

Riccardo Panza

Curriculum Vitae

✉ riccardo.panza@phd.units.it



Education

- Dec. 2023 – now **PhD in Physics**, *ArQuS Lab, University of Trieste, Trieste (IT)*.
PhD project title: Ultracold ytterbium atom arrays for quantum many-body physics.
Goal of the project: realizing an ultracold ytterbium experiment equipped with optical tweezers to realize quantum simulations of solid state physics systems, with focus on impurity physics.
Area of study: Quantum Simulation, Quantum Information and Quantum Computing; Atomic Physics.
The scholarship is partially funded by ERC Starting Grant *OrbiDynaMIQs*
- Oct. 2016 – Feb 2019 **Master Degree in Physics**, *University of Milan, Milan (IT)*, GPA: 29.3/30. Final Grade: 110/110 cum laude.
Area of study: Experimental Structure of Matter Physics, with particular interest to Applied Statistical Physics. **Courses:** Optics and Quantum Optics Laboratory, Liquid and Soft-Matter Physics, Advanced Statistical Physics, Quantum Many-Body Theory, Atomic Physics, Quantum Computing, Electronics.
- Oct. 2012 – Jul. 2016 **Bachelor Degree in Physics**, *University of Milan, Milan (IT)*, GPA: 28.7/30. Final Grade: 110/110 cum laude.
Bachelor Final Work: Experimental Study of Viscoelastic Properties of Cholesteric Liquid Crystals. **Supervisor:** Prof. Roberto Cerbino. **Institute:** Medical Biotechnologies and Translational Medicine Department, University of Milan, Milan (IT).
- 2008 – 2012 **High School Diploma**, *Liceo Classico A. Volta, Como (IT)*, Final Grade: 100/100.

Masters Thesis

- Title *Manipulating Ultracold Atomic Fermi Gases with Tailored Optical Potentials*
- Supervisors Dott. Giacomo Roati, Dott. Francesco Scazza
- Institute INO-CNR, Sesto Fiorentino (IT)
- Description Using a programmable array of mirrors (DMD) is shown that arbitrary intensity profiles on a ${}^6\text{Li}$ atomic cloud at low temperatures allow to coherently manipulate the phase of the system. An optical potential for quasi-2D confinement of the same sample has been designed and characterized.

Education Related Experiences

- Nov. 2018 – Feb. 2019 **Internship**, *INO - CNR, Sesto Fiorentino (IT)*.
Internship in Fermi 1 laboratory at LENS to perform Master thesis.
- Jun. 2016 **Conference Participation**, *Polytechnical University of Milan, Milan (IT)*, Italian Soft Days.
Conference organized by a committee from Polytechnical University of Milan and University of Milan about recent progresses in Soft Matter research.
- May 2014 – May 2018 **Students Representative**, *Physics Department Council, Milan (IT)*.
I contributed to improve physics teaching offer and organization, through a continuous dialogue with professors and students.

- May 2016 – May 2018 **Students Representative**, *Sciences and Technologies Faculty Committee*, Milan (IT).
I collaborated with professors from different scientific department in Faculty open day organization, and promoted a in-depth discussion about the move of the Faculty in the former EXPO 2015 area.
- May 2016 – May 2018 **Students Representative**, *Student Council*, Milan (IT).
I had the chance to dialogue and collaborate with students from different Faculties and having different personal opinions.
- Nov. 2010 **Competition**, *αγωv*, Turin (IT).
Participation in a competition of translation and commentary of greek texts.

Work Experiences

- Dec. 2022 – Nov. 2023 **Research Fellowship**, *Università degli studi di Trieste*, Trieste (IT).
Research fellowship at ArQus Lab, led by prof. Francesco Scazza, to design and build a new experiment with Yb cold atoms tweezers.
- Nov. 2019 – Jun. 2022 **Beercrafting**, *Saints Peter and Paul Monastery*, Buccinasco (IT).
I learned beercrafting, according to Belgian-style, in a 9-hectoliter plant. Moreover, I carried out agricultural work according to the needs of the monastery.
- Mar. 2019 – Aug. 2019 **Internship**, *INO - CNR*, Sesto Fiorentino (IT).
Internship in Fermi 1 laboratory at LENS to implement the optical potential, designed in my master thesis, in the experimental setup.
- Nov. 2018 – Feb. 2019 **Volunteering**, *O.a.m.i. Casa Elena*, Florence (IT).
I spent an afternoon every two weeks in visiting people with severe disabilities.
- Mar. 2017 – Jul. 2018 **Tutoring**, *Camplus College*, Milan (IT).
Physics tutoring for bachelor students.
- 2015 – 2018 **Volunteering**, *Cooperativa Universitaria Studio e Lavoro (CUSL)*, Milan (IT).
Voluntary work as attendant in CUSL, a non-profit cooperative run by student spending their own free time to offer book store and stationery store services.
- 2014 – 2019 **High school tutoring**.
Math, physics and greek tutoring for high school students.
- 2012 – 2015 **Volunteering**, *Portofranco Association*, Milan (IT).
Voluntary work as math and physics tutor for high school students.
- 2010 – 2019, 2022 – 2024 **Volunteering**, *Meeting for friendship amongst peoples Foundation*, Rimini (IT).
Voluntary work as a set-up maintainer, for two years as one of team leaders, during the international "Meeting for friendship amongst peoples", a one-week annual encounter with more than 800 000 attendances.

