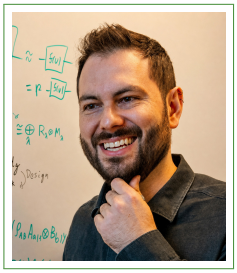
Marco Túlio Quintino

Curriculum Vitae (long version)

Associate Professor
(Maître de conférences HDR)
Sorbonne University, LIP6
Paris, France
Marco.Quintino@lip6.fr
mtcq.github.io
Google Scholar, arXiv



Last updated: 27 September 2026

Academic profile

Sep 2022 – Present
Associate Professor (Maître de conférences HDR)
Sorbonne University, Paris, France
Permanent member of the Quantum Information team at LIP6

Research interests: Quantum information and computation, quantum correlations (entanglement, Bell nonlocality, EPR steering, measurement incompatibility, and prepare-and-measure scenarios), quantum state and channel discrimination, higher-order quantum operations, causality in quantum theory, and semidefinite programming.

Selected highlights

- **Academic leadership.** Co-director of Sorbonne University's Master's programme in Quantum Information since September 2023.
- **Research output.** 65 research articles: 52 published journal articles and 13 preprints; more than 3,600 citations (Google Scholar, Sep 2026); more than 115 co-authors. Full list, page 12.
- **Research supervision.** Current team: 1 postdoctoral researcher and 4 PhD students; completed co-supervision of 2 PhD theses and supervision or co-supervision of 5 master's theses.
- **Research funding.** Principal Investigator and coordinator of ANR JCJC HOQO-KS (2025–2030); supervisor of 4 PhD grants.
- **Teaching.** More than 150 hours of lectures and more than 410 hours of tutorials; created or substantially redesigned 2 master's courses in quantum information at Sorbonne University. Teaching details, page 16.

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Education and employment

Education

Jan 2025 — **Habilitation in Computer Science (HDR)**, Sorbonne University, Paris, France
Quantum information processing via higher-order operations
Defence date: 17 Jan 2025
Jury: Pablo Arrighi, Anne Broadbent, Giulio Chiribella, Elham Kashefi, Mário Ziman

Oct 2012 – Sep 2016 — **PhD in Physics**, University of Geneva, Geneva, Switzerland
Quantum entanglement and measurement incompatibility as resources for nonlocality
Defence date: 9 Sep 2016
Supervisor: Nicolas Brunner
Funding: SNF, Switzerland

Aug 2010 – Sep 2012 — **MSc in Physics**, Federal University of Minas Gerais (UFMG), Belo Horizonte, Brazil
Black box correlations: locality, noncontextuality, and convex polytopes
Defence date: 12 Sep 2012
Supervisor: Marcelo Terra Cunha, Co-supervisor: Daniel Cavalcanti
Funding: CAPES, Brazil

Feb 2007 – Aug 2010 — **BSc in Physics**, UFMG, Belo Horizonte, Brazil
Não-localidade como recurso para comunicação
Supervisor: Marcelo Terra Cunha
Funding: CNPq, Brazil

Previous positions

Mar 2021 – Aug 2022 — **Postdoctoral researcher**, IQOQI Vienna, Vienna, Austria
Research group: Časlav Brukner
Funding: ESQ postdoc fellowship

Jun 2020 – Mar 2021 — **Postdoctoral researcher**, University of Vienna, Vienna, Austria
Research group: Časlav Brukner
Funding: Austrian Science Fund (FWF) through the SFB project BeyondC

Mar 2019 – May 2020 — **Postdoctoral researcher**, The University of Tokyo, Tokyo, Japan
Research group: Mio Murao
Funding: Q-LEAP project of the MEXT Japan

Nov 2016 – Nov 2018 — **Postdoctoral researcher**, The University of Tokyo, Tokyo, Japan
Research group: Mio Murao
Funding: JSPS postdoc fellowship

Leadership and responsibilities

Programme leadership

Sep 2023 – Present — **Co-director** of the Master's programme in Quantum Information, Sorbonne University, Paris, France.
Shared responsibility for student selection and admissions, curriculum design, and programme coordination. Member of the master's thesis examination committees for all students in the programme.

Recruitment panels

2024 – 2026 **National Institute of Informatics (NII) internship recruitment jury member**, Tokyo, Japan.
Evaluated and ranked LIP6 applicants for research internships at NII.
Calls: 2026 (1st call), 2025 (1st and 2nd call), 2024 (2nd call).

2026 **QuanG2 PhD recruitment jury member**, Grenoble, France.
Evaluated and ranked candidates for the Autumn 2026 PhD call of the Quantum Grenoble doctoral programme in quantum sciences and technologies.

2025 **EDITE PhD recruitment jury member**, Paris, France.
Evaluated and ranked candidates for PhD funding on the EDITE Operations Research, Algorithms, Computing and Programming panel, chaired by Antoine Genitrini.

