

# Marco Túlio Quintino

## Curriculum Vitae

Sorbonne Université – LIP6

Paris, France

✉ [Marco.Quintino@lip6.fr](mailto:Marco.Quintino@lip6.fr)

🌐 [mtcq.github.io](https://mtcq.github.io)

Birth: 19-Feb-1988

Citizenship: Brazilian



Last update: March 26, 2023

### Research Interests

Quantum information and quantum computation, quantum correlations, causality in quantum theory, higher-order quantum operations, Bell nonlocality, quantum steering, entanglement, measurement incompatibility, quantum discrimination tasks, and Semidefinite Programming.

### Employment

- Sep 2022 – **Associate Professor (Maître de Conférences)**, Sorbonne Université, Paris, France  
now Member of the [Quantum Information](#) group at [LIP6](#)
- Mar 2021 – **Postdoctoral researcher**, IQOQI Vienna, Vienna, Austria
- Aug 2022 Postdoctoral Researcher at the group of [Prof. Časlav Brukner](#)  
Funding: [ESQ postdoc fellowship](#)
- Jun 2020 – **Postdoctoral researcher**, University of Vienna, Vienna, Austria
- Mar 2021 Postdoctoral Researcher at the group of [Prof. Časlav Brukner](#)  
Funding: [Austrian Science Fund \(FWF\)](#) through the [SFB project BeyondC](#)
- Mar 2019 – **Postdoctoral researcher**, The University of Tokyo, Tokyo, Japan
- May 2020 Postdoctoral Researcher at the group of [Prof. Mio Murao](#)  
Funding: [Q-LEAP project of the MEXT Japan](#)
- Nov 2016 – **Postdoctoral researcher**, The University of Tokyo, Tokyo, Japan
- Nov 2018 Postdoctoral Researcher at the group of [Prof. Mio Murao](#)  
Funding: [JSPS postdoc fellowship](#)

### Education

- Oct 2012 – **PhD in Physics**, Université de Genève, Geneva, Switzerland
- Sep 2016 Thesis: [Quantum entanglement and measurement incompatibility as resources for nonlocality](#)  
Defence date: 09 Sep 2016  
Supervisor: [Nicolas Brunner](#)  
Funding: [SNF](#), Switzerland
- Aug 2010 – **MSc in Physics**, UFMG, Belo Horizonte, Brazil
- Sep 2012 Thesis: [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– **BSc in Physics**, *UFMG*, Belo Horizonte, Brazil  
Aug 2010 Monograph: *Não-localidade como recurso para comunicação*  
Supervisor: *Marcelo Terra Cunha*  
Funding: *CNPq*, Brazil

## Grants and awards

2020 **Postdoc research fellowship**, *ESQ Postdoc Fellowship Program*, Austria/EU  
2016 **Grant-In-Aid for Scientific Research**, *KAKENHI*, Japan  
2016 **Postdoc research fellowship**, *JSPS Postdoc Fellowship*, Japan

## Languages

Portuguese (native), English (fluent), French (fluent), Spanish (advanced), Japanese, (intermediate)  
Matlab (fluent), Mathematica (fluent), Python (intermediate), Bash (basic)  
I use GitHub (<https://github.com/mtcq>) to share relevant computational code I develop.

## Publications

**Summary:** 35 peer-reviewed journal publications, which include 11 Physical Review Letters and 1 Nature Communication. 6 articles in peer-reviewing process and more than 50 different co-authors. *Google Scholar* counts over 1800 citations, 7 papers with more than 100 citations, an h-index of 21, and an i10-index of 27 (as of March 2023).

All my scientific papers are available at *arXiv* and at my *personal website*.

A list with all my publications can be found in the end of this CV.

## Research supervision

I have co-supervised two PhD students and four master students. Also, I have worked in close relation with several students (undergrad, master, and PhD) with different backgrounds at various institutions.

