

PREETHI G

5th Year Integrated MS - Physics Student

Indian Institute of Science Education and Research, Thiruvananthapuram

preethi9919@iisertvm.ac.in - +91-9446279290 - preethi073.github.io

EDUCATION

Indian Institute of Science Education and Research, Thiruvananthapuram

Expected Graduate: 2024

Integrated BS-MS in Physics with minor in Mathematics

GPA: 3.46 (CGPA:8.3)
(As of 8th Semester)

- **Relevant Coursework** : Theory of Open Quantum Systems — Quantum Mechanics I & II — Condensed Matter Theory — Adv. Condensed Matter Theory — Quantum Transport — Quantum Field Theory — Statistical Physics — General Relativity & Cosmology — Complex Analysis — Group Theory — Linear Algebra — Topology

The Ashok Leyland School, Hosur

2019

Central Board of Secondary Education - Class 12

Percentage: 94

The Ashok Leyland School, Hosur

2017

Central Board of Secondary Education - Class 10

CGPA: 10

RESEARCH INTERESTS

Quantum Many Body Dynamics, Open Quantum Systems, Quantum Science and Information, quantum chaos, quantum nanophysics, strongly correlated quantum systems, Condensed Matter Theory, Quantum Magnetism, Statistical Physics, Complex Networks, Topological Effects in Quantum Mechanics.

RESEARCH EXPERIENCE

School of Physics, IISER Thiruvananthapuram

Aug 2023 - Present

Master Thesis under Prof. Anil Shaji

- Exploring coherent transport properties of spin qubits in Quantum Dots
- Studying the Anderson Impurity Model Hamiltonian to observe quantum effects in Quantum Dots
- Currently using qutip package of python, and High Performance Computing

Raman Research Institute, Bengaluru

May 2023 - Present

Visiting Student under Dr. Shovan Dutta

- Studying Frustrated Quantum Magnetism on Complex Networks
- Explored the field of Network Topology, and effect of topology in determining the ground state properties of a system of spins sitting on the nodes of a general and complex networks.
- Using Mathematica, Julia and high-performance computing for computation; got familiar with iTensor packages in Julia and with MPS-MPO algorithms.
- Manuscript under preparation

School of Physics, IISER Thiruvananthapuram

May 2021- Sep 2022

Internship under Prof. Anil Shaji

- Studied the Transport through Quantum Dots, via Master Equation Approach
- Explored the parameters affecting the semi-classical transport of electrons in Single Quantum Dots
- Extended the study, by producing results for a double-dot system.

COMPUTATIONAL SKILLS

- Python (Familiar with qutip and qiskit packages)
- Julia
- Wolfram Mathematica
- MATLAB

AWARDS AND ACCOMPLISHMENTS

- Selected for the Visiting Student Program in Raman Research Institute, Bangalore
 - Qualified JEE Advanced as one among 38705 candidates out of 161319 candidates appeared
 - Awarded as the 'Best Outgoing Student' from The Ashok Leyland School, Hosur
 - International Award for Young People - The Bronze Standard
 - National Level Runner up in Titan Genius Kidz National Arithmetic Championship - 5
- 2023

2019

2019

2017

2014

WORKSHOPS AND COURSES

- International Conference on Highly Frustrated Magnetism 2024** | IIT Madras

2024

 - The one-week conference helped me gain a deep insight to new research studies around the world in frustrated magnetism, especially with spin liquids and topological factors in magnetism.
 - Got to interact with leading experts in the field, getting new ideas and inspiration from their astonishing works.
- Qiskit Global Summer School** | IBM

2023

 - Acquired a foundational understanding of Quantum Information and Computation
 - Solved a number of computational problems in the lab sessions
- Workshop on Quantum Materials** | IISER TVM

2023

 - Helped me to understand the synergy between theoretical ideas and experimental methods for identifying quantum entanglement in quantum materials
 - Got to know the challenges faced in practical applications of quantum entanglement theories, from an experimental background persepective
- Advanced course on Special Theory of Relativity** | Online course by Prof. HC Verma

2020

 - Developed a deeper understanding of the Special Theory of Relativity
 - Got to work on advanced problems in the course involving Galilean Transformations, Lorentz transformations and kinematical applications, Mass –Energy conversion, Transformation of Magnetic and electric fields, E-B fields of a moving charge, Minkowski diagrams

POSTER PRESENTATIONS

Frustrated Quantum Magnetism on Complex Networks

Preethi G and Shovan Dutta

Highly Frustrated Magnetism 2024, Chennai
Jan 7-13th, 2024

POSITIONS OF RESPONSIBILITES

- Illustrator & Designer** | *Sopanam - The IISER Annual Magazine Club*

2020-2022

 - Illustrated various articles and poems for the magazine Sopanam 2020
 - Submitted various artworks for the Art Section and for an Exhibit
 - Served as the chief Designer of the magazine, Sopanam 2022
- Member of Decision Making Council** | *Media Society, IISER TVM*

2020-2022

 - Collectively Organized various workshops on photography
 - Lead the event Clicktember in 2021
 - Handled Social Media Content creation along with a team
- Core Committee Member** | *Table Tennis Club, IISER TVM*

2021-Present

 - Captained the team at IISM'22 (The Inter IISER Sports Meet)
 - Organized Open Tournaments within college premises
- Club Head** | *Sopanam - The IISER Annual Magazine Club*

2023-Present

 - Organized Halloween celebrations at college premises
 - Heading the team for Sopanam 2023 magazine publication
 - Constantly engaged in club meetings, and maintaining regular interactions with the team

MISCELLANEOUS SKILLS AND INTEREST

- Markup
Design
Sports
Other Interest

Latex | HTML
Adobe Indesign | Adobe Illustrator | Adobe Photoshop
Table Tennis | Volleyball
Violin | Travel | Photography | Painting