Jingrui Niu

Curriculum Vitae

Laboratoire Jacques-Louis Lions
Sorbonne Université
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Positions

2023 – Now **Post-doc.**
LJLL, Sorbonne Université. Mentor : *Ugo Boscain & Mario Sigalotti*

2021 – 2023 **Post-doc.**
LJLL, Sorbonne Université. Mentor : *Oana Ivanovici*

Education

2017 – 2021 **PhD in Fundamental Mathematics.**
LMO, Université Paris-Saclay. Supervisors : *Nicolas Burq & Pierre Lissy*
-*Dissertation* : The Controllability of the Coupled Wave Systems

2016 – 2017 **M2 in Analysis, Modelization, Simulation**
Université Paris-Saclay, Supervisor : *Nicolas Burq*
– *Mémoire :* On the proof of the Strichartz estimates on the compact manifold

2014 – 2016 **Master student**
Academy of Mathematics and Systems Science, Chinese Academy of Sciences, Beijing. Supervisor : *Ping Zhang*

2010 – 2014 **Bachelor of Science in Pure and Applied Mathematics**
Nankai University, Tianjin.
-Enrolled in Nankai Bo-Ling Mathematics Class-2010

Research Interests

I am interested in various domains of partial differential equations and control theory,
- Control and stabilization on dispersive equations and their coupled systems ;
- Control of quantum mechanical systems ;
- Microlocal and semi-classical analysis.

List of publications

1. **Simultaneous Control of Wave Systems**
   J. Niu, *SIAM J. Control Optim.*, vol. 59, no. 3, pp. 2381–2409, 2021.
2. **Controllability of a coupled wave system with a single control and different speeds**
   P. Lissy and J. Niu, *preprint*, 2022.
3. **Controllability of quasi-linear Hamiltonian Schrödinger equations on tori**
   F. Iandoli and J. Niu, *J. Differential Equations*, vol. 390, pp. 125–170, 2024.
4. **Small-time local controllability of a KdV system for all critical lengths**
   J. Niu and S.Xiang, *Preprint*, 2025
5. **Observability and controllability for Schrödinger equations in the semi-periodic setting**
   J. Niu and Z. Zhao, *Preprint*, 2025.

Academic Activities

1. Séminaire Analyse Numérique et EDP "Contrôle du système des ondes couplées", Orsay, 16 May 2019.
2. Workshops on nonlinear fluids and PDEs, "Simultaneous Control of Wave Systems", Nanjing, 06-09, August 2019.
3. Invited talk, "Microlocal methods on the controllability of wave equations", Fudan University, Shanghai, 20 August 2019.
4. Conference "Control and dynamics of PDE", Strasbourg, 28-31 October 2019.
5. Workshop "Nonlinear Waves and Hamiltonian PDEs", La Thuile, February 20-26, 2022.
6. Invited talk, "Controllability of nonlinear Schrödinger equations on tori", Beijing Institut of Technology, Beijing, 19 August 2023.
7. ICIAM2023 Minisymposium "Control and stabilization of PDEs : recent advances and applications", "The controllability of a special class of coupled wave systems", Tokyo, 20-26 August 2023.
8. Séminaire McTAO, "Local controllability of nonlinear Schrödinger equations on tori", Inria Sophia Antipolis, 19 October 2023.
9. Equadiff 2024 Minisymposium "Nonlinear waves in dispersive equations", "Quantitative controllability and stability for KdV equations", Karlstad, 10-14 June 2024.
10. Invited talk, "Local controllability of nonlinear Schrödinger equations", Nanjing University, 2 August 2024.
11. PDE workshop, "Local controllability of nonlinear Schrödinger equations", Peking University, 30 August 2024.
12. Séminaires EDP, "Quantitative control of KdV equations", Laboratoire de Mathématiques de Besançon, 19 September 2024.
13. Invited talk, "Control of wave equations and coupled wave systems", Northwest University, Xi'an, 30 December 2024.

Teaching

2020-2021 **TD Geometry and Differential Equations,** Université Paris Dauphine - PSL, Master 1 Mathématiques approfondies