

# Rahul Shastri

## Curriculum Vitae

Palacký University Olomouc  
Czech Republic  
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### Research Interests

Open quantum systems, quantum thermodynamics, quantum optics, and quantum information.

### Current Position

2024–Present **Postdoctoral Researcher**, Palacký University Olomouc, Czech Republic.

### Publications

#### Peer-Reviewed Articles

- 2025 **Dephasing enabled fast charging of quantum batteries**, R. Shastri, C. Jiang, G.-H. Xu, B. P. Venkatesh, G. Watanabe, *npj Quantum Information* 11, 9 (2025).
- 2025 **Enhancing high school students' understanding and attitude towards quantum mechanics through discipline–culture framework and cognitive apprenticeship**, V. V. Nautiyal, E. E. P. Salvador, X. R. O. Braña, R. Shastri, V. Singh, A. Tyagi, B. Vidhani, and V. Prasad, *Eur. Phys. J. Quantum Technol.* 12, 104 (2025).
- 2024 **Controlling Work Output and Coherence in Finite Time Quantum Otto Engines Through Monitoring**, R. Shastri and B. P. Venkatesh, *Phys. Rev. E* 109, 014102 (2024).
- 2022 **Optimization of asymmetric quantum Otto engine cycles**, R. Shastri and B. P. Venkatesh, *Phys. Rev. E* 106, 024123 (2022).

#### Preprints

- 2025 **Relativistic motion through a thermal bath as a thermodynamic resource**, R. Shastri, arXiv:2512.07567.

### Education

- 2018–2024 **Ph.D. in Physics**, Indian Institute of Technology Gandhinagar, India, **Thesis:** Optimisation of Quantum Thermal Machines and Batteries.
- 2015–2017 **M.Sc. in Physics**, Indian Institute of Technology Gandhinagar, India, **Thesis:** Gauge-Higgs Unification Models.

### Talks and Presentations

- 2024 **Talk**, *Physics Symposium, IIT Gandhinagar*, Quantum Thermodynamics of Quantum Thermal Machines and Quantum Batteries.
- 2023 **Conference Talk**, *Quantum Thermodynamics Down Under 2023, Brisbane, Australia*, Controlling coherence in finite time Quantum Otto engine through monitoring.
- 2023 **Poster**, *Meeting on Statistical Physics and Complex Systems, IIT Kharagpur, India*, Optimization of asymmetric quantum Otto engine cycles.
- 2022 **Invited Talk**, *Young Physicists Meet 2022 (Online)*, Quantum Heat Engines.

## Conferences and Workshops

- 2023 Quantum Thermodynamics Down Under 2023, Brisbane, Australia
- 2023 School on Nonlinear and Statistical Physics, IIT Kharagpur, India
- 2019 Quantum Information and Computation, IIT Jodhpur, India
- 2016 GIAN Course: Tunable Diode Laser Spectroscopy, IIT Gandhinagar, India

## Honors and Awards

- 2018 JEST (All India Rank 59)
- 2017 Batch Topper, M.Sc. Physics, IIT Gandhinagar
- 2015 JAM (All India Rank 180)

## Funding

- 2023 SERB International Travel Support (ITS), Government of India

## Teaching Experience

- 2023 Graduate Teaching Fellow – Mathematical Methods of Physics
- 2023 Teaching Assistant – Quantum Mechanics II
- 2022 Teaching Assistant – Quantum Mechanics I
- 2020 Teaching Assistant – Statistical Mechanics

## Additional Technical Skills

Programming Python (NumPy, SciPy, QuTiP), Mathematica, C/C++, Qiskit  
Tools  $\LaTeX$ , Origin

## Languages

English (Professional proficiency)  
Hindi (Native)  
Gujarati (Native)

## References

**Prof. B. Prasanna Venkatesh**, *Indian Institute of Technology Gandhinagar*, India.

Email: prasanna.b@iitgn.ac.in

**Prof. Gentaro Watanabe**, *Zhejiang University, Hangzhou*, China.

Email: gentaro@zju.edu.cn