Ali Talashan

+98 9100960944 | ali.talashan.stu@gmail.com

Education

Sharif University of Technology(SUT), Tehran, Iran *Sep. 2021 - present*

B.Sc in Physics Grade: 18.33 (GPA out of 20)

Research Interests

High Energy Physics
Quantum Information & Computation
Stochastic Processes and Statistical Physics
Particle Physics

Selected Courses

Quantum Mechanics III: M. Sc Course, by Dr. Ali Rezakhani *18.5/20, Fall 2023*

Electromagnetics III: M. Sc Course, by Dr. Reza Rezaei *20/20, Spring 2023*

Intro. to Quantum Field Theory: M. Sc Course, by Prof. Neda Sadooghi *15.3/20, Spring 2024*

Group Theory: by Dr. Ali Rezakhani *19.4/20, Spring 2024*

Intro. to String Theory: by Dr. Amin Faraji *19.6/20, Fall 2024*

Particle Physics: by Dr. Amin Faraji *19.2/20, Fall 2024*

Advanced Mathematical Physics: PhD Course, by Prof. Vahid Karimipour *Audit, Spring 2024*

Fundamental Concepts and Cultural History of Physics: by Prof. Bahram Mashhoon & Dr. Shant Baghram *19/20, Spring 2024*

Intro. to Cosmology: by Prof. Bahram Mashhoon & Prof. Farhad Ardalan *20/20, Spring 2023*

String Theory I: PhD Course, by Dr. Amin Faraji *Ongoing, Spring 2025*

Quantum Information & Computation II: PhD Course, by Prof. Vahid Karimipour *Ongoing, Spring 2025*

Stochastic Processes: MSc Course, Mathematics department, by Dr. Kasra Alishahi *Ongoing, Spring 2025*

Selected Projects and Academic Activities

Stochastic Electrodynamics, Term paper *Spring 2024*

For Fundemental Concepts and Cultural History of Physics Course

- I reviewed Stochastic Electrodynamics as a classical stochastic theory which can predict some aspects of Quantum theory.

Penrose-Hawking Singularity Theorems, Course Project *Fall 2023*

For Intro. to General Relativity Course

A survay on Gödel's Incompleteness Theorem, Term Paper *Spring 2024*

For Fundamental Concepts and Cultural History of Physics Course

Coleman-Mandula and Haag-Lopuszanski-Sohnius Theorems Course Project *Fall 2024*

For Particle Physics Course

No-Communication theorem and EPR paradox, Term Paper *Spring 2023*

For Intro. to Cosmology Course

Computational Methods in Quantum Physics problems, Course Work *Spring & Fall 2023*

For Quantum Mechanics I & II Courses

- We computed spectrum of n=12 Heisenberg chain, degenerate and non-degenerate state calculations and other computational problems in Quantum Mechanic 2 using MATLAB and Python.

Fundamental Physics Summer Camp *Summer 2024*

Organizer: Dr. Mohammadjavad Kazemi

- Topics like "Measurment Problem", "Equivalence Principle to Holographic Principle", "Quantum Refrence Frames" etc. were presented.

Fundamental Physics Winter Camp *Winter 2025*

Organizer: Dr. Mohammadjavad Kazemi

- Topics like: "Revision of foundation of EM", "Contextuality", "Thermodynamics Role in Fundamentals of Physics", "Wigner's Friend Problem", "Newtonian and Lagrangian Paradigms" etc. were presented

QBronze workshop *Fall 2022*

Held by QWorld organization

- We learned the basics of Quantum Computing and Programing using Qiskit library in this workshop.

Research Experience

A Survey For Designing a Superconducting Quantum Device/Chip

Held by QWorld Organization Winter & Spring 2023

Supervised by: P.Kazemikhah, Princeton University

- Focus of the research was on exploring software for Qubit design and the development of quantum circuits and devices, including transmon Qubits after learning the basics of transmon Qubits. Generated workflows, coded implementations, and provided reports on the software functionalities.

Honors and Awards

Silver Medal, 33rd National Physics Olympiad *Tehran, Iran, 2020*

Member, of the National Elites Foundation (INEF) *2021 - Present*

Teaching and Executive Experiences

Teaching Assitant of Electromagnetics III, MSc Course Instructed by Dr. Baghram *Fall 2024*

Mentor of IPhO 2024 Iran's team *Spring 2024*

Teaching in Young Scholars club *Summer 2024*

- A member of Organizing team of 37th Iran's National Physics Olympiad

Teaching national Physics Olympiad *Spring 2021 - Present*

- Teaching the contents of basic courses like Analytical Mechanics, Electromagnetic, Thermodynamics and ... to Physics Olympiad students.

Mentor of SUT Physics Department's Open Day in honor of Physics Day *Fall 2023*

Mentor of Rasta Summercamp 2022 *Summer 2022*

Technical Skills

Programming Languages: python, C/C++, JAVA

Tools: Latex, MATLAB, Jupyter Notebook, Mathematica
Quantum Computing SDKs such as Qiskit and SQcircuit

Languages: English(Upper Intermediate), Persian(Native), Italian(Beginner), Latin(Beginner)