

# Cécilia Lancien

**Date of birth:** March 3 1990

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## SCIENTIFIC ACTIVITIES

From September 2013 to August 2016 I was a PhD student at the Université Claude Bernard Lyon 1 (France) and the Universitat Autònoma de Barcelona (Spain), under the co-advising of Guillaume Aubrun and Andreas Winter. From September 2016 to September 2018 I was a postdoctoral researcher at the Universidad Complutense de Madrid (Spain), under the direction of David Pérez-García. In October 2018 I became Chargée de Recherche CNRS, first at the Institut de Mathématiques de Toulouse (France), until August 2021, and next at the Institut Fourier Grenoble (France).

My main research interests include: quantum information theory, quantum many-body physics, asymptotic geometric analysis (commutative and non-commutative), random matrices and tensors, free probability.

## Papers and preprints

- A. Bluhm, C. Lancien, I. Nechita. Random measurements are almost maximally incompatible. *Preprint*.
- M. Votto, M. Ljubotina, C. Lancien, J.I. Cirac, P. Zoller, M. Serbyn, L. Piroli, B. Vermersch. Learning mixed quantum states in large-scale experiments. *Preprint*.
- C. Lancien. Optimal quantum (tensor product) expanders from unitary designs. *To appear in Int. Math. Res. Not.*.
- C. Lancien, P. Oliveira Santos, P. Youssef. Central Limit Theorem for tensor products of free variables. *To appear in Can. J. Math.*.
- C. Lancien, P. Oliveira Santos, P. Youssef. Limiting spectral distribution of random self-adjoint quantum channels. *Math. Phys. Anal. Geom.* Vol. 27 No. 3, pp. 15 (2024).
- C. Lancien, P. Youssef. A note on quantum expanders. *Lett. Math. Phys.* Vol. 115 No. 140 (2025).
- K. Fitter, C. Lancien, I. Nechita. Estimating the entanglement of random multipartite quantum states. *Quantum* Vol. 9 No. 1870 (2025).
- N. Cheng, C. Lancien, G. Penington, M. Walter, F. Witteveen. Random tensor networks with nontrivial links. *Ann. Henri Poincaré* Vol. 25 No. 4 pp. 2107–2212 (2024).
- M.A. Jivulescu, C. Lancien, I. Nechita. Multipartite entanglement detection via projective tensor norms. *Ann. Henri Poincaré* Vol. 23 No. 11 pp. 3791–3838 (2022).
- C. Lancien. Characterizing expansion, classically and quantumly. *Quantum Views* Vol. 4 No. 44 (2020).
- C. Lancien, C. Majenz. Weak approximate unitary designs and applications to quantum encryption. *Quantum* Vol. 4 No. 313 (2020).
- C. Lancien, D. Pérez García. Correlation length in random MPS and PEPS. *Ann. Henri Poincaré* Vol. 23 No. 1 pp. 141–222 (2022).
- I. Bardet, C. Lancien, I. Nechita. de Finetti reductions for partially exchangeable probability distributions. *Preprint*.
- C. Lancien, A. Winter. Approximating quantum channels by completely positive maps with small Kraus rank. *Quantum* Vol. 8 No. 1320 (2024).
- M. Christandl, R. Ferrara, C. Lancien. Random private quantum states. *IEEE Trans. Inf. Th.* Vol. 66 No. 7 pp. 4621–4640 (2020).
- M. Huber, L. Lami, C. Lancien, A. Müller-Hermes. High-dimensional entanglement in states with positive partial transposition. *Phys. Rev. Lett.* Vol. 121 No. 200503 (2018).
- C. González-Guillén, C. Lancien, C. Palazuelos, I. Villanueva. Random quantum correlations are generically non-classical. *Ann. Henri Poincaré* Vol. 18 No. 12 pp. 3793–3813 (2017).
- C. Lancien, A. Winter. Flexible constrained de Finetti reductions and applications. *J. Math. Phys.* Vol. 58 No. 092203 (2017).
- C. Lancien, S. Di Martino, M. Huber, M. Piani, G. Adesso, A. Winter. Should entanglement measures be monogamous or faithful? *Phys. Rev. Lett.* Vol. 117 No. 060501 (2016).
- C. Lancien, A. Winter. Parallel repetition and concentration for (sub-)no-signalling games via a flexible constrained de Finetti reduction. *Chic. J. Theoret. Comput. Sci.* Vol. 2016 No. 11 (2016).

