



Pranaya Pratik Das

Physics, Research Scholar

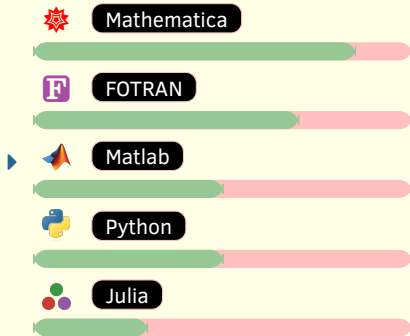
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 pranaya_phy@outlook.com

Online Platforms

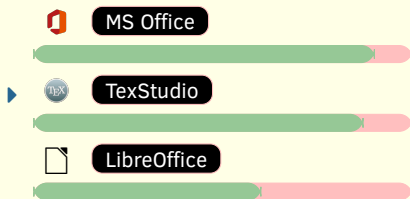
Pranaya Pratik Das
 Pranaya-Das
 0000-0002-6025-7719

Skills

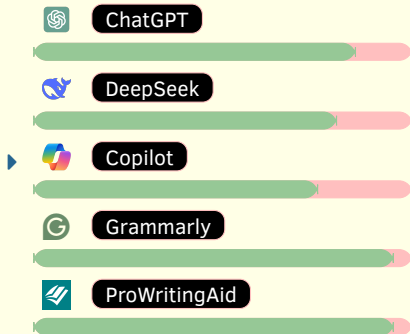
> </> Programming Software



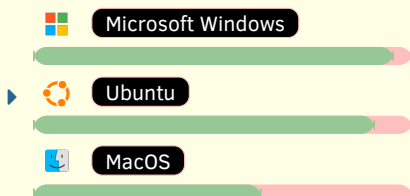
> ✎ Text editing Software



> 🧠 AI and other tools



> 🖥️ Operating Systems



Education

Study

10th. June 2008 BSE, Odisha
Achievement: with 100% in Mathematics
 +2. Science June 2010 CHSE, Odisha
 B.Sc. in Physics July 2010 – June 2013 BJB Auto. College, Utkal University
 M.Sc. in Physics August 2014 – August 2016 CBSH, OUAT
 Ph.D. in Physics July 2019–2025 NIT Rourkela
Thesis Topic: *Diagnosis of quantum chaos in perturbed quantum wells and billiards*

Awards and Achievements

Scholarships:

- P.G. Meritorious Scholarship (2014-16), Institute of Mathematics and Applications (IMA).
- Medhabruti Scholarship (2014)

Qualified Entrances:

- TIFR (2015-16)
- GATE (2019-21)

Certificates

- IAPT(2012)
- Spring College in the Physics of Complex Systems. *Awarded by ICTP.*
- Secrets of getting published in high impact factor journals. *Awarded by Wiley.*
- Research Scholar Week (2024)
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Research & Publications

Recent Publications

- 2025 **Pranaya Pratik Das and Biplab Ganguli.** “Signature of chaos in perturbed quantum wells”. *Eur. Phys. J. D* (2025) **79 :74**
DOI: <https://doi.org/10.1140/epjd/s10053-025-01025-7>
- 2025 **Pranaya Pratik Das, Tanmayee Patra, and Biplab Ganguli.** “Manifestations of chaos in billiards: the role of mixed curvature”.
DOI: <https://doi.org/10.48550/arXiv.2501.08839>
- 2024 **Bhaskar Shukla, Pranaya Pratik Das, David Dudal, and Subhash Mahapatra.** “Interplay between the Lyapunov exponents and phase transitions of charged AdS black holes.”. *Phys. Rev. D* **110, 024068**
DOI: [10.1103/PhysRevD.110.024068](https://doi.org/10.1103/PhysRevD.110.024068)
- 2022 **Vinesh Vijayan, and Pranaya Pratik Das.** “Cyclically Symmetric Thomas Oscillators As Swarmalators: A paradigm for Active Fluids & Pattern Formation.”.
DOI: [arXiv:2211.00336](https://arxiv.org/abs/2211.00336)
- 2022 **Vinesh Vijayan, & Pranaya Pratik Das.** “Dynamics of a charged Thomas oscillator in an external magnetic field”. *Physica Scripta*, **97(11), 115207**.
DOI [10.1088/1402-4896/ac99ab](https://doi.org/10.1088/1402-4896/ac99ab)

