

Matteo A. C. Rossi

Curriculum Vitae

Personal Information

born 8 April 1990, Parma (Italy)
nationality Italian
website <https://matteoacrossi.github.io>

Current position

August 2018 - present Postdoctoral researcher of the Turku Collegium for Science and Medicine, University of Turku, Finland.

I work in the Turku Quantum Technologies group led by Prof. Sabrina Maniscalco. I'm carrying out research in quantum information theory, specifically in quantum computation, quantum metrology and estimation theory, theory of open quantum systems, and complex quantum networks.

Previous positions

November 2017 - July 2018 Postdoctoral researcher at the Turku Centre for Quantum Physics, University of Turku, Finland

Education

- November 2017 **PhD in Physics** - *Università degli Studi di Milano*.
Thesis: Dynamics and characterization of quantum systems interacting with classical noise
Supervisor: Prof. Matteo G.A. Paris, Cosupervisor: Prof. Bassano Vacchini
- July 2014 **Laurea Magistrale (MSc) in Physics** - *Università degli Studi di Parma*. 110/110 cum laude
Thesis: Dynamics of a two-qubit system interacting with a noisy classical environment
Advisors: Prof. Matteo G.A. Paris (Università degli Studi di Milano), Prof. Raffaella Burioni (Università degli studi di Parma)
- July 2012 **Laurea Triennale (BSc) in Physics** - *Università degli Studi di Parma*. 110/110 cum laude
Thesis: Numerical algorithms for scattering by a central potential in quantum mechanics
Advisor: Prof. Enrico Onofri

Publications

I published 21 articles on international peer-reviewed journals (10 as first author). I have 1 preprints and 2 conference proceedings. My publications have received more than 210 citations, with h-index 9 on Web of Science.

ORCID <https://orcid.org/0000-0003-4665-9284>
Google Scholar <https://scholar.google.com/citations?user=97NUjusAAAAJ>
ResearcherID <https://publons.com/researcher/1597180/matteo-a-c-rossi/>

Conferences

I participated in **18 international conferences and workshops** where I gave 2 invited talks, 9 contributed talks, and 9 poster presentations.

- Invited Talks *Continuous-time quantum walks on graphs with classical noise* Quantum2Classical Workshop at University of Strathclyde, 18-19 June 2018, UK
- Effective description of the short-time dynamics in open quantum systems. Workshop on Continuous variable quantum information theory and applications*, 5 June 2017, University of Nottingham, UK
- Contributed talks *Noisy quantum metrology enhanced by continuous nondemolition measurement*, YIQIS 2020, 28 Sep - 2 Oct 2020, Italy (Online event)
- Continuous measurements for advanced quantum metrology*, Quantum 2019, 31 May, Torino, Italy
- Restoring Heisenberg scaling in noisy metrology by continuous monitoring* OSA QIM V, 4-6 April 2019, Roma, Italy
- Quantum walks & spatial search on graphs affected by classical noise* IQIS 2018, 17-20 September, Catania, Italy
- Continuous-time quantum walks on graphs with classical noise* Quantum Roundabout, 11-13 July 2018, University of Nottingham, UK
- Continuous-time quantum walks on spatially correlated noisy lattices* QuProCS III meeting, 21-23 March 2018, Oxford, UK
- All-optical quantum simulator of qubit noisy channels* Young IQIS 2017, 11-15 September, Florence, Italy
- Probing the diamagnetic term in light-matter interaction*. Quantum Roundabout, 6-8 July 2016, Nottingham, UK
- Entangled quantum probes for classical environmental noise*. Non-Markovian Quantum Dynamics conference, 24-28 August 2015, Cortona, Italy

Invited seminars

- 2020 *Continuous measurements for advanced quantum metrology*. Invited virtual seminar at INRIM, Torino, 3 July 2020.

