Lorenzo ROSSO

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Personal data

- Date and place of birth:
- Citizenship:

Education

Oct 2020 – ongoing
Ph.D. candidate, Paris-Saclay University in theoretical cold atom physics.
Thesis title: *"Lossy Yb gases"*.
Supervisor: *Dr. L. Mazza*.

Sep. 2019 – Oct. 2021
M.Sc. , Polytechnic of Milan in **Mathematics for engineering**
Final project work: *"Energy harvesting for the Internet of Things"*.
Supervisor: *Prof. M. Bonnin*
Grade: *110/110 cum laude*

Sept. 2018 – July 2020
M.Sc. , Polytechnic of Turin - Paris-Saclay University (French-Italian double degree) in **Physics of Complex Systems**.
Thesis title: *"Many-body dynamics of fermionic open quantum systems"*.
Supervisors: *Dr. Leonardo Mazza, Prof. Fabrizio Dolcini, Prof. Stefano Longhi*.
Grade: *110/110 cum laude*, GPA: 29.80/30

Sep. 2015 – July 2018
Bachelor's Degree, Polytechnic of Turin in **Physical Engineering**.
Thesis title: *"Superfluid Helium-4"*.
Supervisor: *Prof. R. S. Gonnelli*.
Grade: *110/110 cum laude*, GPA: 29.45/30

Publications and preprints

1. Riggio, F., Rosso, L., Karevski, D., & Dubail, J. (2023). Effects of atom losses on a one-dimensional bose-hubbard gas in the hardcore regime. *In preparation*.
2. Rosso, L., Biella, A., De Nardis, J., & Mazza, L. (2023). Dynamical theory for one-dimensional fermions with strong two-body losses: Universal non-hermitian zeno physics and spin-charge separation. *Phys. Rev. A*, *107*, 013303. doi:10.1103/PhysRevA.107.013303
3. Rosso, L., Mazza, L., & Biella, A. (2022). Eightfold way to dark states in su(3) cold gases with two-body losses. *Phys. Rev. A*, *105*, L051302. doi:10.1103/PhysRevA.105.L051302
4. Rosso, L., Biella, A., & Mazza, L. (2022). The one-dimensional Bose gas with strong two-body losses: the effect of the harmonic confinement. *SciPost Phys.*, *12*, 44. doi:10.21468/SciPostPhys.12.1.044
5. Rosso, L., Rossini, D., Biella, A., & Mazza, L. (2021). One-dimensional spin-1/2 fermionic gases with two-body losses: Weak dissipation and spin conservation. *Phys. Rev. A*, *104*, 053305. doi:10.1103/PhysRevA.104.053305

6 Rosso, L., Iemini, F., Schirò, M., & Mazza, L. (2020). Dissipative flow equations. *SciPost Phys.*, *9*, 91. doi:10.21468/SciPostPhys.9.6.091

Teaching experience

Sep. 2021 – ongoing
Teaching assistant, Université Paris-Saclay (∼ 70h per year)
Quantum Mechanics I and II in English, 48 h per year, 3rd university year
Experimental Physics: waves, electrostatic, mechanics in French, 24h per year, 2nd university year

Feb. 2015 - July 2015
Tutor, **Polytechnic of Turin**
Physics I (mechanics, thermodynamics), 1st university year

Skills

Languages
Italian: Native bilingual proficiency
English: Full professional proficiency
French: Full working proficiency

Coding
Python (*QuTiP*, *QuSpin* packages), FORTRAN, Matlab, Julia (ITensor library), LaTeX

Awards and Visits

Nov. 2021
Visiting Ph.D. student at University of Cologne (research group of Dr. M. Rizzi).

2018 – 2020
Alta Scuola Politecnica Scholarship, Double degree program between Polytechinic of Milan and Turin providing a tuition fee waiver and reserved for the top 1% master students of the two universities.

2019-2020
Paris-Saclay International Master Scholarship, annual scolarship of 10K€ awarded on the basis of merit.

Erasmus+ scolarship Polytechnic of Turin.

Sep. 2018 – Feb. 2019
Visiting student at SISSA and ICTP (Trieste).

2015 – 2018
Young Talent Project, **Polytechnic of Turin**: Extended study plan and tuition fee waiver for the top 5% bachelor students.

Schools and Talks

March 2021
Les Houches School in Computation Physics: "Dynamics of Complex Quantum Systems , from Theory to Computation".
Poster: *"One-dimensional spin-1/2 fermionic gases with two-body losses: Weak dissipation and spin conservation"*.

May 2021
Invited talk at M. Schiró's group meeting at Collège de France.
Title: *"One-dimensional spin-1/2 fermionic gases with two-body losses: Weak dissipation and spin conservation"*.

Schools and Talks (continued)

June 2021 — **Invited talk at I. Carusotto' group meeting** at BEC-center, Trento (online).
Title: *"Two-body losses in bosonic and fermionic gases"*.

September 2021 — **"Tensor Network based approaches to Quantum Many-Body Systems", ICCUB Barcelona**.
Poster: *"One-dimensional spin-1/2 fermionic gases with two-body losses: Weak dissipation and spin conservation"*.

April 2022 — **"European Spring School in Quantum Science and Technology", Strasbourg**.
Poster: *"A dynamical theory for one-dimensional fermions with strong two-body losses: universal non-Hermitian Zeno physics and spin-charge separation "*

June 2022 — **Workshop:"Many-body quantum systems in presence of environement ", CYU Cergy-Pontoise University**.
Poster: *"A dynamical theory for one-dimensional fermions with strong two-body losses: universal non-Hermitian Zeno physics and spin-charge separation "*

Aug. - Sep. 2022 — **"Quantum Dynamics: From Electrons to Qbits", ICTP Trieste**.
Poster: *"A dynamical theory for one-dimensional fermions with strong two-body losses: universal non-Hermitian Zeno physics and spin-charge separation "*