Jun 2017 – **PhD co-supervisor**, *UFMG*, Belo Horizonte, Brazil  
Jan 2022 Marcello Nery  
Article: *Simple and maximally robust processes with no classical common-cause or direct-cause explanation – Quantum (2021)*  
PhD Thesis: Non-classical common-cause and direct-cause  
Jan 2018 – **PhD co-supervisor**, *The University of Tokyo*, Tokyo, Japan  
Dec 2020 Qingxiuxiong Dong  
Article: *Success-or-Draw: A Strategy Allowing Repeat-Until-Success in Quantum Computation – Phys. Rev. Lett. (2021)*  
MSc Thesis: Quantum algorithms for higher-order quantum transformations of universal unitary operations  
Jul 2018 – **MSc co-supervisor**, *The University of Tokyo*, Tokyo, Japan  
Jul 2020 Wataru Yokojima  
Article: *Consequences of preserving reversibility in quantum superchannels – Quantum (2021)*

- Jun 2017 – **MSc co-supervisor**, *The University of Tokyo*, Tokyo, Japan  
 Jan 2018 Qingxiuxiong Dong  
 Article: [Implementing positive maps with multiple copies of an input state – Phys. Rev. A \(2019\)](#)  
 MSc Thesis: Quantum implementability of maps and supermaps
- Aug 2015 – **MSc co-supervisor**, *UFMG*, Belo Horizonte, Brazil  
 Aug 2016 Jessica Bavaresco  
 Article: [Most incompatible measurements for robust steering tests – Phys. Rev. A \(2017\)](#)  
 MSc Thesis: [When Bob Cannot Trust Alice. A Semi-Device-Independent Tale of Quantum Steering](#)
- Jan 2015 – **MSc co-supervisor**, *University of Geneva*, Geneva, Switzerland  
 June 2013 Flavien Hirsch  
 Article: [Genuine hidden quantum nonlocality – Phys. Rev. Lett. \(2013\)](#)

## Teaching

- 2023/1 **Course (15h), Tutorial (15h)**, *Sorbonne Université, Master Sciences, Technologies, Santé, M1.*, Paris, France  
 MU4PY223 - Théorie de Shannon classique et quantique
- 2023/1 **Tutorial (36.5h)**, *Sorbonne Université, Lincese d'Informatique, L3.*, Paris, France  
 LU3IN030 - Introduction à la calculabilité et à la décidabilité
- 2022/2 **Tutorial (36.5h)**, *Sorbonne Université, Lincese d'Informatique, L2.*, Paris, France  
 LU2IN005 - Mathématiques Discrètes
- 2022/2 **Course (2h), Tutorial (16h)**, *Sorbonne Université, Master d'Informatique - Information Quantique (IQ), M1*, Paris, France  
 MU4INQ01 - Quantum kinematics for computer scientists
- 2022/2 **Tutorial (14h)**, *Sorbonne Université, Master d'Informatique - Parcours Science et Technologie du Logiciel (STL), M2*, Paris, France  
 MU5IN550 - Analyse d'algorithmes et génération aléatoire:
- 2022/2 **Course (6h), Tutorial (4h)**, *Sorbonne Université, Master d'Informatique - Information Quantique (IQ), M2*, Paris, France  
 MU5PYQ03 - QIT: Quantum Information Theory
- 2021 **One lecture**, *Semana da Física 2021 – UNESP*, Caratinguetá (online), Brazil  
 Não-localidade de Bell: como o indeterminismo quântico permite correlações supra-clássicas
- 2019 **One lecture**, *The University of Tokyo*, Tokyo, Japan  
 What do you mean by random? Randomness, Quantum Mechanics, and Bell Non-locality – Undergraduate course in quantum technology
- 2016/1 **Teaching Assistant**, *Université de Genève*, Geneva, Switzerland  
 Quantum Information Theory – Master Course
- 2015/2 **Teaching Assistant**, *Université de Genève*, Geneva, Switzerland  
 Méthodes mathématiques pour physiciens I – Undergraduate Course
- 2015/1 **Teaching Assistant**, *Université de Genève*, Geneva, Switzerland  
 Quantum Information Theory – Master Course
- 2014/1 **Teaching Assistant**, *Université de Genève*, Geneva, Switzerland  
 Quantum Information Theory – Master Course