Research funding and fellowships

Research grants

Sep 2025 – Aug 2030 ANR JCJC HOQO-KS (CE47-6396)
ANR (France): **EUR 358,660**
Principal Investigator and project coordinator
Higher-Order Quantum Operations with Known States

Jan 2025 – Dec 2026 PHC Polonium (53077ZD; BPN/BFR/2024/1/00026)
MEAE and MESRI (France), and NAWA (Poland): **EUR 6,200** (French allocation)
Research mobility project, together with Michał Studziński
Efficient methods for storing and transforming quantum programs

Jan 2025 – Jan 2026 MFBNA (2023.12518.PEX)
FCT (Portugal): **EUR 50,000** (total project budget)
Project team member; local coordinator: Ricardo Faleiro
The many face(t)s of Bell nonlocality and their applications

Apr 2024 – Dec 2024 Tremplins nouveaux entrants & nouvelles entrantes
Sorbonne University (France): **EUR 5,000**
Principal Investigator
Higher-Order Quantum Operations with Known States (HOQO-KS)

Nov 2016 – Mar 2019 Grant-in-Aid for JSPS Fellows (KAKENHI 16F16769)
JSPS (Japan): **JPY 2,100,000** in direct-cost funding
Co-Investigator and Foreign JSPS Fellow, with Mio Murao (PI)
Entanglement and nonlocality in quantum theory

Postdoctoral fellowships

Mar 2021 – Aug 2022 ESQ Postdoc Fellowship Program
BMBWF (Austria) and European Union: **EUR 124,506**
Higher-Order Quantum Operations: Foundations and Applications

Nov 2016 – Nov 2018 JSPS Postdoctoral Fellowship for Research in Japan (Standard)
JSPS (Japan): **JPY 8,888,000**

Student stipend

2010 – 2012 — CAPES Master's stipend
CAPES (Brazil): **BRL 29,100**
Black box correlations: locality, noncontextuality, and convex polytopes

Funding for doctoral projects

Dec 2025 – Nov 2028 — Partenariats stratégiques et thématiques
Sorbonne University: approximately **EUR 125,000** for a 36-month doctoral contract.
Polina Chernyshova, selected following an interview with the programme's selection panel.
Double-degree PhD programme with The University of Tokyo
Higher-order quantum computing with partial information

Nov 2025 – Oct 2028 — DIM QuanTiP doctoral grant (QCDSSR)
Île-de-France Region: approximately **EUR 125,000** for a 36-month doctoral contract.
Mariia Kvashchuk, selected following an interview with the programme's selection panel.
Quantum communication and discrimination in the single-shot regime

Apr 2025 – Mar 2028 — QuanTEdu France doctoral contract
French National Quantum Plan: approximately **EUR 125,000** for a 36-month doctoral contract, plus **EUR 10,000** in research support.
Lucas E. A. Porto, selected following an interview with the programme's selection panel.
The relationship between quantum entanglement and Bell nonlocality

Oct 2023 – Sep 2026 — QuanTEdu France doctoral contract
French National Quantum Plan: approximately **EUR 125,000** for a 36-month doctoral contract, plus **EUR 10,000** in research support.
Vanessa Brzić, selected following an interview with the programme's selection panel.
Higher-Order Quantum Operations: Foundations and Applications

Research supervision

- **Current team:** 1 postdoctoral researcher and 4 PhD students.
- **Completed:** co-supervision of 2 PhD theses; supervision of 3 master's theses; co-supervision of 2 master's theses; supervision of 5 short-term internships, including 1 undergraduate internship.

Postdoctoral researchers

Aug 2026 – Present — **Carlos Vieira**, Sorbonne University, Paris, France
Funded by: FAPESP BEPE postdoctoral fellowship, grant 2025/27304-7.

PhD supervision

Dec 2025 – Present — **Polina Chernyshova**, Sorbonne University, Paris, France
Higher-order quantum computing with partial information
Co-supervisor: Mio Murao, The University of Tokyo (Tokyo, Japan)

Nov 2025 – Present — **Mariia Kvashchuk**, Sorbonne University, Paris, France
Quantum communication and discrimination in the single-shot regime
Co-supervisor: Akihito Soeda, NII (Tokyo, Japan)

Apr 2025 – Present — **Lucas E. A. Porto**, Sorbonne University, Paris, France
The relationship between quantum entanglement and Bell nonlocality

Oct 2023 – Present — **Vanessa Brzić**, Sorbonne University, Paris, France
Higher-Order Quantum Operations: Foundations and Applications

PhD co-supervision

Jun 2017 – Jan 2022 — **Marcello Nery**, UFMG, Belo Horizonte, Brazil
Non-classical common-cause and direct-cause
Main supervisor: Reinaldo Oliveira Vianna
PhD completion date: 21 Jan 2022

Jan 2018 – Mar 2021 — **Qingxiuxiong Dong**, The University of Tokyo, Tokyo, Japan
Quantum algorithms for higher-order quantum transformations of universal unitary operations
Main supervisor: Mio Murao
PhD completion date: 19 Mar 2021

