Bhavay Tyagi

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CONTACT INFORMATION

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EDUCATION

University of Houston, College of Natural Sciences and Mathematics — Aug 2022–Present

- PhD Candidate
  Advisor: Prof. Eric R. Bittner

Durham University, Ustinov College, Durham, UK — Oct 2018– Sept 2019

- M.Sc. in Particles, Strings and Cosmology, Result: **Merit** – 180 credits.
  Thesis: **An Introduction to AdS/CFT and the Holographic Entanglement Entropy.**
  Durham University, UK
  Supervisor: Prof. Simon F. Ross, Reader: Prof. Nabil Iqbal

Amity University Noida, India. — Aug 2015–May 2018

- B.Sc. (Honours) Physics, CGPA: **8.05/10 (First Division)** – 176 credits.

RECENT PUBLICATIONS

4. E. R. Bittner and B. Tyagi. "Statistical Control of Relaxation and Synchronization in Open Anyonic Systems" arXiv 2025
3. E. R. Bittner and B. Tyagi. "Noise induced synchronisation in coupled quantum oscillators." The Journal of Chemical Physics 2025
2. B. Tyagi, F. Suzuki, V. A. Chernyak, and N. A. Sinitsyn. "Asymmetry Amplification by a Nonadiabatic Passage through a Critical Point." Physical Review A 2025
1. B. Tyagi, H. Li, E. R. Bittner, A. Piryatinski, and C. Silva-Acuna. "Noise-Induced Quantum Synchronization and Entanglement in a Quantum Analogue of Huygens' Clock" The Journal of Physical Chemistry Letters 2024

The full list can be found on my Google Scholar or arXiv.

CURRENT RESEARCH

- **Helical SYK Model in 1+1 Dimension** — June 2025–Present
  University of Houston, Texas, USA
  Supervisor (Thesis Committee Member): Prof. Pavan Hosur
- **Dynamics of Phase Transitions and Integrablity in Quantum Systems** — June 2024–Present
  Los Alamos National Lab, New Mexico, USA
  Supervisor (Thesis Committee Member): Dr. Nikolai A. Sinitsyn
- **Dynamics of Open Quantum Systems** — January 2024–Present
  University of Houston, Texas, USA
  PhD Advisor: Prof. Eric R. Bittner

ACHIEVEMENTS

- Cullen Fellowship, University of Houston 2025
- Best Talk, Physics Research Day 2025, University of Houston 2025
- Graduate Research Fellow at *Los Alamos National Lab* 2024
- Awarded Distinction for Masters Thesis 2020
- Undergraduate Research Fellow *Harish Chandra Research Institute* 2017

Leadership/ Teaching Experience

- American Physical Society Advocacy Champion — 2025–Present
- Chair American Physical Society (APS) Chapter at University of Houston — 2024-2025
- Physics 2125 (University Level Classical Mechanics) — 2023–2024
- Physics 1101 (College Level Classical Mechanics) — 2022–2023
- Physics 2126 (Topics in Modern Physics: Wave Optics, Quantum Mechanics, Nuclear Physics) — Summer 2023

Talks/Posters

6. Title: **Noise-Induced Synchronisation and Entanglement** — March 2025
   APS Global Physics Summit
   Anaheim, California

5. Title: **Asymmetry Amplification by a Non-Adiabatic Passage through a Critical Point** — March 2025
   APS Global Physics Summit
   Anaheim, California

4. Title: **Asymmetry Amplification by a Non-Adiabatic Passage through a Critical Point** — Summer 2024
   CNLS Summer Student Talks
   Center for Non-Linear Studies, Los Alamos National Lab, NM, USA

3. Title: **Black Hole Information Problem & Recent Developments** — September 2021
   Quantum Photonics Physics Forum
   Online

2. Title: **On Quantum Entanglement and the Interpretation of Quantum Mechanics.** — 2020
   Christ University Physics Club
   Christ University Bangalore, India

1. Title: **On Relativity and Gravitation: Applications to Modern Physics.** — 2018
   Beyond Portals Lecture Series
   Beyond Portals HQ, New Delhi, India

Extra-Curricular Activities

- The Knowmads Podcast
- Music Channel
- Co-founder of *'Beyond Portals'*. An Organization to Promote, Popularize and Support research in fundamental sciences.
- Science Advocacy and Policy