- C. Lancien.  $k$ -extendibility of high-dimensional bipartite quantum states. *Random Matrices Theory Appl.* Vol. 5 No. 1650011 (2016).
- C. Lancien, O. Gühne, R. Sengupta, M. Huber. Relaxations of separability in multipartite systems: semidefinite programs, witnesses and volumes. *J. Phys. A: Math. Theor.* Vol. 48 No. 505302 (2015).
- G. Aubrun, C. Lancien. Locally restricted measurements on a multipartite quantum system: data hiding is generic. *Quant. Inf. Comput.* Vol. 15 No. 5–6 pp. 512–540 (2014).
- G. Aubrun, C. Lancien. Zonoids and sparsification of quantum measurements. *Positivity* Vol. 20 No. 1 pp. 1–23 (2016).
- C. Lancien, A. Winter. Distinguishing multi-partite states by local measurements. *Commun. Math. Phys.* Vol. 323 No. 2 pp. 555–573 (2013).

## Talks

### 2025

- Annual day of the RT MP (Toulouse, France) – DECEMBER 2025.
- IYQ 2025 days of the US (Sevilla, Spain) – NOVEMBER 2025.
- Probability seminar of the IF (Grenoble, France) – NOVEMBER 2025.
- Functional analysis seminar of the LMB (Besançon, France) – OCTOBER 2025.
- 16<sup>th</sup> QMath, Random systems session (Munich, Germany) – SEPTEMBER 2025.
- 4<sup>th</sup> congress of the SMF, Mathematical physics session (Dijon, France) – JUNE 2025.
- Functional analysis seminar of the IMJ-PRG (Paris, France) – MAY 2025.
- Quantum mathematics intensive period (Milano, Italy) – MAY 2025.
- Mathematics-Physics interface seminar (Grenoble, France) – FEBRUARY 2025.
- Monthly seminar of the GdR MEGA (Toulouse, France) – FEBRUARY 2025.
- IOP seminar of the IMB (Bordeaux, France) – FEBRUARY 2025.

### 2024

- 21<sup>st</sup> ICMP, Many-body quantum systems and condensed matter physics session (Strasbourg, France) – JULY 2024.
- Operator algebras, random matrices, and quantum expander graphs masterclass (Copenhagen, Denmark) – JUNE 2024.
- Quantum theory group meeting of the UniGe (Geneva, Switzerland) – JUNE 2024.
- Mathematical aspects of the physics with non-self-adjoint operators conference (Marseille, France) – JUNE 2024.
- Math-Quantum working group of the IF and the LIG (Grenoble, France) – MARCH 2024.
- Quantum information workshop (Les Diablerets, Switzerland) – MARCH 2024.

### 2023

- QFort-QuantAlps workshop (Grenoble, France) – OCTOBER 2023.
- Quantum cloning workshop (Toulouse, France) – JULY 2023.
- Monthly seminar of the GdR MEGA (Paris, France) – JUNE 2023.
- 5<sup>th</sup> Entangle This workshop (Benasque, Spain) – JUNE 2023.
- QuSoft quantum computing seminar (Amsterdam, Netherlands) – MAY 2023.
- QIQC seminar of the SITP (Stanford, United States) – MAY 2023.
- Quantum information theory research term (Madrid, Spain) – MARCH 2023.
- Pi day mathematics-physics interface (Paris, France) – MARCH 2023.
- Probability seminar of the ICJ and UMPA (Lyon, France) – MARCH 2023.

### 2022

- Quantum information workshop (Saarbrücken, Germany) – DECEMBER 2022.
- Random quantum circuits reading group (Lyon, France) – NOVEMBER 2022.
- Dialogue day with INSMI (Grenoble, France) – NOVEMBER 2022.
- Tensor journal club (Lyon, France) – NOVEMBER 2022.
- Launching day of the QInfo INRIA Team (Lyon, France) – OCTOBER 2022.
- Autumn school of the GdR MEGA (Aussois, France) – OCTOBER 2022.
- Start-of-term day of the IF (Grenoble, France) – SEPTEMBER 2022.
- AMS-EMS-SMF joint meeting, Mathematical challenges in complex quantum systems session (Grenoble, France) – JULY 2022.
- Mathematics-Physics interface seminar (Grenoble, France) – JUNE 2022.