PhD internship hosting

Mar 2024 – Apr 2024 — **Ties-A. Ohst**, Sorbonne University, Paris, France
Quantum memory in causally ordered processes of universal unitary operations
Main supervisor: Otfried Gühne
PhD completion date: 21 Aug 2025

Master's thesis supervision

Sep 2025 – Aug 2026 — **Kristin Sundal Lien**, Sorbonne University, Paris, France
Entanglement and channel discrimination: sometimes less is more

Mar 2025 – Sep 2025 — **Charbel Eid**, Sorbonne University, Paris, France
Optimal discrimination between quantum measurements and quantum instruments

Feb 2025 – Aug 2025 — **Loïc Divry-Kennedy**, Sorbonne University, Paris, France
Discriminating qubit states and channels from any finite group

Master's thesis co-supervision

Jul 2018 – Feb 2020 — **Wataru Yokojima**, The University of Tokyo, Tokyo, Japan
Consequences of preserving reversibility in quantum superchannels
Main supervisor: Mio Murao

Jun 2017 – Jan 2018 — **Qingxiuxiong Dong**, The University of Tokyo, Tokyo, Japan
Quantum implementability of maps and supermaps
Main supervisor: Mio Murao

Short-term internship supervision

Feb 2024 – Mar 2024 — **Yuki Koizumi**, Sorbonne University, Paris, France
Undergraduate internship supervision
Equivalence between unitary estimation and deterministic port-based teleportation

Jan 2024 – Apr 2024 — **Shijun Zhang**, Sorbonne University, Paris, France
Master's internship supervision
Perfect discrimination of unitary operations when k calls are available (continuation)

Apr 2023 – Jun 2023 — **Shijun Zhang**, Sorbonne University, Paris, France
Master's internship supervision
Perfect discrimination of unitary operations when k calls are available

Apr 2023 – Jun 2023 — **Charbel Eid**, Sorbonne University, Paris, France
Master's internship supervision
Optimal discrimination between quantum measurements and instruments

Apr 2023 – Jun 2023 — **Ethan Obadia**, Sorbonne University, Paris, France
Master's internship supervision
Quantum channel discrimination with partially entangled states

Academic service

Workshop organisation

Dec 2026 — Japanese-French Quantum Information 2026 Workshop (JFQI 2026), Tokyo, Japan
Lead organiser, in collaboration with Jessica Bavaresco
Forthcoming.

Dec 2023 — Japanese-French Quantum Information 2023 Workshop (JFQI 2023), Tokyo, Japan
Lead organiser, in collaboration with Akihito Soeda

Conference programme committees

Jun 2026 — Causalworlds 2026, Grenoble, France

Oct 2025 — YQIS 2025, Barcelona, Spain

Aug 2025 — AQIS 2025, The University of Hong Kong (HKU), Hong Kong

Jun 2025 — CEQIP 2025, Smolenice Castle, Slovakia

Sep 2024 — Causalworlds 2024, Waterloo, Canada

Aug 2024 — AQIS 2024, Sapporo, Japan

Sep 2019 — YQIS 2019, Gdańsk and Sopot, Poland

Sep 2018 — YQIS 2018, Vienna, Austria

PhD thesis reviewer

25 Jun 2026 — **Oskar Szymon Słowik**, Center for Theoretical Physics PAS, Warsaw, Poland
Spectral gaps, t-designs and ϵ-nets in quantum computing
Supervisors: Adam Sawicki and Oliver Reardon-Smith

19 Mar 2026 — **José Nogueira**, Unicamp, Campinas, Brazil
Postquantum correlations and their consequences: From exclusivity graphs to Prepare-and-Measure scenarios
Supervisors: Rafael Rabelo and Marcelo Terra Cunha

29 Oct 2025 — **Peter Sidajaya**, National University of Singapore, Singapore
Studies in quantum foundations
Supervisor: Valerio Scarani

6 Oct 2025 — **Pierre Pocreau**, Université Grenoble Alpes, Grenoble, France
The use of entanglement in non-cooperative games, and the computational power of indefinite causal order
Supervisors: Mehdi Mhalla and Alastair Abbott

16 May 2025 — **Carlos de Gois**, University of Siegen, Siegen, Germany
Certifying quantum states and their properties through correlations, communication and tomography
Supervisor: Otfried Gühne

17 Dec 2024 — **Lucas Pollyceno**, Unicamp, Campinas, Brazil
Multipartite Bell nonlocality and communication
Supervisor: Rafael Rabelo

23 Oct 2023 **Carles Roch i Carceller**, Department of Physics, Technical University of Denmark, Copenhagen, Denmark
Quantum state discrimination with applications in contextuality and randomness certification
Supervisor: Jonatan Bohr Brask

12 Jun 2023 **Jef Pauwels**, Université libre de Bruxelles, Brussels, Belgium
Entanglement and quantum communication between partially characterized devices
Supervisor: Stefano Pironio

