

Project Investigator's Biodata

1. Name and full correspondence address:

Dr. Nitish Kumar Gupta

H-219, Department of Electrical & Electronics Engineering,
Birla Institute of Technology and Science (BITS), Pilani, Hyderabad Campus
Jawahar Nagar, Kapra Mandal, Dist.-Medchal-500 078
Telangana, India

2. Email(s) and Contact Number(s)

Primary (institute) email: nitishkumar.gupta@hyderabad.bits-pilani.ac.in

Secondary email: nits.iitk@gmail.com

Office Telephone No: +91 40 66303962

Mobile: 7522002705

3. Institution:

Birla Institute of Technology and Science (BITS), Pilani, Hyderabad Campus
Jawahar Nagar, Kapra Mandal, Dist.-Medchal-500 078
Telangana, India

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 (INAЕ) 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, Nitish Kumar Gupta , 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.	Nitish Kumar Gupta , 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, Nitish Kumar Gupta , Subhendu Sarkar	Engineering Epsilon-near-Zero Response and Polarization-independent Radiative Ferrell-Berreman 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, Nitish Kumar Gupta	Controlled Angular Correlations and Polarization Speckle in Scattering Birefringent Films	Scientific Reports (Nature Publishing Group UK)	15	35779	2025
5	Nitish Kumar Gupta , 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, Nitish Kumar Gupta , Subhendu Sarkar	A hybrid effective medium description for nanoporous gold films and thickness-mediated control of optical absorption	Nanotechnology (IoP)	35	395702	2024
7	Nitish Kumar Gupta , 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	Nitish Kumar Gupta , 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	Nitish Kumar Gupta, 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	Nitish Kumar Gupta, 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	Nitish Kumar Gupta, 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	Nitish Kumar Gupta, 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	Nitish Kumar Gupta, 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	Nitish Kumar Gupta, 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	Nitish Kumar Gupta, 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	Nitish Kumar Gupta, 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	Active Tunability in Resonant Metamaterials Using Phase Transitions in the book titled “ Handbook of Measurement and Characterization of Metamaterials. ”	Nikita Choudhary, Anjani Kumar Tiwari, and Nitish Kumar Gupta	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).