Roberto Rubboli

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Education

2020 – Present **Ph.D., National University of Singapore**
Advisor: Marco Tomamichel

2017 – 2019 **M.Sc. University of Bologna** in Theoretical Physics.
Grade: 110/110 with honors.
Advisor: Ercolessi Elisa.

2014 – 2017 **B.S. University of Bologna** in Physics.
Grade: 110/110 with honors.

Publications

1. R. Rubboli and M. Tomamichel, "New additivity properties of the relative entropy of entanglement and its generalizations," *Commun. Math. Phys.*, vol. 405, no. 7, p. 162, 2024.
2. R. Rubboli and M. Tomamichel, "Fundamental limits on correlated catalytic state transformations," *Phys. Rev. Lett.*, vol. 129, no. 12, p. 120 506, 2022.
3. R. Rubboli, R. Takagi, and M. Tomamichel, "Mixed-state additivity properties of magic monotones based on quantum relative entropies for single-qubit states and beyond," *Quantum*, vol. 8, p. 1492, 2024.
4. G. Chesi, A. Riccardi, R. Rubboli, L. Maccone, and C. Macchiavello, "Protocol for global multiphase estimation," *Phys. Rev. A*, vol. 108, no. 1, p. 012 613, 2023.

Preprints

1. S. Brahmachari, R. Rubboli, and M. Tomamichel, *A fixed-point algorithm for matrix projections with applications in quantum information*, arXiv:2312.14615, 2023.
2. R. Rubboli, M. M. Goodarzi, and M. Tomamichel, *Quantum conditional entropies*, arXiv:2410.21976, 2024.

Talks

1. *"New additivity properties of the relative entropy of entanglement and its generalizations"*. TQC 2023.
2. *Mixed-state additivity properties of magic monotones based on quantum relative entropies for single-qubit states and beyond*. Quantum resources workshop 2023.
3. *"A unified approach to the computation and additivity of entanglement monotones"* BIID 2022.
4. *Fundamental limits on correlated catalytic state transformations* Quantum resources: from mathematical foundations to operational characterisation.
5. *"Fundamental Limits on Correlated Catalytic State Transformations"* QIP 2022.

Teaching experience

Teaching Assistant: QT5101 Quantum Measurements and Statistics (2023). EE4205 Quantum Communication and Cryptography (2021).

Skills

Languages	English, Italian.
Coding	Python, C++, MATLAB, Mathematica.