10 Mar 2023 **Carlos Vieira**, Unicamp, Campinas, Brazil
Exploring the role of entanglement in sets of behaviors from prepare-and-measure scenarios
Supervisor: Marcelo Terra Cunha

PhD examination committee member

3 Feb 2022 **Roberto D. Baldijão**, Unicamp, Campinas, Brazil
Quantum Darwinism and Contextuality
Supervisor: Marcelo Terra Cunha

Master's thesis reviewer

31 Jan 2024 **Arthur C. R. Dutra**, Unicamp, Campinas, Brazil
Can KS-Contextuality Hide in a Crowd? Investigating state-independent contextuality in systems with multiple observers
Supervisor: Marcelo Terra Cunha

9 Apr 2021 **Lucas Pollyceno**, Unicamp, Campinas, Brazil
Novos critérios para o princípio da causalidade de informação
Supervisor: Marcelo Terra Cunha

Doctoral progress and monitoring committees (Comité individuel de suivi)

Sep 2026 **Thales Gottardello Marrafon**, SOKENDAI, NII, Tokyo, Japan
Quantum operations over quantum network: resource analysis and optimization
Supervisor: Akihito Soeda

Jul 2026 **Amanda M. Fonseca**, Université Grenoble Alpes, Grenoble, France
Sep 2025 *Characterising causal structures: classical, quantum, and relativistic causality*
Supervisors: Cyril Branciard and V. Vilasini

Jun 2026 **Youness Ayaita**, Sorbonne University, Paris, France
Sep 2025 *Le raisonnement ampliatif : Expliquer le succès épistémique de la science*
Oct 2024 Supervisor: Anouk Barberousse

Jun 2026 **Mu-En Liu**, Institut de Physique Théorique (IPhT), Gif-sur-Yvette, France
Tsirelson Inequalities in the Minimal Bell Scenario
Supervisor: Jean-Daniel Bancal

May 2025 **Octave Mestoudjian**, Université Paris-Saclay, Palaiseau, France
Jul 2024 *Sous-systèmes généralisés en informatique quantique*
Supervisors: Pablo Arrighi and Augustin Vanrietvelde; also Mathew Wilson in 2025

Jul 2024 **Pierre Pocreau**, Université Grenoble Alpes, Grenoble, France
Jun 2023 *Implications of causal indefiniteness for quantum communication*
Supervisors: Mehdi Mhalla and Alastair Abbott

Peer review

- **Journals:** Quantum, PRL, PRX, PRX Quantum, PRA, Phys. Rev. Research, J. Math. Phys., Commun. Math. Phys., NJP, J. Phys. A, npj Quantum Information, and Optica.
- **Conferences:** QIP, STOC, TQC, AQIS, and YQIS.

Conferences, schools, and seminars

- **Invited talks:** 14 invitations, including 2 to events cancelled due to COVID-19.
- **Contributed talks:** 22 accepted talks at 21 conferences, including 3 accepted at QIP.
- **Summer schools:** invited lecturer at 1 summer school.

Invited talks

Sep 2026 **Workshop on the Structure of Quantum Theory**, Münster, Germany
The most discriminable quantum states in the multicopy regime

Aug 2026 **YQIS 2026**, Vienna, Austria
Optimal pure state cloning and transposition are complementary channels

Apr 2026 **851st WE-Heraeus Seminar: 90 Years of Einstein–Podolsky–Rosen Paradox**, Physikzentrum Bad Honnef, Germany
Understanding the relationship between measurement incompatibility, EPR steering, and Bell nonlocality

Feb 2026 **Quantum Correlations and Measurements**, Les Diablerets, Switzerland
Optimal pure state cloning and optimal pure state transposition are complementary channels

Jul 2025 **CEQIP 2025**, Smolenice Castle, Slovakia
Quantum information processing via higher-order operations

Jun 2025 **FoQaCiA Workshop 2025**, Braga, Portugal
Can the quantum switch be deterministically simulated?

Apr 2025 **BQIT 2025**, Bristol, UK
Can the quantum switch be deterministically simulated?

Apr 2022 **Tsirelson Memorial Workshop**, Vienna, Austria
Measurement incompatibility and Bell nonlocality: from 1985 to 2022

Mar 2020 **Second Workshop on Quantum Protocols**, Waseda University, Tokyo, Japan
Workshop cancelled due to the COVID-19 pandemic
Reversing Unknown Quantum Transformations: Universal Quantum Circuit for Inverting General Unitary Operations

Mar 2020 **The Order of Things (TOOT)**, Obergurgl, Austria
Conference cancelled due to the COVID-19 pandemic

Jan 2020 **Quantum Information Structure of Spacetime (QISS 2020)**, Hong Kong
Reversing unknown quantum transformations: A universal quantum circuit for inverting general unitary operations

Nov 2018 **Quantum Maiwar**, Brisbane, Australia
Semi-device-independent certification of indefinite causal order

Sep 2018 **Post-AQIS 2018 Workshop**, Nagoya, Japan
Reversing unknown quantum transformations: A universal protocol for inverting general unitary operations

Aug 2017 **FQXi Workshop: Quantum Incompatibility**, Laach Lake, Germany
Genuine n-wise measurement incompatibility and device-independent certificates of incompatibility

Summer school

Aug 2026 **QALYPSO 2026: Quantum Optimisation Techniques & Physics of Computation**, Valletta, Malta
Invited speaker and advanced-track lecturer: *SDP as a tool for quantum information*—2 lectures: *What is an SDP?* and *Dual certificates, strong duality, and numerical SDPs*.