- QCM day (Grenoble, France) – MAY 2022.
- Theory seminar of the LPMMC (Grenoble, France) – MAY 2022.
- Monthly seminar of the GdR DynQua (Paris, France) – MAY 2022.
- Stochastic seminar of the NYUAD and SUAD (Abu Dhabi, United Arab Emirates) – APRIL 2022.
- Students' seminar of the ENS UMPA (Lyon, France) – FEBRUARY 2022.
- Students' seminar of the magistère IM<sup>2</sup>AG (Grenoble, France) – FEBRUARY 2022.
- 2<sup>nd</sup> meeting of the ANR project NonStops (Cergy, France) – JANUARY 2022.
- Quantum information working group of the LaBRI (Bordeaux, France) – JANUARY 2022.

## 2021

- QuEng quantum computing seminar (Grenoble, France) – OCTOBER 2021.
- Geometry and optimization in quantum information workshop (Oberwolfach, Germany) – OCTOBER 2021.
- Probability seminar of the IF (Grenoble, France) – OCTOBER 2021.
- Theory day of the CPTGA (Annecy, France) – SEPTEMBER 2021.
- Mathematical physics seminar of the IF (Grenoble, France) – SEPTEMBER 2021.
- 16<sup>th</sup> TQC (Riga, Latvia) – JULY 2021.
- 3<sup>rd</sup> meeting of the Sakura project random matrices and tensors for QI and ML (France–Japan) – JULY 2021.
- Mathematical physics seminar of the Uniba (Bari, Italy) – JUNE 2021.
- Kick-off meeting of the ANR project QTraj (Toulouse, France) – JUNE 2021.
- 1<sup>st</sup> meeting of the Procope project entanglement preservation in QIT (France–Germany) – JUNE 2021.
- Monthly seminar of the GdR MEGA (Paris, France) – JUNE 2021.
- Spring school in theoretical computer science EPIT (Marseille, France) – MAY 2021.
- Kick-off meeting of the ANR project ESQuisses (Toulouse, France) – APRIL 2021.
- Mathematical quantum physics and algebra seminar of the ITP (Innsbruck, Austria) – MARCH 2021.
- Probability and statistics seminar of the I2M (Marseille, France) – MARCH 2021.
- Quantum information journal club of the IMT and LPT (Toulouse, France) – MARCH 2021.

## 2020

- Quantum information journal club of the IMT and LPT (Toulouse, France) – NOVEMBER 2020.
- Quantum algebraic security group meeting of the uOttawa (Ottawa, Canada) – NOVEMBER 2020.
- Mathematical physics seminar of the IMT and LPT (Toulouse, France) – JUNE 2020.
- Quantum information seminar of the UCLQ (London, United Kingdom) – JUNE 2020.
- Connes-Kirchberg-Tsireslon working group of the UMPA, LIP and ICJ (Lyon, France) – APRIL 2020.

## 2019

- Quantum information meeting (Lyon, France) – DECEMBER 2019.
- Modelling working group of the LPSM (Paris, France) – NOVEMBER 2019.
- LPT-IMT day (Toulouse, France) – SEPTEMBER 2019.
- 4<sup>th</sup> Entangle This workshop (Madrid, Spain) – SEPTEMBER 2019.
- 14<sup>th</sup> QMath, Quantum information session (Aarhus, Denmark) – AUGUST 2019.
- Random tensors working group of the IMT (Toulouse, France) – JULY 2019.
- Geometric and functional inequalities in convexity and probability conference (Firenze, Italy) – MAY 2019.
- Monthly seminar of the GdR MEGA (Paris, France) – MARCH 2019.
- Quantum information seminar of the mathQI (Madrid, Spain) – FEBRUARY 2019.
- Random tensors working group of the IMT (Toulouse, France) – JANUARY 2019.

