Marco Túlio Quintino

Curriculum Vitae

Associate Professor
Sorbonne Université – LIP6
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Last update: September 8, 2023

Research Interests

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

Employment

Sep 2022 – now
Associate Professor (Maître de Conférences), *Sorbonne Université*, Paris, France
Member of the Quantum Information team at LIP6

Mar 2021 – Aug 2022
Postdoctoral researcher, *IQOQI Vienna*, Vienna, Austria
Postdoctoral Researcher at the group of Prof. Časlav Brukner
Funding: ESQ postdoc fellowship

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

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

Nov 2016 – Nov 2018
Postdoctoral researcher, *The University of Tokyo*, Tokyo, Japan
Postdoctoral Researcher at the group of Prof. Mio Murao
Funding: JSPS postdoc fellowship

Education

Oct 2012 – Sep 2016
PhD in Physics, *Université de Genève*, Geneva, Switzerland
Thesis: Quantum entanglement and measurement incompatibility as resources for nonlocality
Defence date: 09 Sep 2016
Supervisor: Nicolas Brunner
Funding: SNF, Switzerland

Aug 2010 – Sep 2012
MSc in Physics, *UFMG*, Belo Horizonte, Brazil
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
2012 **Master's research stipend**, *CAPES Master's Stipend*, Brazil

Languages

Portuguese (native), English (fluent), French (fluent), Spanish (advanced), Japanese (intermediate)
Matlab (fluent), Mathematica (fluent), Python (elementary), Bash (elementary)

I use GitHub (https://github.com/mtcq) to share relevant computational code I develop.

Publications

Summary: 38 peer-reviewed journal publications, which include 12 Phys. Rev. Lett., 1 Nat Commun, 1 J. Math. Phys., 1 IEEE Trans. Inf. Theory, and 8 Quantum. 7 preprints in peer-reviewing process and more than 7- different co-authors.
Google Scholar counts over 2000 citations, 7 papers with more than 100 citations, an h-index of 23, and an i10-index of 30 (as of September 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 2 PhD students, 3 master students, and I have supervised 3 master internship projects. Also, I have worked in close relation with several students (undergrad, master, and PhD) with different backgrounds at various institutions.

Apr 2023 – Jun 2023 **Master internship supervisor**, *Sorbonne Université*, Paris, France
Shijun Zhang
Project name: Perfect discrimination of unitary operations when k calls are available

Apr 2023 – Jun 2023 **Master internship supervisor**, *Sorbonne Université*, Paris, France
Charbel Eid
Project name: Optimal discrimination between quantum measurements and instruments

Apr 2023 – Jun 2023 **Master internship supervisor**, *Sorbonne Université*, Paris, France
Ethan Obadia
Project name: Quantum channel discrimination with partially entangled states

Jun 2017 – Jan 2022 **PhD co-supervisor**, *UFMG*, Belo Horizonte, Brazil
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 – Dec 2020 **PhD co-supervisor**, *The University of Tokyo*, Tokyo, Japan
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 – Jul 2020 **MSc co-supervisor**, *The University of Tokyo*, Tokyo, Japan
Wataru Yokojima
Article: Consequences of preserving reversibility in quantum superchannels – Quantum (2021)

Jun 2017 – Jan 2018 **MSc co-supervisor**, *The University of Tokyo*, Tokyo, Japan
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 – Aug 2016 **MSc co-supervisor**, *UFMG*, Belo Horizonte, Brazil
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

Teaching

current **Course (10h)**, *Sorbonne Université, Master d'Informatique - Information Quantique (IQ), M1*, Paris, France
MU4INQ05 - Quantum circuits and logic gates

current **Tutorial (36.5h)**, *Sorbonne Université, Lincese d'Informatique, L2*, Paris, France
LU2IN005 - Mathématiques Discrètes

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
Mecanica 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-localdiade quântica – Quantum Mechanics Graduate Course

2010 **One lecture**, *UFMG*, Belo Horizonte, Brazil
Desigualdades de Bell, uma introdução a não-localdiade quântica – Quantum Mechanics Graduate Course

Participation in examination board

12 Jun 2023 **PhD Thesis defence**, *Université libre de Bruxelles*, Brussels, Belgium
Jef Pauwels – Entanglement and quantum communication between partially characterized devices

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-Seiryo 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: Quantum, PRL, PRX, PRX Quantum, PRA, PRResearch, J. Math. Phys, 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

Aug 2023 **Asian Quantum Information Science 2023 (AQIS2023)**, Seoul, South Korea
Talk: Simulating qubit correlations with classical communication

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 unitaryquantum 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] 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).

