Mostafa Taheri

ENS-Lyon
69007 Lyon
France
+33 601 65 9413
mostafataheri0@gmail.com

Education

2023Aug -Now **Ph.D. Student**, *Qinfo, Inria*, Lyon, Under suppervision Prof. Omar Fawzi . Thesis Title: Algorithm aspects of decoherence-free subspaces

2019Sept.–2022Mar. **M.s Physics**, *Sharif University of Technology*, under supervision of Prof.Vahid Karimipour and Dr.Laleh Memarzadeh , Thesis Title:An Extension on Alberti-Uhlmann condition.
GPA:17.52/20(3.85/4)

2014Sept–2019Aug **B.Sc**, *Physics Engineering*, University of Tehran.
GPA:15.94/20

Research Interests

- Quantum Information
- Resource Theory
- Quantum Topology
- Quantum Thermodynamics
- Quantum Simulation
- Open Quantum System

Publications

Omar Fawzi, Mizanur Rahaman, and Mostafa Taheri. Capacities of quantum markovian noise for large times. *arXiv preprint arXiv:2408.00116*, 2024.

Halimeh Moharamkhani, Reza Sepehrinia, Mostafa Taheri, Morteza Jalalvand, Martin Brinkmann, and S. Mehdi Vaez Allaei. Ordered/disordered monodisperse dense granular flow down an inclined plane: dry versus wet media in the capillary bridge regime. *Granular Matter*, 23(3):62, 2021.

Conference Presentations

Feb 2025 **Information transmission under Markovian noise**, *28th Annual Quantum Information Processing Conference (QIP2025)*, Raleigh Convention Center. Raleigh, NC, USA

Teaching Experience

spring 2022 **Group Theory**, *[graduate course]*, under supervision of Dr.Laleh Memarzadeh , Department of Physics.
Sharif University of Technology

spring 2022 **Quantum Computaion and Information**, *[graduate course]*, under supervision of Prof. Vahid Karimipour , Department of Physics.
Sharif University of Technology

spring 2021 **Group Theory**, *[graduate course]*, under supervision of Dr.Laleh Memarzadeh , Department of Physics.
Sharif University of Technology

fall 2020 **Mathematical Physics I**, *under supervision of Dr.Laleh Memarzadeh* , Department of Physics.
Sharif University of Technology

fall 2017 **Fundamental Physics I**, *under supervision of Dr.Vaez Allaei* , Department of Physics.
University of Tehran

Research Experience

2022Apr.–2023Apr **Variational Quantum Simulator**, under supervision of **Prof.Vahid Karimipour** and **Prof.Abolfazl Bayat** , Quantum computing is now in the **NISQ** era, far away from universal Quantum computers with fault tolerance. Thus one of the best candidates to achieve quantum supremacy is using hybrid quantum computers. In this method, a quantum computer is controlled by a classical computer so one can use both of their advantages without limits. Variational quantum eigensolver(VQE) is one of the hot topics in hybrid quantum computer methods. We try to develop VQE to find eigenstates of Heisenberg hamiltonian in 2-dimensional with the limited Quantum computer .

2021Sept.–2022Jan **Review on Quantum Topology**, *Course paper*, under supervision of Prof.Alireza Bahrampour , QUANTUM MECH 3.
In this project, different aspects of Quantum Topology were reviewed, such as **Quantum Hall effect**, **Berry phase**, **Topological Quantum computation** also some mathematical tools like **fiber bundle**

2019Dec–2022Mar **An Extension on Alberti-Uhlmann condition**, under supervision of Prof.Vahid Karimipour and Dr.Laleh Memarzadeh .
In 1980 Alberti and Uhlmann found a condition for the existence of a quantum channel that simultaneously transforms an input-pair of states into an output-pair. we try to find situations in which a quantum channel can transform a pair into another if we allow it to act in different discrete or continuous time steps.

2017Oct–2018Apr **Use Machine Learning to study dynamics of granular Materials** , under supervision of Dr.Seyed Mehdi Vaez Allaei and Dr.Alessandro Corbetta, Using Deep learning methods to predict the dynamics of system of granular materials in a rotating sphere.

2015Dec–2019July **Dynamics of Granural Material**, under supervision of Dr.Seyed Mehdi Vaez Allaei.
Working on dynamics of granular material in a rotating sphere and inclined surface with molecular dynamics approach.

Awards and Honors

2021 **Scholarship of Iran National Science Foundation**.

2019-2021 **Scholarship of Sharif University of Technology(tuition waver)** .

2019 **Rank 6**, *National Master of Science Enterance Exam*.

April 14,2018 **GRE SUBJECT PHYSICS: Scaled score: 920 (Percentile: 85)** .

2014-2018 **Scholarship of University of Tehran(tuition waver)**.

2014 **Top 0.5 %** , *in National University Entrance Exam*.

Membership

2015–2017 **Committee Member of Scientific association Physics (SAP)** .

Computer skills

Programming Language

Expert: C++, Python,Julia

Familiar: Java

Software and package

Expert: Qiskit, Keras, MindQuantum, LaTeX

Familiar: Wolfram Mathematica, MATLAB, TensorFlow

Language skills

- Persian Native
- English Fluent

References

- Prof.Omar Fawzi
- Prof.Vahid Karimipour
- Dr.Laleh Memarzadeh