

## **Project Investigator's Biodata**

**1. Name and full correspondence address:**

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**3. Institution:**

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**4. Date of Birth: 21.06.1988**

**5. Gender: Male**

**6. Category: General**

**7. Whether differently abled: No**

**8. Academic Qualifications (Undergraduate onwards)**

	Degree	Year	Subject	University	% of Marks
1	Bachelor of Technology (B.Tech.)	2010	Electrical & Electronics Engineering	U.P. Technical University, Lucknow (now AKTU Lucknow)	77% (with Honours)
2	Doctor of Philosophy (Ph.D.)	2023	Photonics Science & Engineering	Indian Institute of Technology Kanpur (IIT Kanpur)	9.5 (CGPA)

**9. Ph.D. Thesis Details:**

**Ph.D. Thesis Title:** Multispectral Dispersion Engineering of Sub-Wavelength & Surface States.

**Guide's Name:** Prof. Harshawardhan Wanare, IIT Kanpur

Prof. S. Anantha Ramakrishna, IIT Kanpur

**University/Institution:** Indian Institute of Technology Kanpur (IIT Kanpur)

**Year of award:** 2023

**10. Work Experience (in chronological order):**

	Positions Held	Name of the Inst./Org.	From	To	Pay Scale (per month)
1	Graduate Engineer Trainee	Jindal Steel & Power Ltd. (JSPL)	July 2010	May 2011	INR 20000 (+allowances)
2	Deputy Manager (at the time of resignation)	NTPC Ltd.	September 2011	July 2017	INR 67627 (+ 95% allowances)
3	Project Associate II	Department of Electrical Engg, IIT Kanpur	December 2022	July 2023	INR 35000
4	Research Associate	FSID, Indian Institute of Science (IISc) Bangalore	August 2023	September 2023	INR 71920
5	Project Scientist I	Centre for Nanoscience & Engineering, Indian Institute of Science (IISc) Bangalore	October 2023	Feb 2024	INR 74676
6	Postdoctoral Research Fellow	Nanyang Technological University (NTU), Singapore	Feb 2024	May 2024	SGD 6250

**11. Professional Recognition/ Award/Prize (descending order):**

	Name of Award	Awarding Agency	Year
1	Outstanding Ph.D. Thesis Award	IIT Kanpur	2023
2	Best Ph.D. Thesis Award	Indian Laser Association (at DAE-BRNS National Laser Symposium, IIT Kharagpur)	2022
3	Featured Article in Applied Physics Letters, APL (inclusion in the journal's collection of best research articles)	American Institute of Physics (AIP) Publishing	2022
4	100 Seconds Thesis Award	Indian National Academy of Engineering (INAE) Kanpur Chapter	2021
5	Best Poster Presentation	OSA Student Chapter NISER, Bhubaneswar	2021
6	Best Technical Writeup	OSA-IEEE-PS Student Chapter, IIT Bombay	2020
7	Best Poster Award	IEEE Photonics Society (at WRAP IIT Guwahati)	2019

8	CMD's Gold Medal	NTPC Ltd.	2013
9	Directors' Meritorious Citation	Board of Directors, NTPC Ltd.	2013
10	Best (Graduating) Engineer Award	Shri Ram Murti Smarak Trust, SRMS Bareilly	2010

## 12. List of Journal Publications (descending order):

	Authors	Title	Name of Journal	Volume	Page	Year
1.	Komal Sharma, <b>Nitish Kumar Gupta</b> , Venkatachalam P, Shankar Kumar Selvaraja, Jaydeep Basu	Mode- and Polarization-Selective Control of Exciton and Trion Emission in Colloidal Nanoplatelets Coupled to Guided Metasurface Resonators	ACS Photonics	Accepted	Accepted	2025
2.	<b>Nitish Kumar Gupta</b> , Venkatachalam P, Sushma Gali, and Shankar Kumar Selvaraja	Guided-mode Resonance Dispersion Engineering on a SiN-based Integrated Photonic Platform for Diverse Polarization State Generation	Optics Letters	50	4578-4581	2025
3	Jaspreet Singh, <b>Nitish Kumar Gupta</b> , Subhendu Sarkar	Engineering Epsilon-near-Zero Response and Polarization-independent Radiative Ferrell-Berremann Modes in Nanoporous Gold-silver Films	Journal of Physics D: Applied Physics (IoP)	58	425305	2025
4.	Nikita Choudhary, Deependra Singh Gaur, Diksha Sharma, Anjani Kumar Tiwari, <b>Nitish Kumar Gupta</b>	Controlled Angular Correlations and Polarization Speckle in Scattering Birefringent Films	Scientific Reports (Nature Publishing Group UK)	15	35779	2025
5	<b>Nitish Kumar Gupta</b> , Sudeb Bhattacharya, Abhinav Bhardwaj, Kumar Vaibhav Srivastava, Janakarajan Ramkumar, Harshawardhan Wanare, and S. Anantha Ramakrishna	Harmonic Engineering in Sub-Wavelength Cavities & Design of Ultrabroadband Microwave Absorbers by Reflection Phase Manipulation	IEEE Transactions on Electromagnetic Compatibility	66	1079 - 1086	2024
6	Jaspreet Singh, <b>Nitish Kumar Gupta</b> , Subhendu Sarkar	A hybrid effective medium description for nanoporous gold films and thickness-mediated control of optical absorption	Nanotechnology (IoP)	35	395702	2024
7	<b>Nitish Kumar Gupta</b> , Sapireddy Srinivasu, Mukesh Kumar, Anjani Kumar Tiwari, Sudipta Sarkar Pal, Harshawardhan Wanare, and S. Anantha Ramakrishna	Realization of Jackiw-Rebbi Zero-Energy Modes at Photonic Crystal Domain Walls: Emergence of Polarization-Indiscriminate Surface States	Applied Physics Letters	124	091104	2024
8	<b>Nitish Kumar Gupta</b> , Sapireddy Srinivasu, Mukesh Kumar, Anjani Kumar Tiwari, Sudipta	Direct Determination of Photonic Stopband Topological Character: A Framework based on	Advanced Photonics Research	05	2300155	2024