## 2018

- Functional analysis seminar of the IMT (Toulouse, France) – DECEMBER 2018.
- Projected entangled pair states and topological matter workshop (Toulouse, France) – DECEMBER 2018.
- Random quantum circuits workshop of the ANR project StoQ (Toulouse, France) – NOVEMBER 2018.
- Theoretical physics seminar of the LPTM (Cergy, France) – OCTOBER 2018.
- 19<sup>th</sup> ICMP, Quantum information session (Montréal, Canada) – JULY 2018.
- Interactions between operator space theory and quantum probability with applications to quantum information workshop (Oberwolfach, Germany) – MAY 2018.

## 2017

- Quantum information seminar of the mathQI (Madrid, Spain) – DECEMBER 2017.
- Quantum innovators in computer science and mathematics workshop (Waterloo, Canada) – SEPTEMBER 2017.

- Functional analysis seminar of the IMJ-PRG (Paris, France) – APRIL 2017.
- Quantum information seminar of the QCI (Bristol, United-Kingdom) – MARCH 2017.
- Quantum information seminar of the mathQI (Madrid, Spain) – MARCH 2017.
- Theoretical physics seminar of the SITP (Stanford, United States) – JANUARY 2017.

## 2016

- Analysis seminar of the LPP (Lille, France) – DECEMBER 2016.
- Quantum information seminar of the CQIF (Cambridge, United-Kingdom) – NOVEMBER 2016.
- Annual meeting of the GdR AFHP (Toulouse, France) – OCTOBER 2016.
- Probability seminar of the IMT (Toulouse, France) – OCTOBER 2016.
- 11<sup>th</sup> TQC (Berlin, Germany) – SEPTEMBER 2016.
- Quantum information theory and mathematical physics conference (Budapest, Hungary) – SEPTEMBER 2016.
- QMA(2) and the complexity of entanglement workshop (College Park, United States) – AUGUST 2016.
- Summer school of the ANR project StoQ (Autrans, France) – JULY 2016.
- Doctoral students' seminar of the ICJ and the UMPA (Lyon, France) – MAY 2016.
- Information and complexity seminar of the ICJ and the LIP (Lyon, France) – MAY 2016.
- Quantum information seminar of the mathQI (Madrid, Spain) – APRIL 2016.
- Convexity workshop of the ANR project StoQ (Villard-Reculac, France) – MARCH 2016.
- Quantum information seminar of the GIQ (Barcelona, Spain) – FEBRUARY 2016.
- Linear matrix inequalities, semidefinite programming and quantum information theory workshop (Toulouse, France) – JANUARY 2016.

## 2015

- ICMA, Mathematical methods in quantum information theory workshop (Timisoara, Romania) – NOVEMBER 2015.
- 3<sup>rd</sup> meeting of the ANR project OSQPI (Paris, France) – OCTOBER 2015.
- 9<sup>th</sup> Young researchers in mathematics workshop (Madrid, Spain) – SEPTEMBER 2015.
- Quantum thermodynamics and information workshop (Toulouse, France) – SEPTEMBER 2015.
- BMC & BAMC joint meeting, Quantum information theory workshop (Cambridge, United Kingdom) – MARCH 2015.

## 2014

- Operator spaces and quantum probability conference (Besançon, France) – DECEMBER 2014.
- Quantum information seminar of the M5 (Munich, Germany) – NOVEMBER 2014.
- 1<sup>st</sup> meeting of the ANR project StoQ (Lyon, France) – NOVEMBER 2014.
- 10<sup>th</sup> MAS days, Random matrix theory session (Toulouse, France) – AUGUST 2014.

## 2013

- NIC@QS conference (Erice, Italy) – OCTOBER 2013.
- Operator algebras and quantum information intensive month (Madrid, Spain) – JUNE 2013.

## 2012

- 1<sup>st</sup> meeting of the ANR project OSQPI (Lyon, France) – OCTOBER 2012.
- 12<sup>th</sup> AQIS (Suzhou, China) – AUGUST 2012.

