

Carla Rubiliani

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Education

Ph.D.	Mathematics Advisor: Marius Lemm	University of Tübingen	09/2023 - present
M.S.	Mathematical Physics	University of Tübingen	2021-2023
B.S.	Mathematics	University of Milano	2017-2020

Publications

- 2025 - "Spectral Small-Incremental-Entangling: Breaking Quasi-Polynomial Complexity Barriers in Long-Range Interacting Systems", [arxiv](#)
D. Kim, Y. Kimura, H. Mackay, Y. Mitsuhashi, H. Nishikawa, C. Rubiliani, C. Shang, A. Ukai, T. Kuwahara
- 2025 - "On the quantum dynamics of long-ranged Bose-Hubbard Hamiltonians", [arxiv](#)
M. Lemm, C. Rubiliani, J. Zhang
- 2023 - "On the microscopic propagation speed of long-range quantum many-body systems", [arxiv](#)
M. Lemm, C. Rubiliani, J. Zhang
- 2023 - "Information propagation in long-range quantum many-body systems", [arxiv article](#)
M. Lemm, C. Rubiliani, I. M. Sigal, and J. Zhang

Academic Experience

- 2023-present, member of SFB Junior Committee within the Collaborative Research Center TRR 352 *"Mathematics of Many-Body Quantum Systems and Their Collective Phenomena"*
- SS 2025, *International Program Associate* at RIKEN, Japan, under Tomotaka Kuwahara

Academic Experience

- 2025, Best Ph.D. Research Paper within CRC TRR 352

Teaching Experience

Mathematical Statistical Physics

SS 2024

Teaching Assistant, at University of Tübingen, Mathematics department

Physics I

WS 2022

Teaching Assistant, at University of Tübingen, Physics department

Research visits

07/2025 **Hokkaido University**, Sapporo (Japan) visiting Tadahiro Miyao, (1 week)

05/2025 **Yukawa Institute for Theoretical Physics**, Kyoto (Japan), visiting Tan Van Vu, (1 week)

02/2025 **Oberwolfach** (Germany), talk at the workshop '*New Directions in Correlated Quantum Systems*' (1 week)

08/2023 **Harvard University** (USA), talk at the workshop '*Locality and complexity in quantum thermal equilibrium*', (2 weeks)

Talks

Invited Talks

10/2025 *Mind the Gap*, Kochel am See (Germany)

06/2025 *International Symposium on Analysis and Quantum Physics*, Sanya (China)

Conference Talks

09/2025 *2nd DPG Fall Meeting: 100 Years of Quantum Physics*, Göttingen (Germany)

09/2025 *QMATH16*, Munich (Germany)

12/2024 *Correlations of quantum many-body systems*, University of Tübingen (Germany)

08/2024 *Quantissima in the Serenissima V*, Venice (Italy)

07/2024 *Young Researcher Symposium*, Strasbourg (France)

Seminar Talks

12/2025 (coming-up) *Lattice Seminar*

07/2025 *Probability Seminar*, Seoul National University, Seoul (Korea)

12/2024 *Junior Analysis and Probability Seminar* University of Warwick (UK)

11/2023 *Oberseminar Mathematische Physik* University of Tübingen (Germany)

05/2023 *Mathematical Physics Colloquium*, University of Tübingen (Germany)

Service Activities

Organized Meetings

01/2025 *Junior SFB meeting*, Stuttgart (Germany)

12/2023 *Junior SFB meeting*, Herrsching am Ammersee (Germany)

Organized Seminars

2024 Monthly junior SFB coffee meetings

Referee Service

Referee service for Physical Review Letters

Attended Conferences, Workshops, and Summer Schools

07/2025 *Discover Evening*, RIKEN, Japan (poster)

03/2025 *TRR 352 Winter School*, summer school, Kochel am See, Germany

08/2024 *Rigorous Renormalization Group Analysis of Collective Phenomena in Fermionic Quantum Systems*, summer school, Como, Italy (poster)

07/2025 *ICMP*, congress, Strasbourg, France

05/2024 *PDE in Physics and Material Science*, workshop, University of Herakleion, Greece

11/2023 *Topological Order*, workshop, University of Tübingen, Germany

08/2023 *Current Topics in Mathematical Physics*, summer school at University of Warsaw, Poland

07/2023 *Infinite Dimensional Quantum Markov Semigroups*, workshop at University of Tübingen, Germany

Language

Native Italian, fluent English, basic German, and trying my best with Japanese