

Curriculum Vitae

Abhishek Mishra

BS-MS Student,
Department of Physics,
IISER Kolkata,
India.

Email: am17ms100@iiserkol.ac.in
abhisheksoloabh@gmail.com
Website: <https://anhedonicbeast.github.io/>

Research Interests

Quantum Information Theory, Quantum Optics
Quantum Error Correction, Quantum Cryptography

Education

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| 2017-Current | Integrated BS-MS at Indian Institute of Science Education and Research, Kolkata |
| 2015-2017 | Higher Secondary at D.A.V Public School Chandrasekharpur, Bhubaneswar |

QIP Projects

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| Aug 2021-Current | Master Thesis in Quantum Information. Prof. Guruprasad Kar – ISI Kolkata My thesis is on proving the security of the BB84 Protocol. I am attempting it by proving the arguments provided by Peter Shor and John Preskill in their paper titled “Simple Proof of Security of the BB84 Quantum Key Distribution Protocol”. I have proved the link between CSS code and BB84 rate and will explore more such connections between Quantum Error Correction and Cryptography. |
| Aug – Dec 2021 | Independent Study in Quantum Optics Prof. Chiranjib Mitra – IISER Kolkata Studied about Universal Quantum Computation after a background study in Quantum Optics and Open Quantum Systems. |
| Dec 2021-Current | Project in Quantum Cryptography Dr. Ramij Rahaman – ISI Kolkata Studying about Device Independent Quantum Cryptography and Random Number Generation arising from the violation of Bell Inequalities. |
| Jan 2021-Current | Project in Quantum Computation Prof. Chiranjib Mitra – IISER Kolkata Microwave squeezing and its application to Quantum Computation. |

Internships

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| Summer 2019 | Study of Mesoscopic Systems Using Stochastic Thermodynamics Dr. Prabhakar Bhimalapuram – IIIT Hyderabad Modelled stochastic systems at mesoscopic level using langevin dynamics Studied various stochastic models and thermodynamic properties of mesoscopic systems using Markov chain. |
| Summer 2018 | Study of Nano-scale Properties of Gold colloid and Fractals Prof. Anushree Roy – IIT Kharagpur Studied colloid growth using protein folding models. Learned about Surface Plasmon Resonance and Raman Spectroscopy. Analyzed growth patterns for fractal parameters using ImageJ. |

Teaching Assistant-ship

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| Spring 2022 | Quantum Information Processing Motivation and introduction, Quantum Algorithms and computation, Quantum Cryptography. |
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Skills

C, Python, Matlab, Mahematica, Java, Javascript, App Development, Orgin
Machine Learning, Numerical Simulation, ImageJ, Blockchain

Extra-curricular Activities

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| Web-Development | Developed Websites or Apps for following: Inquivesta 2019, Annual fest of IISER Kolkata CR snd Admin portal of Inquivesta 2020 IICM 2021 (Part of it) Snackos App for my friend's startup. |
| Initiatives | Started the Coding and Designing Club of IISER Kolkata Created the charter of the club. Formed the Council of the Office Bearers of the Club. Created the social media platform for the club. |