## Posters

- 25<sup>th</sup> QIP (Pasadena, United States) – MARCH 2022.
- 21<sup>st</sup> QIP (Delft, Netherlands) – JANUARY 2018.
- Quantum information theory conference (Paris, France) – DECEMBER 2017.
- 20<sup>th</sup> QIP (Seattle, United States) – JANUARY 2017.
- 11<sup>th</sup> TQC (Berlin, Germany) – SEPTEMBER 2016.
- 4<sup>th</sup> BIID (Barcelona, Spain) – JULY 2016.
- 3<sup>rd</sup> Quantum information workshop (Seefeld, Austria) – JUNE 2016.
- 19<sup>th</sup> QIP (Banff, Canada) – JANUARY 2016.
- QMath masterclass (Copenhagen, Denmark) – MAY 2015.
- 18<sup>th</sup> QIP (Sydney, Australia) – JANUARY 2015.
- 2<sup>nd</sup> Quantum information workshop (Seefeld, Austria) – JUNE 2014.
- 17<sup>th</sup> QIP (Barcelona, Spain) – FEBRUARY 2014.

## META-SCIENTIFIC ACTIVITIES

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### Grants and projects

- Member of two collaborative research projects (4-year grants delivered by the French ANR to develop an ambitious research theme) on “Stochastic quantum evolutions” (11 people, 352000€, JANUARY 2021 – DECEMBER 2024) and “Random tensors in high dimension and applications” (13 people, 406000€, JANUARY 2026 – DECEMBER 2029).
- Member of four young researcher projects (4-year grants delivered by the French ANR to explore new research directions) on “Space of traffics and asymptotics of random spectra” (10 people, 181000€, JANUARY 2021 – DECEMBER 2024), “Quantum trajectories” (9 people, 196000€, JANUARY 2021 – DECEMBER 2024), “Practical quantum position verification” (9 people, 320000€, JANUARY 2025 – DECEMBER 2028) and “Random tensors, free probability, and quantum entanglement” (5 people, 240000€, JANUARY 2026 – DECEMBER 2029).
- Holder of an Investissement d’avenir (2-year grant delivered by the French ANR through the LabEx CIMI to develop an interdisciplinary research project) on “Random tensors and related topics” (4 people, 17500€, OCTOBER 2020 – DECEMBER 2022).
- Member of a Sakura partnership (2-year grant delivered jointly by France and Japan to fund research travels between both countries) on “Random matrices and tensors for quantum information and machine learning” (12 people, 12000€/year, FEBRUARY 2020 – DECEMBER 2021).
- Holder of a Projet exploratoire de premier soutien (individual 1-year grant delivered by the French CNRS to young researchers to help them develop their research) on “Random tensors and quantum information theory” (3500€, FEBRUARY 2019 – DECEMBER 2019).
- Recipient of two individual 4-year bonuses by the French CNRS (3500€/year, NOVEMBER 2018 – NOVEMBER 2022 and NOVEMBER 2023 – NOVEMBER 2027).

### Research administration

- Scientific advisor of the doctoral COFUND program QUANG2 (JANUARY 2026 – DECEMBER 2030).
- Elected member of section 01 of the CoNRS (SEPTEMBER 2025 – AUGUST 2029).
- Elected member of commission C18 of the IUPAP (JANUARY 2025 – DECEMBER 2028).
- Board member of the Institut Fourier (OCTOBER 2024 – PRESENT).
- Steering committee member of the research federation and the LabEx “QuantAlps” (interdisciplinary network involving 200 researchers from 18 labs around Grenoble), in charge of the research axis “Quantum information & software” (SEPTEMBER 2022 – PRESENT).

### Editorial and reviewing activities

- Editorial committee member of the SMF *Cours Spécialisés* (DECEMBER 2022 – PRESENT).
- Program committee co-chair for the conference BIID 2023. Program committee member for the conferences Q-Turn 2018 and 2020, QIP 2019 and 2022, TQC 2020 and 2023, QML@ECMLPKDD 2022.
- Reviewing for the journals *J. Funct. Anal.*, *Canad. J. Math.*, *Int. Math. Res. Not.*, *Ann. Inst. H. Poincaré Probab. Statist.*, *Random Matrices: Theory Appl.*, *Commun. Math. Phys.*, *J. Math. Phys.*, *Ann. Henri Poincaré*, *Quant. Inf. Comput.*, *J. Phys. Commun.*, *Quantum*, *J. Phys. A*, *PRA*, *Compositionality* and *IEEE Trans. Inf. Th.*
- Reviewing for the conferences QIP, TQC, FOCS, ISIT, BIID.
- Reviewing for the MathSciNet reviews.