- 2013/1 **Teaching Assistant**, *Université de Genève*, Geneva, Switzerland  
Quantum Information Theory – Master Course
- 2011/1 **Teaching Assistant**, *IMPA*, Rio de Janeiro, Brazil  
Mecânica quântica para matemáticos em formação – 28o Colóquio Brasileiro de Matemática
- 2011 **One lecture**, *UFMG*, Belo Horizonte, Brazil  
Comunicação via qubits – XXII Escola de Inverno
- 2010 **One lecture**, *UFMG*, Belo Horizonte, Brazil  
Desigualdades de Bell, uma introdução a não-localidade quântica – Quantum Mechanics Graduate Course
- 2010 **One lecture**, *UFMG*, Belo Horizonte, Brazil  
Desigualdades de Bell, uma introdução a não-localidade quântica – Quantum Mechanics Graduate Course

### Participation in examination board

- 10 Mar 2023 **PhD Thesis defence**, *UNICAMP*, Campinas, Brazil  
Carlos Humberto de Souza Vieira – Exploring the role of entanglement in sets of behaviors from prepare-and-measure scenarios
- 03 Feb 2022 **PhD Thesis defence**, *UNICAMP*, Campinas, Brazil  
Roberto Dobal Baldijão – Quantum Darwinism And Contextuality
- 09 Apr 2021 **MSc Thesis defence**, *UNICAMP*, Campinas, Brazil  
Lucas da S. Pollyceno – Novos critérios para o princípio da causalidade de informação

### Outreach and dissemination

During my JSPS postdoc in Japan, I have joined the [JSPS Science Dialogue Program](#), a project where I presented my research in an accessible way to Japanese high-school students. I am also interested in popular science events.

- 21 Sep 2018 **JSPS Science Dialogue**, Nagano prefecture Suwa-Seiryō High School, Japan  
What do you mean by random? Randomness, Quantum Mechanics, and Bell Non-locality
- 05 Dec 2017 **JSPS Science Dialogue**, Ibaraki prefecture Takezono High School, Japan  
What do you mean by random? Randomness, Quantum Mechanics, and Bell Non-locality
- 07 Jan 2013 **Science Slam Berlin**, SO36, Berlin, Germany  
Does God play dice? Genuine randomness in nature

### Reviewing activities

**Referee for the journals:** PRL, PRX, PRX Quantum, PRA, PRRsearch, Quantum, NJP, J. Phys. A, npj Quantum Information, Optica.

I have also refereed submissions for conferences such as QIP, TQC, and AQIS.

### Scientific Conferences

#### Invited Talk

- Mar 2020 **The Order of Things (TOOT)**, Obergurgl, Austria  
Conference cancelled due to COVID19 pandemic

