Tomasz Partryk Młynik

Born in 1992, living in Gdańsk

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Education

2019 – till now **Ph.D., Physics Science, University of Gdansk**
Thesis title: *Odwzorowania k-dodatnie w Fizyce (eng. k-positive maps in physics).*

2015 – 2019 **M.Sc. Physics Science, University of Gdansk**
Thesis title: *Nierozkładalne odwzorowania k-dodatnie na algebrach macierzowych (eng. k-positive indecomposable maps on matrix algebras).*

2012 – 2015 **B.A. Physics Science, University of Gdansk**
Thesis title: *Badanie krzywej rotacji galaktyki (eng. Study of the galaxy's rotation curve).*

Employment History

2016 - 2018 Assistant - **Translation Agency**

2015 - 2016 Instructor - **Roboty i Spółka**

2013 - 2015 Chef - **North Fish**

2012 - 2013 Customer Consultant - **Gabor** (Fashion store)

Selected Presentations & Invited Talks

Sep 2023 **Tokyo University, Japan** PBT with k copies of the input state.

Yukawa International Seminar 2023 Foundations and Developments of Quantum Information Theory in Kyoto, Japan Transformation of an unknown unitary operation: complex conjugation.

Aug 2023 **23rd Asian Quantum Information Science Conference in Seoul, Korea** Transformation of an unknown unitary operation: complex conjugation.

Nov 2022 **Quantum Fundaments and Quantum Information Theory seminar in Kyoto, Japan** Construction and characterization of 1-parameter (non)decomposable maps.

Dec 2021 **QUANTUMSPEEDUP in Gdansk, Poland** Reversing unknown unitary operation via quantum combs.

Research Publications

Journal Articles

1 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*, vol. 69, no. 8, pp. 5069–5082, Aug. 2023, ISSN: 1557-9654. DOI: 10.1109/tit.2023.3263771.

2 P. Gnaciński and T. Młynik, "Keplerian rotation of our galaxy?" *Publications of the Astronomical Society of the Pacific*, vol. 129, no. 974, p. 044 101, Feb. 2017. DOI: 10.1088/1538-3873/aa5c9b.

Pre-published

1 T. Młynik, H. Osaka, and M. Marciniak, *Characterization of k-positive maps*, 2024. arXiv: 2104.14058 [quant-ph]. URL: https://arxiv.org/abs/2104.14058.

Skills

Languages	Polish (native), English (reading, writing, and speaking B2+).
Coding	Python, MATLAB, Wolfram Mathematica, LaTeX.
Databases	Linear algebra, functional analysis, data analysis.
Misc.	Academic research, teaching, training, consultation, LaTeX typesetting, and publishing.

Miscellaneous Experience

Projects and Grands

2021-2024	**Sonata 16 - PhD student position**, Symmetries and Entanglement in Quantum Circuits.
2022	**NAVA - PI**, Academic Exchange "International scholarship exchange of PhD candidates and academic staff".
2021-2022	**UGrants start 2 - PI**, On a class of k-entanglement witness.

Certification

2021	**English Language Certification**. Awarded by the University of Gdańsk.

References

Available on Request