

Bidhi Vijaywargia

Curriculum Vitae

✉ bidhi.vijaywargia@uconn.edu

Research Interest

Quantum information, Quantum many body systems, Open quantum systems, and Quantum-classical correspondence in classically chaotic systems.

Education

August 2024 : **Graduate Assistant - University of Connecticut, Storrs, CT**

–Present GPA: 4.0/4.0

July 2021 : **M.Sc. Physics - Indian Institute of Technology, Madras**

–May 2023 CGPA: 8.80/10.00

August 2017: **B.Sc. Physics, University of Delhi, New Delhi**

–November 2020 CGPA: 8.77/10.00

August 2015 : **Senior Secondary School Examination, CISCE, New Delhi**

–May 2017 Percentage: 93.75%

April 2014 : **Senior School Examination, CISCE, New Delhi**

–May 2015 Percentage: 92.8%

Publications

○ **Effects of stickiness on the quantum states of strongly chaotic open systems.**

Edson M. Signor, Miguel A. Prado Reynoso, Bidhi Vijaywargia, S. D. Prado, and Lea F. Santos.
(In preparation)

○ **Quantum-classical correspondence in quantum channels.**

Bidhi Vijaywargia, and Arul Lakshminarayan.
Phys. Rev. E **111**, 014210 (2025).

Work Experience

1st June 2023 : **Junior Research Fellow** in the Project titled Centre for Quantum Information, Communication and

- 31st March Computing at the Indian Institute of Technology, Madras.
2024

Research Experience

○ **Current Research work as Graduate Student:**

Supervisor : Prof. Lea F. Santos

- Quantum phase transition and excited state phase transition.
- Quantum-classical correspondence in spin systems with long-range interactions.
- The effect of classical chaos and stickiness on quantum dynamics.
- Open quantum systems and non-hermitian matrices.
- Dissipative quantum chaos.

○ **Project as Junior Research Fellow:**

Project : Prof. Arul Lakshminarayan
Advisor

- Quantum-classical correspondence of channels.
- Spectral properties of quantum and classical channels corresponding to chaotic systems like standard map, baker's map and cat map.
- Quantum scars in open quantum dynamical systems that display chaos in the classical limit.
- Spatiotemporal correlation functions for quantum and classical many-body chaotic systems.

○ Master's Thesis

Thesis Title : **An Interplay of Quantum Chaos and Quantum Channels**

Supervisor : Prof. Arul Lakshminarayan

- Reviewed the relation between chaos and entanglement entropy for coupled quantum standard map or kicked rotor.
- Explored the spectral properties of the quantum channel corresponding to a coupled quantum standard map and presented some links between the spectral properties of the quantum channel and the underlying classical dynamics associated with the chaotic map.

Courses/Conferences

- International Conference titled—"Progress in Quantum Science and Technologies" organized by the Center for Quantum Information, Communication and Computing from 23rd-27th January 2023.
- ACM India Winter School on Advanced Quantum Computing, organized by Indian Institute of Technology, Madras and IBM Research India from 5th-16th December 2022.
- Online Summer School in Computational Physics, organized by IAPT Mumbai (Indian Association of Physics Teachers) from 17th-29th May 2021.

Academic Achievements and Awards

- Summer Research Fellowship Award for the summer of 2025 at University of Connecticut (offered to outstanding new physics graduate students).
- Pre-doctoral fellowship for Fall 2024 at University of Connecticut.
- V. Kalyanasundram Memorial Prize for Best Woman in MSc Physics (based on CGPA till third semester) on the 64th Institute Day held at Indian Institute of Technology, Madras on 20th April 2023.
- Usha Krishnaswamy Scholarship in my MSc for being the top-ranking female student based on CGPA.
- MCM scholarship for being in the top 10% of the class in all four semesters of MSc.
- All India Rank of 74 in JEST (Joint Entrance Screening Test) Physics, 2021 for I-Ph.D. among 6000 candidates.
- All India Rank of 119 in IIT JAM Physics (Joint Admission for Masters) among 15000 candidates, 2021.

Presentations

- Presented a few papers as a member of the Quantum Journal Club at the Indian Institute of Technology, Madras.
- Present on the topic - 'Entanglement Transformation: LOCC (Local Operation and Classical Communication) and ELOCC (Entanglement Assisted LOCC)', for the course of Advanced Quantum Computing and Quantum Information.
- Presented on the topic - 'Classical and Quantum Standard Map', for the course Dynamical Systems.
- Presented research work of Master's Thesis in front of the project review committee at the Indian Institute of Technology, Madras.

Technical Skills

Languages : Python, C++, Java

Typesetting : Latex

Software : Origin, NI Multisim, ssh, BlueJ, Mathematica and tools

Libraries : NumPy, SciPy, Matplotlib, Pandas, Qutip, TikZ.

Teaching Skills

- Lab Instructor for General Physics II, Jan, 2025 - Present.
- Teaching Assistant for Physics for Engineers II, August-December, 2024.
- Teaching Assistant for Quantum Computation and Quantum Information, Jul-Nov 2023.
- Worked as an online middle-school science teacher for a few unprivileged students in an NGO, "Ek-Ummid".