- Jan 2020 **Quantum Information Structure of Spacetime (QISS) 2020**, Hong Kong  
Talk: Reversing unknown quantum transformations: A universal quantum circuit for inverting general unitary operations
- Nov 2018 **Quantum Maiwar**, Brisbane, Australia  
Talk: Semi-device-independent certification of indefinite causal order
- Oct 2017 **FQXi Workshop: Quantum Incompatibility**, Laach Lake, Germany  
Talk: Genuine n-wise Measurement Incompatibility and Device Independent Certificates of Incompatibility  
**Contributed Talk**
- Fev 2023 **Quantum Information Processing 2023 (QIP2023)**, Ghent, Belgium  
Talk: Simulating qubit correlations with classical communication (presented by Martin J. Renner)
- Sep 2021 **SFB BeyondC Autumn Workshop 2021**, Innsbruck, Austria  
Talk: Universal protocols for transforming unitary quantum operations
- Jun 2021 **Quantum Physics and Logic 2021 (QPL2021)**, Gdańsk (Online), Poland  
Talk: Success-or-draw: A strategy allowing repeat-until-success in quantum computation
- Jan 2020 **Quantum Information Processing 2020 (QIP2020)**, Shenzhen, China  
Talk: Adaptive circuits exponentially outperforms parallel ones for universal unitary inversion
- Aug 2019 **Asian Quantum Information Science 2019 (AQIS2019)**, Seoul, South Korea  
Talk: Semi-device-independent certification of indefinite causal order
- Jun 2019 **Quantum Information (Benasque)**, Benasque, Spain  
Workshop without formal talks
- Sep 2018 **post AQIS18**, Nagoya, Japan  
Talk: Reversing unknown quantum transformations
- Sep 2018 **Asian Quantum Information Science 2018 (AQIS2018)**, Nagoya, Japan  
Talk: Reversing unknown quantum transformations
- Jul 2018 **Modern Topics in Quantum Information**, Natal, Brazil  
Talk: Reversing unknown quantum transformations
- Jun 2017 **Quantum Information (Benasque)**, Benasque, Spain  
Workshop without formal talks
- May 2017 **36th Quantum Information Technology Symposium (QIT36)**, Kyoto, Japan  
Talk: Super-activation of quantum steering
- Mar 2016 **Quantum Networks (FQXi)**, Barcelona, Spain  
Talk: Entangled States With Local Hidden Variable Model For Sequential Measurements
- Dec 2015 **Quantum Correlations, Contextuality and All That... Again**, Natal, Brazil  
Talk: Algorithmic construction of local hidden variable models for entangled quantum states
- Aug 2015 **V Quantum Information School and Workshop**, Paraty, Brazil  
Talk: Joint measurability, EPR steering, and Bell nonlocality
- Jun 2015 **Quantum Information (Benasque)**, Benasque, Spain  
Workshop without formal talks
- Aug 2014 **Asian Quantum Information Science 2014 (AQIS2014)**, Kyoto, Japan  
Talk: Joint measurability, EPR steering, and Bell nonlocality

- Dec 2013 **Quantum Correlations, Contextuality and All That**, Natal, Brazil  
Talk: Measurement Incompatibility in Quantum Mechanics
- Aug 2013 **IV Quantum Information School and Workshop**, Paraty, Brazil  
Talk: Genuine Hidden Quantum Nonlocality
- Jun 2013 **Quantum Information (Benasque)**, Benasque, Spain  
Workshop without formal talks
- Jun 2012 **Workshop on Quantum Correlations**, Natal, Brazil  
Talk: All noncontextuality inequalities for the n-cycle scenario
- Dez 2011 **III Encontro temático do INCT-IQ**, Natal, Brazil  
Talk: From the detection loophole to the transmission loophole
- Aug 2011 **III Quantum Information School and Workshop**, Paraty, Brazil  
Talk: Maximal CHSH violations with low efficiency photodetection and homodyne measurements  
Poster presentation
- Sep 2021 **Time in quantum theory, ETH workshop**, Zurich (online), Switzerland  
Poster: Universal quantum circuits for transforming unitary operations: exponential advantages with causality adaptive strategies and the power of indefinite causality
- Sep 2021 **Vienna Quantum Foundations Conference (VQF-CON 2021)**, Vienna, Austria  
Poster: Universal quantum circuits for transforming unitary operations: exponential advantages with causality adaptive strategies and the power of indefinite causality
- Jun 2020 **Theory of Quantum Computation, Communication and Cryptography 2020 (TQC2020)**, Riga (online), Latvia  
Poster: Adaptive circuits exponentially outperforms parallel ones for universal unitary inversion
- Dec 2019 **Topical Conference on Quantum Communication and Security 2019 (TCQC2019)**, Kyoto, Japan  
Poster: Reversing unknown quantum transformations: A universal quantum circuit for inverting general unitary operations
- Aug 2019 **Asian Quantum Information Science 2019 (AQIS2019)**, Seoul, South Korea  
Poster: Distributed sampling, quantum communication witnesses, and measurement incompatibility
- Apr 2018 **International Conference on challenges in Quantum Information Science (CQIS18)**, Tokyo, Japan  
Poster: The Cost of Implementing Non-Completely Positive Linear Maps
- Jan 2014 **Quantum Information Processing 2014 (QIP2014)**, Barcelona, Spain  
Poster: Genuine Hidden Quantum Nonlocality
- Aug 2013 **IV Quantum Information School and Workshop**, Paraty, Brazil  
Poster: Realistic loophole-free Bell test with atom-photon entanglement
- Jan 2013 **Quantum Information Processing 2013 (QIP2013)**, Beijing, China  
Poster: Towards a loophole-free Bell test with continuous variables systems
- May 2012 **TQC2012**, Tokyo, Japan  
Poster: Perfect homodyne measurements implies CHSH violation with arbitrarily low photodetection efficiency