Contributed talks

Aug 2026 **Quantum Physics and Logic 2026 (QPL 2026)**, Amsterdam, The Netherlands
Composable simultaneous purification: when all communication scenarios reduce to spatial correlations

Jul 2025 **Quantum Physics and Logic 2025 (QPL 2025)**, Varna, Bulgaria
One-to-one correspondence between deterministic port-based teleportation and unitary estimation

Jul 2025 **Quantum Physics and Logic 2025 (QPL 2025)**, Varna, Bulgaria
All incompatible measurements on qubits lead to multiparticle Bell nonlocality

Feb 2025 **Quantum Information Processing 2025 (QIP 2025)**, Raleigh, United States
One-to-one correspondence between deterministic port-based teleportation and unitary estimation
(presented by Satoshi Yoshida)

Aug 2023 **Asian Quantum Information Science 2023 (AQIS 2023)**, Seoul, South Korea
Simulating qubit correlations with classical communication

Feb 2023 **Quantum Information Processing 2023 (QIP 2023)**, Ghent, Belgium
Simulating qubit correlations with classical communication
(presented by Martin J. Renner)

Sep 2021 **SFB BeyondC Autumn Workshop 2021**, Innsbruck, Austria
Universal protocols for transforming unitary quantum operations

Jun 2021 **Quantum Physics and Logic 2021 (QPL 2021)**, Gdańsk (online), Poland
Success-or-draw: A strategy allowing repeat-until-success in quantum computation

Jan 2020 **Quantum Information Processing 2020 (QIP 2020)**, Shenzhen, China
Adaptive circuits exponentially outperform parallel ones for universal unitary inversion

Aug 2019 **Asian Quantum Information Science 2019 (AQIS 2019)**, Seoul, South Korea
Semi-device-independent certification of indefinite causal order

Sep 2018 **Asian Quantum Information Science 2018 (AQIS 2018)**, Nagoya, Japan
Reversing unknown quantum transformations

Jul 2018 **Modern Topics in Quantum Information**, Natal, Brazil
Reversing unknown quantum transformations

May 2017 **36th Quantum Information Technology Symposium (QIT36)**, Kyoto, Japan
Super-activation of quantum steering

Mar 2016 **Quantum Networks (FQXi)**, Barcelona, Spain
Entangled states with a local hidden-variable model for sequential measurements

Dec 2015 **Quantum Correlations, Contextuality and All That... Again**, Natal, Brazil
Algorithmic construction of local hidden variable models for entangled quantum states

Aug 2015 **V Quantum Information School and Workshop**, Paraty, Brazil
Joint measurability, EPR steering, and Bell nonlocality

Aug 2014 **Asian Quantum Information Science 2014 (AQIS 2014)**, Kyoto, Japan
Joint measurability, EPR steering, and Bell nonlocality

Dec 2013 **Quantum Correlations, Contextuality and All That**, Natal, Brazil
Measurement Incompatibility in Quantum Mechanics

Aug 2013 **IV Quantum Information School and Workshop**, Paraty, Brazil
Genuine Hidden Quantum Nonlocality

Jun 2012 **Workshop on Quantum Correlations**, Natal, Brazil
All noncontextuality inequalities for the n-cycle scenario

Dec 2011 **III Encontro temático do INCT-IQ**, Natal, Brazil
From the detection loophole to the transmission loophole

Aug 2011 **III Quantum Information School and Workshop**, Paraty, Brazil
Maximal CHSH violations with low efficiency photodetection and homodyne measurements

