFICIENCY

- **Chinese**: Native
- **English**: Fluent
- **French**: Basic