

# Ankit Kumar | अंकित कुमार

Postdoctoral Fellow in Quantum Science & Technology

Curriculum vitae  
[linktr.ee/ankit.xyz](http://linktr.ee/ankit.xyz)

Nationality	India  भारत
Date of Birth	25 February 1995
Current Affiliation	Technion - Israel Institute of Technology, Israel
Former Affiliation(s)	ICTQT - University of Gdańsk, Poland Indian Institute of Technology Roorkee, India Hansraj College, University of Delhi, India
Languages	Hindi, Sanskrit, English
Email	<a href="mailto:kumar.ankit.vyas@gmail.com">kumar.ankit.vyas@gmail.com</a>
Mobile	+91 81309 14778

Research Interests	Quantum Information Science & Quantum Technology Computational Physics: Methods and Applications
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## EDUCATION & PROFESSIONAL EXPERIENCE

Postdoctoral Fellow	19.10.2025 – Present
Technion - Israel Institute of Technology, Israel	
Advisor:	Asst. Prof. David Gelbwaser-Klimovsky
Research Assistant	07.07.2025 – 03.10.2025
Indian Institute of Technology Roorkee, India	
Postdoctoral Fellow / Adiunkt	03.10.2023 – 19.04.2025
International Centre for Theory of Quantum Technologies, University of Gdańsk, Poland	
Advisor:	Prof. Michał Horodecki
Ph.D. in Quantum Information Science	02.01.2018 – 13.07.2023
Indian Institute of Technology Roorkee, India	
Thesis:	Entanglement Dynamics in Quantum Continuous–Variable States
Advisor(s):	Prof. P. Arumugam & Prof. Tomasz Paterek (Uni of Gdańsk, Poland)
Awarded with an “Outstanding” in Mathematical and Computational Techniques	<a href="https://arxiv.org/abs/2405.07362">arXiv:2405.07362</a>
M.Sc. in Physics	9/10, Distinction
Indian Institute of Technology Roorkee, India	2015 – 2017
Thesis:	A Qualitative Study of Rotating Neutron Stars
Advisor:	Assoc. Prof. P. Arumugam
Rank 10 (percentile: 99.91) in GATE, 2017	Rank 86 in CSIR-UGC JRF, June 2016
B.Sc. (H) Physics	88/100
Hansraj College, University of Delhi, India	2012 – 2015
Project:	Designing and Optimization of Auto-Tracking Solar energy-based Energy Conversion Module ...
Advisor(s):	Asst. Prof.(s) Amit Sehgal, Sushil Kumar, & Rajan Walia
	[Best Innovation Idea Award]
Sr Secondary School - XI & XII	89/100
Secondary School – IX & X	9.4/10
CBSE, Baghpat 250609, India	2010 – 2012
CBSE, Meerut 250501, India	2008 – 2010

## **SPONSORED RESEARCH PROJECTS, FELLOWSHIPS & AWARDS**

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9. Publication Award for Article: [CQG 41, 245014 \(2024\)](#) ↔ Uni of Gdańsk, Poland [PLN 640]
8. Publication Award for Letter: [PRD 109, L101501 \(2024\)](#) ↔ Uni of Gdańsk, Poland [PLN 2250]
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7. Gravitation and Entanglement in Quantum Superpositions [MSCA Proposal 2023]
- Host: Prof. Mauro Paternostro (Queen's University Belfast, UK)
- Outcome: Marie Curie Seal of Excellence (certificate not awarded due to UK-EU Brexit legalities)
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6. "Pledge a Dream Grant" for research visits to Singapore and Malaysia [USD 500]  
IIT Roorkee Heritage Foundation, USA
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5. "Quantum Coherence and Nuclear Reactions" [Jan 17 - May 31, 2019]  
Nanyang Technological University, Singapore  
[NTU-India Connect Research Programme]
- Advisor: Asst. Prof. Tomasz Paterek
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4. MHRD Fellowship for Doctoral studies ↔ MHRD, Govt. of India [Jan 2018 - Dec 2022]
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3. Merit-cum-means Scholarship ↔ IIT Roorkee, India [2016 - 2017]
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2. Designing and Optimization of Auto-Tracking Solar energy-based Energy Conversion ... [Nov'13–Nov'14]  
Dept. of Electronics, Hansraj College, Uni of Delhi, India
- PI(s): Asst. Prof.(s) Amit Sehgal, Sushil Kumar, & Rajan Walia
- Funding: INR 350,000 ↔ Innovation Project HR-207 ↔ **Best Innovation Idea** award
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1. Central Sector Scheme Scholarship (CSSS) ↔ CBSE & MHRD, Govt. of India [2012-2016]

## **TEACHING**

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3. "Introduction to Quantum Mechanics" for Postgraduates [Oct 2024 - Feb 2025]  
University of Gdańsk, Poland
2. Teaching assistant in "Experimental Physics for specially-abled students" [2020]  
Indian Institute of Technology Roorkee, India
1. Teaching assistant in Computational Physics (FORTRAN & Python) [2019-2022]  
Indian Institute of Technology Roorkee, India