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

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

[4] 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).

[5] M.T. Quintino and D. Ebler. "Deterministic transformations between unitary operations: Exponential advantage with adaptive quantum circuits and the power of indefinite causality". *Quantum* **6** 679 (2022).

[6] 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).

[7] 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).

[8] A. Sohbi, D. Markham, J. Kim, and M.T. Quintino. "Certifying dimension of quantum systems by sequential projective measurements". *Quantum* **5** 472 (2021).

[9] 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).

[10] 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).

[11] 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).

[12] M. Araújo, F. Hirsch, and M.T. Quintino. "Bell nonlocality with a single shot". *Quantum* **4** 353 (2020).

[13] W. Yokojima, M.T. Quintino, A. Soeda, and M. Murao. "Consequences of preserving reversibility in quantum superchannels". *Quantum* **5** 441 (2021).

[14] 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).

[15] 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).

[16] 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).

[17] L. Guerini, M.T. Quintino, and L. Aolita. "Distributed sampling, quantum communication witnesses, and measurement incompatibility". *Phys. Rev. A* **100** 042308 (2019).

[18] J. Bavaresco, M. Araújo, Č. Brukner, and M.T. Quintino. "Semi-device-independent certification of indefinite causal order". *Quantum* **3** 176 (2019).

[19] 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).

[20] F. Hirsch, M.T. Quintino, and N. Brunner. "Quantum measurement incompatibility does not imply Bell nonlocality". *Phys. Rev. A* **97** 012129 (2018).

[21] 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).

[22] M.T. Quintino, M. Huber, and N. Brunner. "Super-Activation of Quantum Steering". *Phys. Rev. A* **94** 062123 (2016).

[23] 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).

[24] 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).

[25] F. Hirsch, M.T. Quintino, J. Bowles, T. Vértesi, and N. Brunner. "Entanglement without hidden nonlocality". *New J. Phys.* **18** 113019 (2016).

[26] 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).

[27] 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).

[28] 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).

[29] 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).

[30] 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).

[31] M.T. Quintino, T. Vértesi, and N. Brunner. "Joint Measurability, Einstein-Podolsky-Rosen Steering, and Bell Nonlocality". *Phys. Rev. Lett.* **113** 160402 (2014).

[32] J. Bowles, T. Vértesi, M.T. Quintino, and N. Brunner. "One-way Einstein-Podolsky-Rosen Steering". *Phys. Rev. Lett.* **112** 200402 (2014).

[33] 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).

[34] F. Hirsch, M.T. Quintino, J. Bowles, and N. Brunner. "Genuine Hidden Quantum Nonlocality". *Phys. Rev. Lett.* **111** 160402 (2013).

[35] 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).

[36] 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).

[37] 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).

[38] 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

[39] M. Antesberger, M.T. Quintino, P. Walther, and L. Rozema. *Higher-order Process Matrix Tomography of a passively-stable Quantum SWITCH*. May 2023. arXiv:2305.19386 [quant-ph].

[40] S. Milz and M.T. Quintino. *Transformations between arbitrary (quantum) objects and the emergence of indefinite causality*. May 2023. arXiv:2305.01247 [quant-ph].

[41] T. Strömberg, P. Schiansky, M.T. Quintino, M. Antesberger, L. Rozema, I. Agresti, C. Brukner, and P. Walther. *Experimental superposition of time directions*. 2022. eprint: 2211.01283.

[42] M.J. Renner and M.T. Quintino. *The minimal communication cost for simulating entangled qubits*. 2022. eprint: 2207.12457.

[43] 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].

[44] P. Taranto, M.T. Quintino, M. Murao, and S. Milz. *Characterising the Hierarchy of Multi-time Quantum Processes with Classical Memory*. July 2023. arXiv:2307.11905 [quant-ph].

Thesis and monographs

[45] M.T. Quintino. *Quantum Entanglement and Measurement Incompatibility as Resources for Nonlocality*. PhD Thesis. 2016. URL: http://archive-ouverte.unige.ch/unige:88093.

[46] M.T. Quintino. *Black Box Correlations: Locality, Noncontextuality, and Convex Polytopes*. MSc Thesis. 2012. URL: https://repositorio.ufmg.br/handle/1843/BUOS-A46HJC.

[47] 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

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

[49] A. Cabello, M.T. Quintino, and M. Kleinmann. "Logical possibilities for physics after MIP*=RE". *arXiv: 2307.02920 [quant-ph]* (2023).