### Evaluation

- PhD reviewer for the theses of L. Leepäjäry (University of Turku, Finland), A. Kubicki (Universitat de València, Spain) and A. Ruiz de Alarcón Torregrosa (Universidad Complutense de Madrid, Spain). PhD committee member for the theses of T. Goubault de Brugière (Université Paris-Saclay, France), A. Amr Rey (Universidad Complutense de Madrid, Spain), A. Goswami (Université Grenoble Alpes, France), F. Loulidi (Université Paul Sabatier Toulouse, France), A. Oufkir (ENS Lyon, France), A. Rath (Université Grenoble Alpes, France), P. Oliveira Santos (Université Gustave Eiffel, France), S. Timhadjelt (Université Aix-Marseille, France), C. Langrenez (Université de Lille, France).
- Selection committee member for assistant professor positions at DTU Compute (Copenhagen, Denmark), IF (Grenoble, France), LaBRI (Bordeaux, France), LJF (Grenoble, France) and ICJ (Lyon, France).

- Evaluating expert for the Helmholtz investigator groups.

## Organization of events

- Co-organization of the probability seminar of the Institut Fourier Grenoble (SEPTEMBER 2024 – PRESENT).
- Co-organization of the mathematical physics seminar (OCTOBER 2018 – AUGUST 2021) and the probability seminar (SEPTEMBER 2019 – AUGUST 2021) of the Institut de Mathématiques de Toulouse.
- Co-organization of the GeoSto Days (Grenoble, France) – JUNE 2025.
- Co-organization of the IHP thematic program “Random tensors” (Paris, France) – OCTOBER 2024.
- Organization of the session “Probability and quantum information” of the MAS Days (Poitiers, France) – AUGUST 2024.
- Co-organization of the CIRM conference “Random tensors and related topics” (Marseille, France) – MARCH 2022.
- Co-organization of the BIRS workshop “Probability and quantum information science” (Banff, Canada) – MARCH 2022.
- Co-organization of the fall school of the ANR project QTraj (Toulouse, France) – OCTOBER 2021.
- Co-organization of the ICMAT thematic program “Operator algebras, groups and applications to quantum information” (Madrid, Spain) – SPRING 2019.
- Co-organization of the workshop “Projected entangled pair states and topological matter” (Toulouse, France) – DECEMBER 2018.
- Co-organization of the conference “Probabilistic techniques and quantum information theory” inside the IHP thematic program “Analysis in quantum information theory” (Paris, France) – OCTOBER 2017.
- Organization of the internal workshop “Convexity” of the ANR project StoQ (Villard-Reculas, France) – MARCH 2016.

## TEACHING AND SUPERVISION

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### Teaching and other professional activities

- SEPTEMBER 2025 — DECEMBER 2025 : Lecture and exercise classes of the course “Quantum information & dynamics” in the M2SIAM program for graduate students at the Université Grenoble Alpes, France.
- SEPTEMBER 2024 — DECEMBER 2024 : Lecture and exercise classes of the course “Quantum information & dynamics” in the M2SIAM program for graduate students at the Université Grenoble Alpes, France.
- JANUARY 2024 — APRIL 2024 : Lecture and exercise classes of the course “Probabilistic and geometric techniques in high dimension” in the M2RFM program for graduate students at the Université Grenoble Alpes, France.
- SEPTEMBER 2023 — DECEMBER 2023 : Lecture and exercise classes of the course “Quantum information & dynamics” in the M2SIAM program for graduate students at the Université Grenoble Alpes, France.
- SEPTEMBER 2014 — JULY 2016 : Exercise classes and oral examinations in mathematics for undergraduate students at the Université Claude Bernard Lyon 1, France.
- SEPTEMBER 2013 — JULY 2014 : Lectures and exercise classes in mathematics for undergraduate students at the Institut Universitaire de Technologie GTE Bourg-en-Bresse, France.
- SEPTEMBER 2012 — JULY 2013 : Tutoring and exercise classes in mathematics for undergraduate students at the École Polytechnique Paris-Saclay, France.
- JULY 2011 — AUGUST 2011 : Computer programming on a public health study at the Centre de Recerca en Epidemiologia Ambiental Barcelona, Spain.
- OCTOBER 2009 — APRIL 2010 : Science teaching in kindergarten, primary school and junior high-school for the organization La Main à la Pâte Puy-de-Dôme, France.