Invited seminars

30 Apr 2025 **University of Siegen**, Siegen, Germany
Host: Otfried Gühne

12 Dec 2024 **The University of Hong Kong (HKU)**, Hong Kong
Host: Giulio Chiribella

11 Nov 2024 **University of Geneva**, Geneva, Switzerland
Host: Nicolas Brunner

8 Jul 2024 **Université Grenoble Alpes**, Grenoble, France
Host: Alastair Abbott

25 Jun 2024 **University of Pisa**, Pisa, Italy
Host: Costantino Budroni

24 Oct 2023 **Technical University of Denmark, QPIT**, Copenhagen, Denmark
Host: Jonatan Bohr Brask

16 Mar 2023 **Les Ateliers du LKB, Laboratoire Kastler Brossel**, Paris, France
Host: Nancy Paul

10 Dec 2021 **University of Gdańsk**, Gdańsk, Poland
Host: Michał Studziński

18 Mar 2021 **Quantin Research Group**, Warsaw (online), Poland
Host: Michał Oszmaniec

5 Feb 2021 **Technical University of Denmark**, Copenhagen (online), Denmark
Host: Jonatan Bohr Brask

10 Jul 2019 **Universitat Autònoma de Barcelona**, Barcelona, Spain
Host: Andreas Winter

14 Feb 2019 **ICFO**, Barcelona, Spain
Host: Antonio Acín

12 Feb 2019 **University of Geneva**, Geneva, Switzerland
Host: Nicolas Brunner

24 Jan 2019 **IQOQI Vienna**, Vienna, Austria
Host: Marcus Huber

16 Dec 2016 **The University of Tokyo**, Tokyo, Japan
Host: Mio Murao

18 Nov 2016 **UFMG**, Belo Horizonte, Brazil
Host: Marcelo Terra Cunha

18 Nov 2015 **University of Siegen**, Siegen, Germany
Host: Otfried Gühne

18 Aug 2015 **UFMG**, Belo Horizonte, Brazil
Host: Marcelo Terra Cunha

31 Jul 2015 **UFMG**, Belo Horizonte, Brazil
Host: Marcelo Terra Cunha

15 Jun 2015 **Waseda University**, Tokyo, Japan
Host: Kazuya Yuasa

26 May 2015 **Perimeter Institute (PI)**, Waterloo, Canada
Host: Matthew Pusey

9 Oct 2014 **ICFO**, Barcelona, Spain
Host: Antonio Acín

5 Sep 2014 **KCIK**, Gdańsk, Poland
Host: Michał Horodecki

25 Aug 2014 **The University of Tokyo**, Tokyo, Japan
Host: Mio Murao

3 Dec 2013 **UFMG**, Belo Horizonte, Brazil
Host: Marcelo Terra Cunha

19 Jul 2012 **KCIK**, Gdańsk, Poland
Host: Michał Horodecki

11 Jul 2012 **ICFO**, Barcelona, Spain
Host: Antonio Acín

Outreach and dissemination

During my JSPS postdoctoral fellowship in Japan, I presented my research to high-school students through the JSPS Science Dialogue Program.

21 Sep 2018 **JSPS Science Dialogue**, Suwa Seiryo High School (Nagano Prefecture), Japan
What do you mean by random? Randomness, Quantum Mechanics, and Bell Non-locality

5 Dec 2017 **JSPS Science Dialogue**, Takezono High School (Ibaraki Prefecture), Japan
What do you mean by random? Randomness, Quantum Mechanics, and Bell Non-locality

7 Jan 2013 **Science Slam Berlin**, SO36, Berlin, Germany
Does God play dice? Genuine randomness in nature

Languages and computational skills

- **Languages:** Portuguese (native), English (fluent), French (fluent), Spanish (advanced), and Japanese (intermediate).
- **Programming:** MATLAB and Mathematica (advanced); familiarity with Julia, Python, and Bash.
- **Research code:** Research-related computational code shared on GitHub.

List of publications

All my scientific publications are available on arXiv and my personal website. Publications since I started my position in France in September 2022 are also available on HAL.

Peer-reviewed publications

[1] L. E. A. Porto, S. Designolle, S. Pokutta, and **M. T. Quintino**. "Measurement incompatibility and quantum steering via linear programming". *Quantum* **10**, 2141 (2026).

[2] F. Grosshans, M. Horodecki, M. Murao, T. Młynik, **M. T. Quintino**, M. Studziński, and S. Yoshida. "Multicopy quantum state teleportation with application to storage and retrieval of quantum programs". *Quantum* **10**, 2105 (2026).

[3] S. Yoshida, Y. Koizumi, M. Studziński, **M. T. Quintino**, and M. Murao. "One-to-one correspondence between deterministic port-based teleportation and unitary estimation". *IEEE Trans. Inf. Theory* **72**, 2358–2377 (2026).

[4] T.-A. Ohst, S. Zhang, H. C. Nguyen, M. Plávala, and **M. T. Quintino**. "Characterising memory in quantum channel discrimination via constrained separability problems". *Quantum* **10**, 1988 (2026).

[5] J. Bavaresco, H. Kristjánsson, M. Murao, T. Odake, **M. T. Quintino**, P. Taranto, and S. Yoshida. "Simulating the quantum switch with quantum circuits is computationally hard". *Nat. Commun.* **16**, 10216 (2025).

[6] M. Plávala, O. Gühne, and **M. T. Quintino**. "All incompatible measurements on qubits lead to multiparticle Bell nonlocality". *Phys. Rev. Lett.* **134**, 200201 (2025).

[7] S. Egelhaaf, J. Pauwels, **M. T. Quintino**, and R. Uola. "Certifying measurement incompatibility in prepare-and-measure and Bell scenarios". *J. Phys. A: Math. Theor.* **58**, 095304 (2025).

[8] S. Milz and **M. T. Quintino**. "Characterising transformations between quantum objects, 'completeness' of quantum properties, and transformations without a fixed causal order". *Quantum* **8**, 1415 (2024).