- Nov 2010 **XIX Semana da Iniciação Científica**, UFMG, Belo Horizonte, Brazil  
Poster: Jogo do Quadrado Mágico; Pseudotelepatia Quântica
- Nov 2010 **V Simpósio Nacional / Jornadas de Iniciação Científica**, IMPA, RJ, Brazil  
Poster: Não-localidade como recurso para comunicação
- Oct 2010 **WECIQ2010**, Petrópolis, Brazil  
Poster: Jogo do Quadrado Mágico; Pseudotelepatia Quântica
- Oct 2009 **XVIII Semana da Iniciação Científica**, UFMG, Belo Horizonte, Brazil  
Poster: Algoritmo de Grover – Selected to the top 8%
- Oct 2008 **XVII Semana da Iniciação Científica**, UFMG, Belo Horizonte, Brazil  
Poster: Números Inteiros e Criptografia RSA

### Participation

- Sep 2015 **Gisin's 60th birthday workshop**, Riederalp, Switzerland
- Jul 2012 **62nd Lindau Nobel Laureate Meeting dedicated to Physics**, Lindau, Germany
- Jul 2011 **28o Colóquio Brasileiro de Matemática**, IMPA, Rio de Janeiro, Brazil
- Aug 2010 **XIV Escola Brasileira de Probabilidade**, Búzios, Brazil
- Jul 2010 **Clay Mathematics Institute 2010 Summer School**, *Probability and Statistical Physics in Two and more Dimensions*, Búzios, Brazil

### Academic visit seminars

- 10 Dec 2021 **Laboratoire Kastler Brossel, Sorbonne Université, CNRS**, Paris, France  
Talk: Parallel, sequential, and non-causal strategies for transforming unitary operations and discriminating quantum channel via a higher-order approach.  
Host: Nancy Paul
- 10 Dec 2021 **University of Gdańsk**, Gdańsk, Poland  
Talk: Transforming unitary operations via quantum circuits: Universal unitary inversion, transposition, and complex conjugation  
Host: Michał Studziński
- 18 Mar 2021 **Quantin research group**, Warsaw (online), Poland  
Talk: Universal protocols for transforming unitary quantum operations  
Host: Michał Oszmaniec
- 05 Feb 2021 **Technical University of Denmark**, Copenhagen (online), Denmark  
Talk: Reversing unknown quantum transformations: A universal protocol for inverting general unitary operations  
Host: Jonatan Bohr Brask
- 10 Jul 2019 **Universitat Autònoma de Barcelona**, Barcelona, Spain  
Talk: Reversing unknown quantum transformations: A universal protocol for inverting general unitary operations  
Host: Andreas Winter
- 14 Feb 2019 **ICFO**, Barcelona, Spain  
Talk: Reversing unknown quantum transformations: A universal protocol for inverting general unitary operations  
Host: Antonio Ácin