### Supervision

- SEPTEMBER 2025 — AUGUST 2028 : PhD of L. Le Nestour (with D. Pérez-García).
- NOVEMBER 2024 — FEBRUARY 2025 : Master 2 research internship of L. Le Nestour.
- OCTOBER 2024 — SEPTEMBER 2027 : PhD of K. McShane (with I. Nechita).
- JANUARY 2024 — JUNE 2024 : Master 2 research internship of K. McShane.
- JANUARY 2024 — JUNE 2024 : Master 2 research internship of D. El A'lami (with A. Bluhm).
- MAY 2021 — SEPTEMBER 2021 : Bachelor research internship of K. Fitter (with I. Nechita).

# POST HIGH-SCHOOL PATH

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## Education

- SEPTEMBER 2013 — AUGUST 2016 : PhD at the Université Claude Bernard Lyon 1, France and the Universitat Autònoma de Barcelona, Spain.

*PhD thesis* : “High dimension and symmetries in quantum information theory”, under the co-advising of G. Aubrun and A. Winter.

- SEPTEMBER 2009 — AUGUST 2013 : École Polytechnique Paris-Saclay, France.

\* 4<sup>th</sup> academic year : Specialized Master Degree in Fundamental Mathematics at the Université Pierre et Marie Curie Paris 6, France.

*Research Project (5 months)* : “Distinguishability of quantum states on high-dimensional multi-partite systems”, Université Claude Bernard Lyon 1, under the supervision of G. Aubrun.

\* 3<sup>rd</sup> academic year : Specialized mathematics and theoretical physics courses.

*Scientific projects* : “Symmetry groups in physics”, under the supervision of D. Bernard and D. Renard — “General relativity”, under the supervision of J-P. Bourguignon and D. Langlois.

*Research Project (3 months)* : “Distinguishing multi-partite quantum states by local measurements”, University of Bristol, under the supervision of A. Winter.

\* 2<sup>nd</sup> academic year : General scientific courses.

*Scientific projects* : “Study of Bose-Einstein condensates”, under the supervision of F. Chevy — “Kleinian groups and appolonien packing”, under the supervision of R. Dujardin.

\* 1<sup>st</sup> academic year : General scientific courses.

- SEPTEMBER 2007 — JULY 2009 : Classes préparatoires aux Grandes Écoles Scientifiques at Victor Hugo High-school Besançon, France (Mathematics-Physics category, Computer science option).

## Diploma

- JUNE 2016 : PhD in Mathematics from the Université Claude Bernard Lyon 1, France and in Physics from the Universitat Autònoma de Barcelona, Spain.

- SEPTEMBER 2013 : Master Degree in Fundamental Mathematics from the Université Pierre et Marie Curie Paris 6, France (average grade: 17,45/20).

- SEPTEMBER 2012 : Engineer diploma and General Master Degree in Science from the École Polytechnique Paris-Saclay, France (average grade: A, rank: 23/414).

- JUNE 2007 : French national General Scientific Baccalauréat passed with highest honors and European English distinction (average grade: 20/20).

## MISCELLANEOUS

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### Honors and awards

- Was selected to participate to the Heidelberg Laureate Forum, putting together 200 international young researchers and winners of Field’s Medal and Turing Award (2013).

- Was awarded a prize for the best research project by the École Polytechnique (2012).

- Took part in the French national “Concours Général” in Mathematics (2007), Physics (2007) and Literature (2006).

### Language skills

**French** : native language — **English, Italian and Spanish** : fluent — **German** : intermediate.

### Computer skills

**Programming / Numerical calculus** : Java, Caml, Sage, GAP, Scilab, Maple, Freefem++, R.