[9] P. Taranto, **M. T. Quintino**, M. Murao, and S. Milz. "Characterising the hierarchy of multitime quantum processes with classical memory". *Quantum* **8**, 1328 (2024).

[10] T. Strömberg, P. Schiansky, **M. T. Quintino**, M. Antesberger, L. A. Rozema, I. Agresti, Č. Brukner, and P. Walther. "Experimental superposition of a quantum evolution with its time reverse". *Phys. Rev. Research* **6**, 023071 (2024).

[11] L. Villegas-Aguilar, E. Polino, F. Ghafari, **M. T. Quintino**, K. T. Laverick, I. R. Berkman, S. Rogge, L. K. Shalm, N. Tischler, E. G. Cavalcanti, S. Slussarenko, and G. J. Pryde. "Nonlocality activation in a photonic quantum network". *Nat. Commun.* **15**, 3112 (2024).

[12] M. Antesberger, **M. T. Quintino**, P. Walther, and L. A. Rozema. "Higher-order process matrix tomography of a passively-stable quantum switch". *PRX Quantum* **5**, 010325 (2024).

[13] Q. Dong, **M. T. Quintino**, A. Soeda, and M. Murao. "The quantum switch is uniquely defined by its action on unitary operations". *Quantum* **7**, 1169 (2023).

[14] M. J. Renner and **M. T. Quintino**. "The minimal communication cost for simulating entangled qubits". *Quantum* **7**, 1149 (2023).

[15] T. Strömberg, P. Schiansky, R. W. Peterson, **M. T. Quintino**, and P. Walther. "Demonstration of a quantum SWITCH in a Sagnac configuration". *Phys. Rev. Lett.* **131**, 060803 (2023).

[16] D. Ebler, M. Horodecki, M. Marciniak, T. Młynik, **M. T. Quintino**, and M. Studziński. "Optimal universal quantum circuits for unitary complex conjugation". *IEEE Trans. Inf. Theory* **69**, 5069–5082 (2023).

[17] E.-C. Boghiu, F. Hirsch, P.-S. Lin, **M. T. Quintino**, and J. Bowles. "Device-independent and semi-device-independent entanglement certification in broadcast Bell scenarios". *SciPost Phys. Core* **6**, 028 (2023).

[18] M. J. Renner, A. Tavakoli, and **M. T. Quintino**. "The classical cost of transmitting a qubit". *Phys. Rev. Lett.* **130**, 120801 (2023).

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Preprints

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Theses and monographs

[66] **M. T. Quintino**. *Quantum information processing via higher-order operations*. Habilitation thesis (HDR). 2025. URL: https://mtcq.github.io/assets/thesis/HDR_MTQ_final_version.pdf.

[67] **M. T. Quintino**. *Quantum entanglement and measurement incompatibility as resources for nonlocality*. PhD thesis. 2016. URL: https://archive-ouverte.unige.ch/unige:88093.

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Other publications

[70] **M. T. Quintino**. "Quantum teleportation beyond its standard form: Multi-Port-Based Teleportation". *Quantum Views* **5**, 56 (2021).

Teaching details

- **Lectures:** more than 150 hours.
- **Tutorials:** more than 410 hours.
- **M1 research projects:** 46 hours of supervision.
- **Course development:** created or substantially redesigned "Quantum Circuits and Query Complexity" (previously "Quantum Circuits and Logic Gates") and "Quantum Information Overview" (previously "QIIntro") for Sorbonne University's Master's programme in Quantum Information.
- **Summer school:** invited lecturer at QALYPSO 2026, with 2 lectures on semidefinite programming for quantum information.

Recent teaching at Sorbonne University

Undergraduate computer science

- Mathématiques Discrètes (tutorials; 3 semesters).
- Introduction à la calculabilité et à la décidabilité (lectures and tutorials; 4 semesters).

Master's programme in Quantum Information

- Quantum Circuits and Query Complexity (lectures and tutorials; 3 semesters).
- Quantum Information Overview (QIOv, previously QIIntro; lectures and tutorials; 3 semesters).
- M1 research projects (supervision, 2025–2026).
- Quantum Kinematics for Computer Scientists (lectures and tutorials; 1 semester).
- QIT: Quantum Information Theory (lectures and tutorials; 3 semesters).

Other master's programmes

- Théorie de Shannon classique et quantique (lectures and tutorials; 2 semesters).
- Analyse d'algorithmes et génération aléatoire (tutorials; 1 semester).

Teaching history

In semester dates, /1 denotes the first half of the calendar year and /2 the second half. At Sorbonne University, 2026/1 denotes the spring semester of 2026; 2026/2 denotes the autumn semester, which may extend into January 2027.
L2 and L3 denote undergraduate years 2 and 3; M1 and M2 denote master's years 1 and 2.