- 12 Feb 2019 **GAP**, Geneva, Switzerland  
Talk: Reversing unknown quantum transformations: A universal protocol for inverting general unitary operations  
Host: Nicolas Brunner
- 24 Jan 2019 **IQOQI Vienna**, Vienna, Austria  
Talk: Reversing unknown quantum transformations: A universal protocol for inverting general unitary operations  
Host: Marcus Huber
- 16 Dec 2016 **The University of Tokyo**, Tokyo, Japan  
Talk: Super-Activation of Quantum Steering  
Host: Mio Murao
- 18 Nov 2016 **UFMG**, Belo Horizonte, Brazil  
Talk: Super-Activation of Quantum Steering  
Host: Marcelo Terra Cunha
- 18 Nov 2015 **University of Siegen**, Siegen, Germany  
Talk: Inequivalence of Entanglement, Steering, and Bell Nonlocality For General Measurements  
Host: Otfried Gühne
- 18 Aug 2015 **UFMG**, Belo Horizonte, Brazil  
Talk: Inequivalence of Entanglement, Steering, and Bell Nonlocality For General Measurements  
Host: Marcelo Terra Cunha
- 31 Jul 2015 **UFMG**, BH, Brazil  
Talk: Joint Measurability, EPR Steering, and Bell Nonlocality  
Host: Marcelo Terra Cunha
- 15 Jun 2015 **Waseda University**, Tokyo, Japan  
Talk: Joint Measurability, EPR Steering, and Bell Nonlocality  
Host: Kazuya Yuasa
- 26 May 2015 **PI**, Waterloo, Canada  
Talk: Joint Measurability, EPR Steering, and Bell Nonlocality  
Host: Matthew Pusey
- 09 Oct 2014 **ICFO**, Barcelona, Spain  
Talk: Joint Measurability, EPR Steering, and Bell Nonlocality  
Host: Antonio Ácin
- 05 Sep 2014 **KCIK**, Gdansk, Poland  
Talk: Joint Measurability, EPR Steering, and Bell Nonlocality  
Host: Michał Horodecki
- 25 Aug 2014 **The University of Tokyo**, Tokyo, Japan  
Talk: Joint Measurability, EPR Steering, and Bell Nonlocality  
Host: Mio Murao
- 03 Dec 2013 **UFMG**, Belo Horizonte, Brazil  
Genuine Hidden Quantum Nonlocality  
Host: Marcelo Terra Cunha



- 19 Jul 2012 **KCIK**, Gdansk, Poland  
Talk: Characterization of the n-Cycle Noncontextual Polytope  
Host: Michał Horodecki
- 11 Jul 2012 **ICFO**, Barcelona, Spain  
Talk: Characterization of the n-Cycle Noncontextual Polytope  
Host: Antonio Ácin

## List of publications

### Peer-reviewed publications

- [1] M.J. Renner, A. Tavakoli, and M.T. Quintino. "The classical cost of transmitting a qubit". *Phys. Rev. Lett.* **130** 120801 (2023). eprint: [2207.02244](#).
- [2] H.-Y. Ku, J. Kadlec, A. Cernoch, M.T. Quintino, W. Zhou, K. Lemr, N. Lambert, A. Miranowicz, S.-L. Chen, F. Nori, and Y.-N. Chen. "Detecting quantum non-breaking channels without entanglement". *PRX Quantum* **3** 020338 (2022).
- [3] J. Bavaresco, M. Murao, and M.T. Quintino. "Unitary channel discrimination beyond group structures: Advantages of sequential and indefinite-causal-order strategies". *J. Math. Phys.* **63** 042203 (2022).
- [4] M.T. Quintino and Daniel Ebler. "Deterministic transformations between unitary operations: Exponential advantage with adaptive quantum circuits and the power of indefinite causality". *Quantum* **6** 679 (2022).
- [5] J. Bavaresco, M. Murao, and M.T. Quintino. "Strict Hierarchy between Parallel, Sequential, and Indefinite-Causal-Order Strategies for Channel Discrimination". *Phys. Rev. Lett.* **127** 200504 (2021).
- [6] A. Sohbi, D. Markham, J. Kim, and M.T. Quintino. "Certifying dimension of quantum systems by sequential projective measurements". *Quantum* **5** 472 (2021).
- [7] M. Nery, M.T. Quintino, P. A. Guérin, T. O. Maciel, and R. O. Vianna. "Simple and maximally robust processes with no classical common-cause or direct-cause explanation". *Quantum* **5** 538 (2021).
- [8] Q. Dong, M.T. Quintino, A. Soeda, and M. Murao. "Success-or-Draw: A Strategy Allowing Repeat-Until-Success in Quantum Computation". *Phys. Rev. Lett.* **126** 150504 (2021).
- [9] M. Araújo, F. Hirsch, and M.T. Quintino. "Bell nonlocality with a single shot". *Quantum* **4** 353 (2020).
- [10] W. Yokojima, M.T. Quintino, A. Soeda, and M. Murao. "Consequences of preserving reversibility in quantum superchannels". *Quantum* **5** 441 (2021).
- [11] M.T. Quintino, Q. Dong, A. Shimbo, A. Soeda, and M. Murao. "Probabilistic exact universal quantum circuits for transforming unitary operations". *Phys. Rev. A* **100** 062339 (2019).
- [12] M.T. Quintino, Q. Dong, A. Shimbo, A. Soeda, and M. Murao. "Reversing Unknown Quantum Transformations: Universal Quantum Circuit for Inverting General Unitary Operations". *Phys. Rev. Lett.* **123** 210502 (2019).
- [13] M.T. Quintino, C. Budroni, E. Woodhead, A. Cabello, and D. Cavalcanti. "Device-Independent Tests of Structures of Measurement Incompatibility". *Phys. Rev. Lett.* **123** 180401 (2019).