Work Related Experiences

- Apr. 2025 **Seminar**, *Institut d'Optique*, Palaiseau (FR).
Oral presentation during Quantum Optics-Atoms group meeting on ultra-fast imaging of ytterbium tweezer arrays.
- Feb. 2025 **School Participation**, *CAPS-CQA*, Benasque (ES), International Winter School on Ultracold Quantum Many-body Systems.
Participation to an international school on recent advances in using atomic platforms for studying quantum many-body systems, presenting a poster.
- Jul. 2024 **School Participation**, *SIF*, Varenna (IT), International School of Physics "Enrico Fermi" on Quantum computers and simulators with atoms.
Participation to international school, organized by SIF on recent advances in using atomic platforms for quantum computing and simulation, presenting a poster.
- Apr. 2024 **Workshop**, Barcelona (ES), PASQuanS2.1 First year meeting.
Participation to an internal workshop of european research collaboration PASQuanS2.1, presenting a poster.

- Aug. – Sep. 2023 **School Participation**, *ICTP*, Trieste (IT), Summer School on Quantum Many-Body Phenomena out of Equilibrium: from Chaos to Criticality.
Participation to international school, organized by ICTP on theoretical treatment of quantum many body phenomena out of equilibrium, presenting a poster.
- Aug. 2023 **School Participation**, *PhysiKzentrum Bad Honnef*, Bad Honnef (D), Summer School on Ultracold Atoms and Molecules.
Participation to international school, organized by DPG on theoretical and experimental approaches to ultracold atoms and molecules, presenting a poster.
- May. 2023 **School Participation**, *ICTP*, Trieste (IT), Quantum NEST School.
Participation to international school, organized by SISSA, ICTP and Université Paris-Saclay, on quantum science and technologies.
- Feb. 2023 **Seminar**, *SISSA*, Trieste (IT).
Oral presentation during Padova-Trieste meeting on tensor network methods and quantum information.
- Jun. 2019 **Seminar**, *Physics Department, Università degli Studi di Milano*, Milan (IT).
Oral presentation during Advanced Statistical Physics course in University of Milan.
- Apr. 2019 **Conference Participation**, *Fortezza da Basso*, Firenze (IT), ECAMP.
European Conference on Atoms Molecules and Photons, the triennial major conference of the Atomic, Molecular and Optical Physics Division (AMOPD) of the European Physical Society (EPS).

Publications

- *Microsecond-scale high-survival and number-resolved detection of ytterbium atom arrays*, A. Muzi Falconi, R. Panza et al., arXiv:2507.01011 (2025). Under peer-review.
- *Single-atom imaging of ^{173}Yb in optical tweezers loaded by a five-beam magneto-optical trap*, O. Abdel Karim, A. Muzi Falconi, R. Panza et al., arXiv:2505.07371 (2025). Under peer-review.
- *Strongly correlated superfluid order parameters from dc Josephson supercurrents*, W. J. Kwon, G. Del Pace, R. Panza, M. Inguscio, W. Zwerger, M. Zaccanti, F. Scazza and G. Roati, *Science* 369 (6499), 84-88, 2020

Scholarships and awards

- Jul 2023 **PhD Scholarship**, *University of Trieste and ERC*, Trieste (IT).
Selected for a scholarship funded by Physics Department of University of Trieste together with the ERC Starting Grant *OrbiDynaMIQs*, focused on realizing a new ultracold atoms experiment.
- Nov. 2016 **Scholarship**, *Famiglia Legnanese Foundation*, Legnano, MI (IT).
Scholarship for bachelor thesis funded by Banca Popolare di Milano.

Additional Information

- Programming skills C++, PYTHON, WOLFRAM MATHEMATICA (BASIC), MATLAB (BASIC)
- Jul. 2011 – Present Driving license B.
- Aug. 2017 – Present Driving certificates for forklift.
- Aug. 2017 – Aug. 2022 Driving certificates for electric scissors lift.

Languages

Italian	Native	
English	Good	Level B2
Spanish	Basic	Basic oral understanding and communication