## **LIST OF PUBLICATIONS**

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8. Micromagnons and long-range entanglement in ferrimagnetic ground states  
Marcin Więśniak, **Ankit Kumar**, and Idriss H.N. Ngueya  
[Phys. Rev. B 112, 134425 \(2025\)](#)
7. Open quantum dynamics of Josephson charge pumps  
**Ankit Kumar**, L. Cort, M. Łobejko, Alejandro Jenkins, Michał Horodecki  
[New Journal of Physics 27, 104503 \(2025\)](#)
6. Correlations and signaling in the Schrödinger-Newton model  
**J.A. Gruca & Ankit Kumar**, R. Ganardi, P. Arumugam, K. Kropielnicka, Tomasz Paterek  
[Class. Quantum Grav. 41, 245014 \(2024\)](#)
5. Probing Modified Gravity with Entanglement of Microspheres  
**Ankit Kumar**, Yen-Kheng Lim, P. Arumugam, Tom Złosník, Tomasz Paterek  
[Phys. Rev. D 109, L101501 \(2024\)](#) Letter
4. Continuous-variable entanglement through central forces: application to gravity between quantum masses  
**Ankit Kumar**, Tanjung Krisnanda, P. Arumugam, Tomasz Paterek  
[Quantum 7, 1008 \(2023\)](#)
3. Pasta properties of the neutron star within effective relativistic mean-field model  
V. Parmar, H.C. Das, A. Kumar, **Ankit Kumar**, M.K. Sharma, P. Arumugam, S.K. Patra  
[Phys. Rev. D 106, 023031 \(2022\)](#)

2. Constraining the parameterized neutron star equation of state with astronomical observations  
Jaikhomba Singha, S.M. Vaneshwar, **Ankit Kumar**  
[Res. Astron. Astrophys. 23, 055001 \(2022\)](#)
1. Nonclassical trajectories in head-on collisions  
**Ankit Kumar**, Tanjung Krisnanda, P. Arumugam, Tomasz Paterek  
[Quantum 5, 506 \(2021\)](#)

## SELECTED PRESENTATIONS

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12. Energy conservation on quantum computing NIT Delhi, India ↔ STC Workshop on Silicon to Systems	Invited Talk 27 Aug 2025
11. Open system modeling for Josephson junction based nanodevices IIT Roorkee, India ↔ IPA Lecture Series	Invited Talk 07 Aug 2025
10. An open system approach to superconducting nanodevices Xiamen University, Malaysia	Invited Talk 04 Oct 2024
9. Current pumping with an unbiased SQUID Uni of Maryland, USA ↔ QTD Conference 2024	Poster 05-09 Aug 2024
8. Entanglement tests of gravity at quantum length scales Uni of Gdańsk, Poland ↔ KCIK Symposium on Quantum Information	Poster 16-18 May, 2024
7. Probing Modified Gravity with Entanglement of Microspheres Uni of Gdańsk, Poland ↔ Quantum Speedup Conference 2023	Talk 20-22 Nov 2023
6. Using Matrices to Solve the Time-Dependence of Quantum States FCRIT - Uni of Mumbai, India ↔ STTP Workshop on Quantum Computing	Invited Talk 14 Jan 2023
5. Millisecond Pulsars: astrophysics Course for undergraduate students Xiamen University, Malaysia	Invited Talk 19 Dec 2022
4. Entanglement based precision test of gravitational coupling at quantum length scales NTU, Singapore ↔ IPS Meeting 2022	Talk 28-30 Sep 2022
3. Computing gravity-mediated quantum entanglement in continuous variable bipartite states IIT Roorkee, India ↔ ISRACAM Conference 2022	Talk 20-24 Jun 2022
2. Quantum Dynamics of Fundamental Interactions Chhatrasal Govt. PG College, India ↔ National Webinar on Quantum Mechanics	Invited Talk 19 Jan 2021
1. Closest approach of a quantum projectile Alagappa University, India ↔ ICMMCMSE Conference 2022	Talk 22-24 Jan 2022

## ACADEMIC REFEREES

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- Prof. Michał Horodecki [michal.horodecki@ug.edu.pl](mailto:michal.horodecki@ug.edu.pl)  
International Centre for Theory of Quantum Technologies, University of Gdańsk, Poland
- Prof. Tomasz Paterek [tomasz.paterrek@ug.edu.pl](mailto:tomasz.paterrek@ug.edu.pl)  
Institute of Theoretical Physics and Astrophysics, University of Gdańsk, Poland
- Asst. Prof. David-Gelbwaser Klimovsky [dgelbi@technion.ac.il](mailto:dgelbi@technion.ac.il)  
Faculty of Chemistry, Technion - Israel Institute of Technology, Israel
- Prof. Paramasivan Arumugam [arumugam@ph.iitr.ac.in](mailto:arumugam@ph.iitr.ac.in)  
Department of Physics, Indian Institute of Technology Roorkee, India