Research Interest

- | | | |
|---------------------|------------------------|---------------------|
| Non-linear Dynamics | Quantum Chaos | Billiards Dynamics |
| Chaos Theory | Chaos Diagnostic Tools | Black Hole |
| Classical Chaos | Quantum Scars | BH Phase Transition |

OTOC Loschmidt Echo Lyapunov Exponent Chaos Poincare Section RMT SFF
Billiards NLSD Quantum Scars

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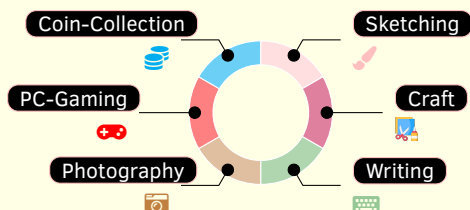
About Me

I am a research scholar specialising in quantum chaos with a strong background in theoretical physics. My work delves into the interplay between order and disorder in quantum systems. I aim to deepen our understanding of chaotic dynamics in quantum mechanics through quantum ergodicity, semi-classical analysis, diagnostic tools, and random matrix theory. I am committed to advancing the scientific community through innovative research and collaboration.

A Day of My Life



Hobbies



Languages



References

- [1] **Prof. Biplab Ganguli**
Department of Physics and Astronomy,
NIT Rourkela
biplabg@nitrkl.ac.in
biplab62g@gmail.com

Academic Experience

Laboratory

- 💡 **TA in B.Tech Physics Lab (Online)** 2021–2022, Autumn Semester Prof. P. Mahanandia
 - Conducted various online classes and evaluated copies.
- 💡 **TA in B.Tech Physics Lab (Online)** 2021–2022, Spring Semester Prof. S. K. Bisoi
 - Conducted various online classes, seminars and evaluated copies.
- 💡 **TA in B.Tech Physics Lab** 2022–2023, Autumn Semester Prof. I. Banarjee
 - Conducted various classes, experiments, evaluated copies and and taken vivas.
- 💡 **TA in B.Tech Physics Lab** 2022–2023, Spring Semester Prof. B. Ganguli
 - Conducted various classes, experiments, evaluated copies and and taken vivas.
- 💡 **TA in Thermal Physics Lab** 2022–2023, Spring Semester Prof. B. Ganguli
 - Conducted various classes, experiments, evaluated copies and and taken vivas.

Theoretical

- 👤 **Co-supervised a M.Sc. project** 2022–2023 Prof. B. Ganguli
 - Successfully co-supervised an M.Sc. project for Karishma Kujur (421PH2125).
 - Successfully co-supervised an M.Sc. project for Ayush Sahu (418PH5033).
- 👤 **Co-supervised a M.Sc. project** 2023–2024 Prof. B. Ganguli
 - Successfully co-supervised an M.Sc. project for Zubair Ahmad Kumar (422PH2069).
 - Successfully co-supervised an M.Sc. project for Vivek Sheoran (422PH2082).

Conferences and Schools

- 🇮🇹 **Spring College in the Physics of Complex Systems** 2021 ICTP, Trieste, Italy
 - Attended online
- 🇮🇳 **Complex Lagrangian Problems of Particles in Flows** 2022 ICTS-TIFT, India
 - Attended online
- 🇮🇳 **School on Quantum Chaos** 2023 ICTP-SAIFR, São Paulo, Brazil
 - Attended online
- 🇯🇵 **Integrability, Deformations and Chaos** 2023 OIST, Onna, Okinawa, Japan
 - Attended online
- 🇮🇳 **HPC Symposium** 2024 NIT Rourkela, India
 - Poster Presentation
- 🇮🇳 **60 Years of DFT: Advancements in Theory & Computation** 2024 IIT Mandi, India
 - Poster Presentation