Carlos Vieira, Ms.D.

Ph.D. student – Campinas State University

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Personal Information

I am a theoretical physicist whose research focuses on: **Quantum Information, Quantum Foundations** and **Correlations Scenarios.** I am a PhD student at the University of Campinas, Brazil, supervised by prof. Marcelo Terra Cunha. I am part of the Mathematical Foundations of Quantum Theory Group.

Education

2019 – Present 🔖 **Ph.D. Mathematics, Campinas State University, Brazil.**
Advisor: Marcelo Terra Cunha

2017 – 2019 🔖 **M.Sc. Mathematics, Federal University of Minas Gerais, Brazil.**
Title: Lieb–Robinson bounds and their applications.
Advisor: Raphael Campos Drumond

2013 – 2017 🔖 **B.Sc. Physics, Federal University of Minas Gerais, Brazil.**
Project title: Gleason's theorem.
Advisor: Raphael Campos Drumond

Scholarships

2019 – Present 🔖 **CAPES – Academic Excellence Program.**

2017 – 2019 🔖 **CAPES – Academic Excellence Program.**

2015 – 2017 🔖 **CNPq – Project Student Program.**

Teaching Experience

2022 🔖 **Teacher Assistant – Campinas State University.**
Undergraduate level. Discipline: Basic Mathematics

2021 🔖 **Teacher Assistant – Campinas State University.**
Undergraduate level. Discipline: Linear Algebra

🔖 **Teacher Assistant – Campinas State University.**
Undergraduate level. Discipline: Applied Mathematics Methods I

2020 🔖 **Teacher Assistant – Campinas State University.**
Undergraduate level. Discipline: Basic Mathematics

2018 🔖 **Teacher Assistant – Federal University of Minas Gerais.**
Undergraduate level. Discipline: Calculus I

🔖 **Teacher Assistant – Federal University of Minas Gerais.**
Undergraduate level. Discipline: Calculus I

Research Publication

- **"Interplays between classical and quantum entanglement-assisted communication scenarios"**
  Carlos Vieira, Carlos de Gois, Lucas Pollyceno and Rafael Rabelo. Available at: `https://arxiv.org/abs/2205.05171`

- **"No-broadcasting theorem for non-signaling boxes and assemblages."**
  Carlos Vieira, Adrian Solymos, Cristhiano Duarte and Zoltán Zimboras
  Available at: `https://arxiv.org/abs/2211.14351`

- **"Bell Non-Locality in Many-Body Quantum Systems with Exponential Decay of Correlations."**
  Carlos Vieira, Cristhiano Duarte, Raphael Campos Drumond and Marcelo Terra Cunha
  Brazilian Journal of Physics 51 (6), 1603-1616

Miscellaneous Experience

Academic Visits and Collaborations

2022
- **Short Visit**, International Institute of Physics (IIP) – Collaboration with Cris Duarte – 2 weeks.

- **Short Visit**, Institute for Quantum Optics and Quantum Information (IQOQI) – Collaboration with Armin Tavakoli – 1 weeks.

- **Short Visit**, Wigner Research Centre for Physics – Collaboration with Zoltan Zimboras – 6 weeks.

Referee Work

- **Physical Review Letters**

- **Physical Review A**

2021
- **Quantum – The Open Journal for Quantum Science**

- **Quantum Information Processing**

Events

Participation

2021
- 2nd IFGW Quantum Technologies School, Campinas. (School)

- 18th International Conference on Quantum Physics and Logic, Gdansk. (Conference)

- Vienna Quantum Foundations Conference, Vienna. (Conference)

2020
- Q-Turn: changing paradigms in quantum science, Online (Conference)

Events (continued)

2019   ▌ VII Quantum Information School and Workshop – Paraty. (School and Workshop)

2017   ▌ 31st Brazilian Mathematical Colloquium, Rio de Janeiro. (Conference)

2016   ▌ XXVI Scientific Initiation Week, Federeal University of Minas Gerais , Belo Horizonte. (Workshop)

   ▌ XXV Scientific Initiation Week, Federeal University of Minas Gerais , Belo Horizonte. (Workshop)

Organization

2022   ▌ I Meeting MathFoundQ group. (Meeting – Organizer)

2022 – Present   ▌ MathFoundQ's Nonlocal talks. Link to the list of talks. (Seminars – Organizer)

Complementary Education

2020   ▌ **Quantum Information and Thermodynamics** – *Intensive Course*
Duration: 2 weeks
Online Lectures: São Paulo State University

   ▌ **Fundamental groups and covering spaces** – *Intensive Summer Course*
Duration: 8 weeks
In-person Lectures: Federal University of Minas Gerais

2017   ▌ **Markov Chains** – *Intensive Summer Course*
Duration: 8 weeks
In-person Lectures: Institute for Pure and Applied Mathematics

Languages

Portuguese (Native), English (Fluent).

Computer Skills

Languages: Python, LaTeX, Matlab
Libraries: NumPy, SciPy, CVXPY