Schools

- 2019 Qiskit Camp Europe organized by IBM, Sep 12 - 15, Switzerland
- Qiskit Camp '19 organized by IBM, Feb 26 - Mar 1, NY and VT, USA
- 2018 *Quantum Complex Systems out of Equilibrium*, Lake Como School of Advanced Studies, Italy, July 29 - August 3, 2018
- 2017 *Quantum Machine Learning Summer School 2017*, Alpine Heath Resort, South Africa, 23rd January - 1st February 2017
- 2016 International Summer School Enrico Fermi 198 on *Quantum Simulators*, Varenna, Italy, 22-27 July 2016
- 2015 SUSSP71 on *Frontiers in Quantum Dynamics & Quantum Optics*, University of Strathclyde, Glasgow, 21st July to 2nd August 2015

Research visits

- May 2019 Participant at KITP program "Open Quantum System Dynamics: Quantum Simulators and Simulations Far From Equilibrium", University of California Santa Barbara, US
- March - June 2017 Visiting PhD student at the Turku Centre for Quantum Physics, University of Turku, Finland
- Jan - April 2016 Visiting PhD student at the Quantum Correlations Group, School of Mathematical Sciences, University of Nottingham, UK

Academic merits

- 2018 **Turku Collegium for Science and Medicine postdoctoral research position** Three year postdoctoral position for carrying research at University of Turku.

Referee for *Nature Communications*, *Physical Review Letters*, *Scientific Reports*, *Quantum Science and Technology*, *Physical Review Research*, *New Journal of Physics*, *Physical Review A*, *Europhysics Letters*, *Physics Letters A*, *Annals of Physics*

Referee for funding applications to PRIN 2017 (Progetti di ricerca di Rilevante Interesse Nazionale), Ministry of Education and Research, Italy

Referee for Rita Levi Montalcini fellowships, Ministry of Education and Research, Italy

Teaching

- 2018-2019 Coordinator of the course Seminars in Theoretical Physics TFYS7011, about programming the IBM Q Experience quantum computers (University of Turku)
- 2017-2018 Tutor for the General Physics course for Chemistry, e-learning project
- 2017-2018 Teaching assistant for Programming Laboratory (C++) for Physics
- 2016-2017 Teaching assistant for Programming Laboratory (C++) for Physics
- 2015-2016 Teaching assistant and tutor for the Mathematics course for Chemistry
- 2014-2015 Teaching assistant for the General Physics course for Chemistry

Thesis supervision

- 2020-present Co-supervisor of Daria Anttila, PhD student at University of Turku (Finland)
- 2019-present Co-supervisor of Marco Cattaneo, cotutelle PhD student at IFISC (Spain) and University of Turku (Finland)
- 2019-present Currently co-supervising 2 master students at the University of Turku
 - 2018 *Quantum walks and spatial search on graphs subject to dynamical noise*, Marco Cattaneo (Master degree in Physics, Università degli Studi di Milano, Italy)
 - 2016 *Quantum limits to precision in probing deformed commutators*, Tommaso Giani (Bachelor degree in Physics, Università degli Studi di Milano, Italy)
 - 2015 *Sonde quantistiche per sistemi complessi classici* Luca Vismara (Bachelor degree in Physics, Università degli Studi di Milano, Italy)

Outreach

- Quantum Garden** *Quantum Garden* is an installation realised by Robin Baumgarden that showcases phenomena in quantum mechanics <http://quantum.garden>. I've collaborated by writing and testing the code running the physical simulations behind the art piece.
- QPlay** QPlay is a EU H2020 project on gamification of science and quantum physics. I'm collaborating in the project by realizing prototype games and by participating in quantum game jams like the Quantum Wheel Game Jam, Helsinki 2019 (<http://www.finnishgamejam.com/quantumwheel/>).
- Media** Author of an outreach article on quantum mechanics on the online news website Tom's Hardware Italia (<https://www.tomshw.it/altro/big-bell-test-la-meccanica-quantistica-ha-bisogno-di-voi>)

Grants and awards

- 2020 HPC-Europa3 grant covering a 3-week visit to the University of Milan for developing HPC code.
IBM Q Awards Teach me Quantum. 8k \$ prize for the best university level course on quantum physics using Qiskit. Together with Daria Anttila, Boris Sokolov, Guillermo García-Pérez.