	Sarkar Pal, Harshawardhan Wanare, and S. Anantha Ramakrishna	Dispersion Measurements,” Advanced Photonics Research				
9	<b>Nitish Kumar Gupta</b> , Aditi Chopra, Mukesh Kumar, Anjani Kumar Tiwari, Sudipta Sarkar Pal, Harshawardhan Wanare and S. Anantha Ramakrishna	Surface State Engineering Using Bulk-Band Geometric Phases: Band Inversion and its Observable Implications in One-Dimensional Photonic Crystals	Indian Journal of Pure & Applied Physics (CSIR-NIScPR)	61	560-567	2023
10	<b>Nitish Kumar Gupta</b> , Mukesh Kumar, Anjani Kumar Tiwari, Sudipta Sarkar Pal, Harshawardhan Wanare, and S. Anantha Ramakrishna	Spectroscopic Ellipsometry-based Investigations into the Scattering Characteristics of Topologically Distinct Photonic Stop-bands	Applied Physics Letters	121	261103	2022
11	<b>Nitish Kumar Gupta</b> , Gaganpreet Singh, Sapireddy Srinivasu, Harshawardhan Wanare, Kumar Vaibhav Srivastava, J. Ramkumar, and S. Anantha Ramakrishna	Singular Phase Characteristics of Electromagnetic Absorbers and a Framework for Low-RCS Target Detection	IEEE Antennas and Wireless Propagation Letters	22	134-138	2022
12	<b>Nitish Kumar Gupta</b> , Sapireddy Srinivasu, Anjani Kumar Tiwari, Harshawardhan Wanare and S. Anantha Ramakrishna	Realizing Quasi- monochromatic Switchable Thermal Emission from Electro- Optically induced Topological Phase Transitions	Scientific Reports (Nature Publishing Group UK)	12	7400	2022
13	<b>Nitish Kumar Gupta</b> , Gaganpreet Singh, Harshawardhan Wanare, S. Anantha Ramakrishna, Kumar Vaibhav Srivastava, and J.Ramkumar	A low-profile consolidated metastructure for multispectral signature management	Journal of Optics (IoP)	24	035102	2022
14	<b>Nitish Kumar Gupta</b> , Anjani Kumar Tiwari, Harshawardhan Wanare and S. Anantha Ramakrishna	Near singular-phase optical biosensing with strongly coupled modes of a plasmonic-photonic trimer	Journal of Optics (IoP)	23	065003	2021
15	<b>Nitish Kumar Gupta</b> , Harshawardhan Wanare, and S. Anantha Ramakrishna	Design of transparent conducting plasmonic metasurfaces and theory of impedance-matched metastructure	Plasmonics	15	2109- 2117	2020

### 13. Details of Patents:

	Patent Title	Name of Applicants	Patent No.	Publication Date	Country	Status
1	Complementary Quarter-wave Retardance Device for Generating One or More Polarization States	<b>Nitish Kumar Gupta</b> , Pradeep Chakravarthy, Mukesh Kumar, Anjani Kumar Tiwari, Sudipta Sarkar Pal, Kumar Vaibhav Srivastava, Harshawardhan Wanare, S. Anantha Ramakrishna	563145	March, 2025	India	Awarded

#### 14. Book Chapters:

	Title	Authors	Publisher	Year of Publication
1	<b>Active Tunability in Resonant Metamaterials Using Phase Transitions</b> in the book titled “ <b>Handbook of Measurement and Characterization of Metamaterials.</b> ”	Nikita Choudhary, Anjani Kumar Tiwari, and <b>Nitish Kumar Gupta</b>	Springer	In Press

#### 15. Any Other information:

##### Invited Talks:

- 1. PIERS 2025 (The Electromagnetic Academy, USA), Abu Dhabi National Exhibition Centre, Abu Dhabi, UAE:** Delivered an invited talk titled, “Development of Experimental Methods for Photonic Bandgap's Topological Character Identification.”
- 2. Microwave Seminar Series by Dept. of Physics, ITMO University, St. Petersburg, Russia (2023):** Title- Direct Determination of Bandgap Character in Topological Photonic Crystals.

Furthermore, I hold certifications from many organizations/universities of repute, some of which are enumerated hereafter:

- Online Certification by Rice University, USA on Nanotechnology.
- Online Certification by TU Delft, Netherlands on Solar Energy.
- Online Certification by the University of Texas at Austin on Energy 101.
- AICTE ATAL Academy online Faculty Development Program on Photonics.
- Certified Power Plant Desk Engineer trained on two 660MW Super-Critical simulators (Power Management Institute, Noida (NTPC School of Business) & NTPC Sipat).

Apart from this, I have been involved in the dissemination of scientific research to students and the general audience (promoting the importance of Photonics among the general audience). In this regard, a few of my contributions are mentioned below:

- Delivered an Invited Lecture on “Microwave Metamaterials for RCS Reduction: Current Trends & Future Prospects.” The event was organized by IEEE- Microwave Theory and Techniques Society SBC at Stanley College of Engineering and Technology for Women, Hyderabad (2024).
- Delivered a popular “Photonics for Homeland Security” talk at IDL-2018 event organized by the OSA-Student Chapter, IIT Kanpur (2018).