

Vincenzo Parisi

Curriculum Vitae

Education

- 2020-Present **PhD in Quantum Technologies**, *University of Camerino*.
- Thesis title: Towards a p -adic Model of Quantum Information Theory (in preparation)
- 2017-2020 **Master's degree in Theoretical Physics**, *University of Naples Federico II*.
- Thesis title: Quantum measurement and quantum instruments
 - Final grade: 110/110 cum laude
- 2014-2017 **Bachelor's degree in Physical Sciences**, *University of Naples Federico II*.
- Thesis title: Meccanica quantistica sullo spazio delle fasi e tomografia quantistica.
 - Final grade: 110/110 cum laude

Research Activity

- 2020-Present **PhD in quantum technologies**.
- Summary of the research project
- The research activity focuses on the study of quantum mechanics and information theory in the Planck regime (i.e., on lengths scales comparable to the Planck length). This leads to the investigation of quantum theory models based over non-Archimedean fields, in particular, on the field of p -adic numbers.
- Covered topics.**
- p -adic Hilbert spaces, p -adic operators, Haar measure over p -adic Lie groups
 - p -adic density operators, p -adic models of qubit, p -adic observables, p -adic harmonic analysis

Publications

List of published/in preparation papers.

- P. Aniello, S. Mancini and V. Parisi "Trace class operators and states in p -adic quantum Mechanics". *J. Math Phys.* 64, 053506 (2023).
- P. Aniello, S. Mancini and V. Parisi, "A p -Adic Model of Quantum States and the p -Adic Qubit", *Entropy* 25, 86 (2023).
- P. Aniello, S. L'Innocente, S. Mancini, V. Parisi, I. Svampa, A. Winter "Invariant measures on p -adic Lie groups: the p -adic quaternion algebra and the Haar integral on the p -adic rotation groups". Submitted to *Letters in Mathematical Physics*.
- P. Aniello, S. Mancini and V. Parisi, "Quantum mechanics on a p -adic Hilbert space: foundations and prospects", in preparation. (To be submitted to *IJGMMP*).
- P. Aniello, S. L'Innocente, S. Mancini, V. Parisi, I. Svampa, A. Winter "Haar measure on p -adic rotation groups as inverse limit of measure spaces". (In preparation).

Meetings, workshops and conferences

- 28/01/2021 **Lecture on quantum simulators**, *Napoli*.

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- 14/04/2021 **On interplay between GenRelativity and QMechanics**, *Lecce*.
- 6-10/09/2021 **VCQ Summer School 2021 "Quantum Sensing and Imaging"**, *Vienna*.
- 23-27/08/2021 **Workshop on Algebraic Graph Theory and Quantum Information**, *Toronto*.
- 10-15/10/2021 **13th Italian Quantum Information Science Conference**, *Napoli*.
- 12-16/09/2022 **14th Italian Quantum Information Science Conference**, *Palermo*.
- 20-24/03/2023 **ICMAT "Quantum Information Theory 2023", Focus Week 3: "Functional Analysis and Quantum Information"**, *Madrid*.
- 18-22/09/2023 **15th Italian Quantum Information Science Conference**, *Trieste*.

----- Schools attended

- 19-20/01/2023 XII series of Majorana Lectures: "Solving quantum many-body problems with classical and quantum computers". (Napoli)
- 27-31/03/2023 ICMAT "Quantum Information Theory 2023", Advanced school: Operator algebras, quantum information and quantum many-body systems". (Madrid)

----- International experience

15/04/2023–15/06/2023:

- Collaboration with the Grup d'Informació Quàntica (GIQ) at the university of Barcellona (UAB).

----- Master

- 9-10/2020 **Computer science and Artificial Intelligence**, *Experis Academy*.
Covered Topics
 - Advanced machine learning, Deep learning, Time series, NLP (natural language processing), Unsupervised deep learning, Reinforcement learning, computer vision.

Data: 05/11/2023

Firma: **Vincenzo Parisi**

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