

## EDUCATION

**Sharif University of Technology**, Tehran, Iran

*Bachelor of Science, Physics*

– CGPA: 17.46/20

*Sep 2018 - May 2023 (Expected)*

**Farzanegan 1 High School**, Tehran, Iran

*Diploma*

– CGPA: 19.46/20

*Sep 2014 - May 2018*

## RESEARCH INTERESTS

- **Superconducting Circuits**
- **Circuit Quantum Electrodynamics**
- **Quantum Computation and Information**
- **Complex Systems**
- **Computational Physics**

## INTERNSHIP

**Preparing arbitrary fock states in a cavity, using GRAPE algorithm**

*Supervisors: Prof. Benjamin Huard and Dr. Audrey Bienfait*

*(Quantum Circuit Group, ENS Lyon, France)*

*Jul - Oct 2022*

- Using the GRAPE algorithm to find the control pulses in a cavity-qubit coupled system to reach an arbitrary fock state in the cavity and finding the right translation between simulation values and amplitudes in the experiment.

[Further descriptions.](#)

## RESEARCH PROJECTS

**Quantum Information Group, Universitat Autònoma de Barcelona, Spain**

*Supervisor: Prof. Andreas Winter*

*Apr 2022 - Present*

- **Observational Entropy and Correlations:** Finding properties of the Observational Entropy under different measurements.

**Quantum Information Science Group, Sharif University, Iran**

*Supervisor: Prof. Vahid Karimipour*

*Feb - Jun 2022*

- **Generalized Landau-Streeter Channel in The High-Dimensions:** Computing quantum information properties of the generalized form of the Landau-Streeter Channel in the higher dimensions.

**Sharif University, Iran**

*Supervisor: Dr. Saman Moghimi Araghi*

*Jul 2021 - Present*

- **Abelian Sandpile Model:** Examining Self-organized Criticality in the 2d-grid for Abelian Sandpile Model by focusing on longer links' existence.

**Sharif University, Iran**

*Supervisors: Dr. Fakhteh Ghanbarnejad and Dr. Farnoush Farahpour*

*Apr 2020 - Apr 2021*

- **The way observation reflects the reality of SIR, SEIR, SIRD dynamics:** Estimating the real epidemic dynamics with a random sampling at a macroscopic level.

## COURSE PROJECTS

**Information Theory: The Capacity of Classical-Quantum Channels**

*Supervisor: Prof. Mohammad R. Aref - Report file*

*Fall 2021*

**Quantum Mechanics: Discrete Element Method Simulation for Different Potentials**

*Supervisor: Dr. Abolhassan Vaezi - Simulation files*

*Spring 2021*

**Computational Physics: Ising Model and Phase Transitions Simulation**

*Supervisor: Dr. Fakhteh Ghanbarnejad*

*Fall 2020*

**Optics: Optical Communication**

*Supervisor: Dr. Sadegh Raeisi - Report file*

*Spring 2022*

**Advanced Quantum Mechanics: Geometric Phase in Quantum Mechanics**

*Supervisor: Dr. Amin Faraji Astaneh - Report file*

*Fall 2021*

WORKSHOPS	<b>Topology and Non-equilibrium Dynamics in Engineered Quantum Systems</b>	
	<i>Max Planck Institute for the Physics of Complex Systems</i>	<i>Oct 2022</i>
	<b>Quantum Transport with Ultracold Atoms</b>	
AWARDS & ACHIEVEMENTS	<i>Max Planck Institute for the Physics of Complex Systems</i>	<i>Aug - Sep 2022</i>
	<b>Journées de la Matière Condensée (JMC)</b>	
	<i>Société Française de Physique</i>	<i>August 2022</i>
SELECTED COURSES	<b>Silver medal</b> , in Iran's national Olympiad of Astronomy and Astrophysics, 2017	
	Member of <b>Iran's National Elites Foundation</b>	
	<b>Quantum Theory courses:</b>	
TEACHING EXPERIENCES	– Advanced Quantum Mechanics (M.Sc, 18.5/20), Quantum Computing (Ph.D., 16/20)	
	<b>Information Theory courses:</b>	
	– Information Theory (M.Sc, 16/20), Quantum Information Theory (Audit)	
SKILLS	<b>Complex Systems courses:</b>	
	– Complex Systems (M.Sc, 19.5/20), Stochastic Process (M.Sc, 18.9/20), Computational Physics (M.Sc, 18.9/20)	
	<a href="#">Further descriptions</a>	
LANGUAGES	<b>Teacher Assistant: Stochastic Processes in Bioinformatics (M.Sc)</b>	
	<i>Dr. Mohammad Hossein Rohban</i>	<i>Spring 2022</i>
	<b>Teacher Assistant: Game Theory (M.Sc)</b>	
REFERENCES	<i>Dr. Mohammad Hossein Rahmati</i>	<i>Spring 2022</i>
	<b>Teacher Assistant: Statistical Modeling (M.Sc)</b>	
	<i>Dr. Fakhteh Ghanbarnejad</i>	<i>Spring 2021</i>
	<b>Olympiad Instructor</b>	
	Providing courses to prepare high school students for the National Astronomy Olympiad. <i>2017 - Present</i>	
	– Topics: Classical Mechanics, Astrophysics, Cosmology, Spherical Astronomy, Data analysis	
	– Institutions: <a href="#">Farzanegan 1</a> , <a href="#">Farzanegan 2</a> , <a href="#">Salam</a> , Summer school of National Astronomy and Astrophysics Olympiad (Observational Astronomy test writer)	
	<a href="#">Further descriptions</a>	
	<b>Programming Languages:</b> <a href="#">QUA</a> , Python (QuTiP, SciPy, NetworkX, Pandas, Matplotlib, Seaborn, Numpy), Matlab	
	<b>Tools:</b> cQED (Qubit measurement), <a href="#">Quantum Orchestration Platform (QOP)</a> , $\text{\LaTeX}$ , Mathematica	
	<b>Persian:</b> Native, <b>English:</b> Advanced <b>French:</b> Beginner	
	<b>Dr. Saman Moghimi Araghi, Sharif University of Technology, Tehran, Iran</b>	
	<i>Email address: <a href="mailto:samanimi@sharif.edu">samanimi@sharif.edu</a></i>	<i><a href="#">Webpage</a></i>
	<b>Dr. Audrey Bienfait, Ecole Normale Supérieure, Lyon, France</b>	
	<i>Email address: <a href="mailto:audrey.bienfait@ens-lyon.fr">audrey.bienfait@ens-lyon.fr</a></i>	<i><a href="#">Webpage</a></i>
	<b>Prof. Benjamin Huard, Ecole Normale Supérieure, Lyon, France</b>	
	<i>Email address: <a href="mailto:benjamin.huard@ens-lyon.fr">benjamin.huard@ens-lyon.fr</a></i>	<i><a href="#">Webpage</a></i>
	<b>Dr. Alexis Jouan, Ecole Normale Supérieure, Lyon, France</b>	
	<i>Email address: <a href="mailto:alexis.jouan@ens-lyon.fr">alexis.jouan@ens-lyon.fr</a></i>	<i><a href="#">Webpage</a></i>