- [14] L. Guerini, M.T. Quintino, and L. Aolita. “Distributed sampling, quantum communication witnesses, and measurement incompatibility”. *Phys. Rev. A* **100** 042308 (2019).
- [15] J. Bavaresco, M. Araújo, Č. Brukner, and M.T. Quintino. “Semi-device-independent certification of indefinite causal order”. *Quantum* **3** 176 (2019).
- [16] Q. Dong, M.T. Quintino, A. Soeda, and M. Murao. “Implementing positive maps with multiple copies of an input state”. *Phys. Rev. A* **99** 052352 (2019).
- [17] F. Hirsch, M.T. Quintino, and N. Brunner. “Quantum measurement incompatibility does not imply Bell nonlocality”. *Phys. Rev. A* **97** 012129 (2018).
- [18] J. Bavaresco, M.T. Quintino, L. Guerini, T. O. Maciel, D. Cavalcanti, and M.T. Cunha. “Most incompatible measurements for robust steering tests”. *Phys. Rev. A* **96** 022110 (2017).
- [19] M.T. Quintino, M. Huber, and N. Brunner. “Super-Activation of Quantum Steering”. *Phys. Rev. A* **94** 062123 (2016).
- [20] F. Hirsch, M.T. Quintino, T. Vértesi, M. Navascués, and N. Brunner. “Better local hidden variable models for two-qubit Werner states and an upper bound on the Grothendieck constant  $K_G(3)$ ”. *Quantum* **1** 3 (2017).
- [21] R. Ramanathan, M.T. Quintino, A.B. Sainz, G. Murta, and R. Augusiak. “Tightness of correlation inequalities with no quantum violation”. *Phys. Rev. A* **95** 012139 (2017).
- [22] F. Hirsch, M.T. Quintino, J. Bowles, T. Vértesi, and N. Brunner. “Entanglement without hidden nonlocality”. *New J. Phys.* **18** 113019 (2016).
- [23] F. Hirsch, M.T. Quintino, T. Vértesi, M.F. Pusey, and N. Brunner. “Algorithmic Construction of Local Hidden Variable Models for Entangled Quantum States”. *Phys. Rev. Lett.* **117** 190402 (2016).
- [24] M.T. Quintino, J. Bowles, F. Hirsch, and N. Brunner. “Incompatible quantum measurements admitting a local hidden variable model”. *Phys. Rev. A* **93** 052115 (2016).
- [25] J. Bowles, F. Hirsch, M.T. Quintino, and N. Brunner. “Sufficient criterion for guaranteeing that a two-qubit state is unsteerable”. *Phys. Rev. A* **93** 022121 (2016).
- [26] M.T. Quintino, T. Vértesi, D. Cavalcanti, R. Augusiak, M. Demianowicz, A. Acín, and N. Brunner. “Inequivalence of entanglement, steering, and Bell nonlocality for general measurements”. *Phys. Rev. A* **92** 032107 (2015).
- [27] J. Bowles, F. Hirsch, M.T. Quintino, and N. Brunner. “Local Hidden Variable Models for Entangled Quantum States Using Finite Shared Randomness”. *Phys. Rev. Lett.* **114** 120401 (2015).
- [28] M.T. Quintino, T. Vértesi, and N. Brunner. “Joint Measurability, Einstein-Podolsky-Rosen Steering, and Bell Nonlocality”. *Phys. Rev. Lett.* **113** 160402 (2014).
- [29] J. Bowles, T. Vértesi, M.T. Quintino, and N. Brunner. “One-way Einstein-Podolsky-Rosen Steering”. *Phys. Rev. Lett.* **112** 200402 (2014).
- [30] J. Bowles, M.T. Quintino, and N. Brunner. “Certifying the Dimension of Classical and Quantum Systems in a Prepare-and-Measure Scenario with Independent Devices”. *Phys. Rev. Lett.* **112** 140407 (2014).
- [31] F. Hirsch, M.T. Quintino, J. Bowles, and N. Brunner. “Genuine Hidden Quantum Nonlocality”. *Phys. Rev. Lett.* **111** 160402 (2013).