Sorbonne University, Paris, France

Master d'informatique, Information Quantique (IQ)

2026/1 **Quantum Information Overview (QIOv, previously QIIntro)**, M1
Lectures (15 h), Tutorials (6 h); UM4INQ51

2026/1 **Quantum Information Group Project (PQIG)**, M1
M1 research project supervision (20 h); UM4INQ55

2026/1 **Advanced Quantum Information Short Project (PQIAS)**, M1
M1 research project supervision (8 h); UM4INQ56

2025/2 **Quantum Circuits and Query Complexity**, M1
Lectures (20 h), Tutorials (22 h); UM4INQ05

2025/1 **QIIntro**, M1
Lectures (20 h); MU4INQ51

2025/1 **Projet QI Moyen (6 ECTS)**, M1
M1 research project supervision (12 h); MU4INQ56

2025/1 **Projet QI Long (9 ECTS)**, M1
M1 research project supervision (6 h); MU4INQ57

2024/2 **QIT: Quantum Information Theory**, M2
Lectures (4 h), Tutorials (2 h); MU5PYQ03

2024/2 **Quantum Circuits and Logic Gates**, M1
Lectures (10 h), Tutorials (8 h); MU4INQ05

2024/1 **QIIntro**, M1
Lectures (4 h), Tutorials (4 h); MU4INQ51

2023/2 **QIT: Quantum Information Theory**, M2
Lectures (4 h), Tutorials (2 h); MU5PYQ03

2023/2 **Quantum Circuits and Logic Gates**, M1
Lectures (10 h), Tutorials (4 h); MU4INQ05

2022/2 **Quantum Kinematics for Computer Scientists**, M1
Lectures (2 h), Tutorials (16 h); MU4INQ01

2022/2 **QIT: Quantum Information Theory**, M2
Lectures (6 h), Tutorials (4 h); MU5PYQ03

Sorbonne University — continued

Licence d'informatique

2026/1 **Introduction à la calculabilité et à la décidabilité**, L3
Lectures (16.5 h), Tutorials (3.5 h); LU3IN030

2025/1 **Introduction à la calculabilité et à la décidabilité**, L3
Tutorials (38.5 h); LU3IN030

2024/2 **Mathématiques Discrètes**, L2
Tutorials (38.5 h); LU2IN005

2024/1 **Introduction à la calculabilité et à la décidabilité**, L3
Lectures (1.75 h), Tutorials (38.5 h); LU3IN030

2023/2 **Mathématiques Discrètes**, L2
Tutorials (40.25 h); LU2IN005

2023/1 **Introduction à la calculabilité et à la décidabilité**, L3
Tutorials (38.5 h); LU3IN030

2022/2 **Mathématiques Discrètes**, L2
Tutorials (36.5 h); LU2IN005

Master Sciences, Technologies, Santé

2024/1 **Théorie de Shannon classique et quantique**, M1
Lectures (18 h), Tutorials (6 h); MU4PY223

2023/1 **Théorie de Shannon classique et quantique**, M1
Lectures (15 h), Tutorials (9 h); MU4PY223

Master d'informatique, Science et Technologie du Logiciel (STL)

2022/2 **Analyse d'algorithmes et génération aléatoire**, M2
Tutorials (14 h); MU5IN550

4EU+ European University Alliance

Sorbonne University, Paris (online), France

2026/1 **4EU+: Quantum Information and Quantum Many-Body Theory**
Lectures (2 h)

University of Copenhagen (online), Denmark

2024/1 **4EU+: Quantum Information and Quantum Many-Body Theory**
Lectures (2 h)

UNESP, Guaratinguetá (online), Brazil

Semana da Física 2021

2021 *Não-localidade de Bell: como o indeterminismo quântico permite correlações supra-clássicas*
1 lecture (1 h)

The University of Tokyo, Tokyo, Japan

Undergraduate course in quantum technology

2019 *What do you mean by random? Randomness, Quantum Mechanics, and Bell Non-locality*, Undergraduate
1 lecture (∼1.75 h)

University of Geneva, Geneva, Switzerland

2016/1 **Quantum Information Theory**, Master's
Teaching assistant; tutorials (∼16 h)

2015/2 **Méthodes mathématiques pour physiciens I**, Undergraduate
Teaching assistant; tutorials (∼16 h)

2015/1 **Quantum Information Theory**, Master's
Teaching assistant; tutorials (∼16 h)

2014/1 **Quantum Information Theory**, Master's
Teaching assistant; tutorials (∼16 h)

2013/1 **Quantum Information Theory**, Master's
Teaching assistant; tutorials (∼16 h)

IMPA, Rio de Janeiro, Brazil

28º Colóquio Brasileiro de Matemática

Jul 2011 **Mecânica quântica para matemáticos em formação**
Teaching assistant

UFMG, Belo Horizonte, Brazil

XXII Escola de Inverno

2011 *Comunicação via qubits*
1 lecture (2 h)

Quantum Mechanics 1 (master's course)

2010 *Desigualdades de Bell, uma introdução à não-localidade quântica*
1 lecture (1.5 h)