- [32] M. Araújo, M.T. Quintino, C. Budroni, M.T. Cunha, and A. Cabello. “All noncontextuality inequalities for the n-cycle scenario”. *Phys. Rev. A* **88** 022118 (2013).
- [33] C. Teo, M. Araújo, M.T. Quintino, J. Minář, D. Cavalcanti, V. Scarani, M. Terra Cunha, and M. França Santos. “Realistic loophole-free Bell test with atom-photon entanglement”. *Nature Communications* **4** 2104 (2013).
- [34] M. Araújo, M.T. Quintino, D. Cavalcanti, M. F. Santos, A. Cabello, and M.T. Cunha. “Tests of Bell inequality with arbitrarily low photodetection efficiency and homodyne measurements”. *Phys. Rev. A* **86** 030101 (2012).
- [35] M.T. Quintino, M. Araújo, D. Cavalcanti, M. F. Santos, and M. T. Cunha. “Maximal violations and efficiency requirements for Bell tests with photodetection and homodyne measurements”. *J. Phys. A* **45** 215308 (2012).

#### Under review

- [36] Teodor Strömberg, Peter Schiinsky, Robert W. Peterson, Marco Túlio Quintino, and Philip Walther. *Demonstration of a quantum SWITCH in a Sagnac configuration*. 2022. eprint: [2211.12540](#) (quant-ph).
- [37] Teodor Strömberg, Peter Schiinsky, Marco Túlio Quintino, Michael Antesberger, Lee Rozema, Iris Agresti, Časlav Brukner, and Philip Walther. *Experimental superposition of time directions*. 2022. eprint: [2211.01283](#).
- [38] M.J. Renner and M.T. Quintino. *The minimal communication cost for simulating entangled qubits*. 2022. eprint: [2207.12457](#).
- [39] D. Ebler, M. Horodecki, M. Marciniak, T. Młynik, M.T. Quintino, and M. Studziński. *Optimal universal quantum circuits for unitary complex conjugation*. May 2022. eprint: [2206.00107](#).
- [40] Q. Dong, M.T. Quintino, A. Soeda, and M. Murao. *The quantum switch is uniquely defined by its action on unitary operations*. 2021. arXiv:[2106.00034](#) [quant-ph].
- [41] 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*. 2021. arXiv:[2111.06358](#) [quant-ph].

#### Thesis and monographs

- [42] M. T. Quintino. *Quantum Entanglement and Measurement Incompatibility as Resources for Nonlocality*. PhD Thesis. 2016. URL: <http://archive-ouverte.unige.ch/unige:88093>.
- [43] M. T. Quintino. *Black Box Correlations: Locality, Noncontextuality, and Convex Polytopes*. MSc Thesis. 2012. URL: <https://repositorio.ufmg.br/handle/1843/BUOS-A46HJC>.
- [44] M. T. Quintino. *Não-localidade como recurso para comunicação*. BSc monograph presented at IMPA. 2010. URL: <https://www.ime.unicamp.br/~tcunha/MonografiaMTulio.pdf>.

#### Others

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