

PERSONAL DETAILS

Gender : Male
Phone : +91-9993366102
Mail : nishit.malviya@iiitranchi.ac.in; nishit.malviya@gmail.com
Webpage : NA

EDUCATION

Degree	College/School	Subject	Year of Passing
Ph.D	IIT (ISM) Dhanbad	Optical Communication, Silicon Photonics	2019
M.Tech with Hons.	SGSITS Indore (RGPV Bhopal)	Optical Communication (Opto-Electronics)	2012
B.E.	PCST Bhopal (RGPV Bhopal)	Electronics and Communication Engineering	2009

WORK EXPERIENCE

Teaching Experience

Assistant Professor March 2023 – Present
Department of Electronics and Communication Engineering
Indian Institute of Information Technology, Ranchi

Ad-Hoc Faculty July 2022 – March 2023
Department of Electronics and Communication Engineering
Indian Institute of Information Technology, Ranchi

Temporary Faculty Feb 2019 – June 2022
Department of Electronics and Communication Engineering
Indian Institute of Information Technology, Ranchi

Guest Faculty Lecturer Aug 2012 – Dec 2012
Department of Electronics and Communication Engineering
Govt Polytechnic College, Khirsadoh, Parasia, Chhindwara

Research Experience

Exchange Research Student (PhD) under Erasmus Mundus Leader Program
School of Mathematics, Computer and Engineering,
City, University of London, United Kingdom
Oct-2017 – May-2018

Senior Research Fellow (SRF)

Shri GS Institute of Technology & Science Indore, Madhya Pradesh, India
Project Title : Development of Prototype Handheld/Wearable Glucose Monitoring Device.
Funded By : Indian Council of Medical Research, New Delhi Jan-2013 – Jan-2014

RESEARCH AREAS

1. Optical Communication
2. Silicon Photonics
3. Optical Sensors
4. Mathematical Modeling of Optical Waveguides
5. IoT based Sensing System

Subject Taught

Electronics Instrument and Measurement	:	4 th Semester (UG)	(2 Time)
Data Structure and Algorithm	:	2 nd Semester (UG)	(1 Time)
Control System	:	5 th Semester (UG)	(3 Times)
Analog Communication	:	4 th Semester (UG)	(1 Time)
Electrical Technology	:	1 st Semester (UG)	(1 Time)
Research Methodology and IPR	:	1 st Semester (M.Tech and PhD)	(1 Time)
Optical Communication	:	6 th Semester (UG)	(2 Times)
Digital Logic and Circuit	:	2 nd Semester (UG)	(1 Time)
Analog and Linear Integrated Circuit	:	3 rd Semester (UG)	(1 Time)
Optical Sensor	:	5 th Semester (UG)	(2 Times)
Optical Wireless Communication	:	1 st Semester (PG)	(2 Times)

RESEARCH WORK SUMMARY

Journals (SCI/Scopus Indexed)	Other Journals	International Conferences	Books/Book Chapters	Total Publications
8		19	01	28
Projects	Ph.D (Awarded)	Ph.D (Ongoing)	Citations	H-Index
NA	NA	01	117	07

SKILLS

Simulation Tool: COMSOL Multiphysics, Optisystem, MATLAB,

Word Processing: MS Office, LATEX

Samarth ERP Portal (Academic Module)

ADMINISTRATIVE RESPONSIBILITIES

- | | |
|--------------------------------------|--------------------|
| 1. Examination Coordinator | [May-23- Contd.] |
| 2. Samarth ERP Coordinator | [June-24- Contd.] |
| 3. Nodal Officer for NAD-Digi locker | [March 26- Contd.] |

M.TECH and B. TECH DISSERTATIONS GUIDED

No. of M.Tech Dissertations Guided: 00

No. of B. Tech Dissertations Guided: 11

PUBLICATIONS

SCI Indexed Journals:

- [1] K. Awasthi, N. Malviya, A. Kumar, and D. Chack, "Optimisation Framework of Subwavelength Grating Double Slot Waveguides for Biochemical Sensing Applications," *IETE J. Res.*, pp. 1–13, Dec. 2025.
- [2] S. M. Hussain, A. Balakrishna, K. T. N. Naidu, P. Pareek, N. Malviya, and M. J. C. S. Reis, "Enhancing Supply Chain Efficiency in India: A Sustainable Framework to Minimize Wastage Through Authentication and Contracts," *Sustainability*, vol. 17, no. 3, p. 808, Jan. 2025.
- [3] K. Awasthi, N. Malviya, and A. Kumar, "Silicon Subwavelength Grating Slot Waveguide based Optical Sensor for Label Free Detection of Fluoride Ion in Water," *IETE Tech. Rev.*, vol. 41, no. 3, pp. 341–352, May 2024.
- [4] S. K. Swain, N. Malviya, S. Singh, and S. K. Sharma, "InSb/Si Heterojunction-Based Tunnelling Field-Effect Transistor with Enhanced Drive Current and Steep Switching," *J. Electron. Mater.*, vol. 51, no. 2, pp. 704–711, Feb. 2022.
- [5] V. Priye, N. Malviya, and A. Mickelson, "Analytical predictions for nonlinear optical processes in silicon slot waveguides," *J. Comput. Electron.*, vol. 17, no. 2, pp. 857–865, Jun. 2018.

- [6] N. Malviya and V. Priye, "Efficient design of silicon slot waveguide optical modulator," *Opto-Electronics Rev.*, vol. 25, no. 4, pp. 285–289, Dec. 2017.
- [7] R. R. Singh, N. Malviya, and V. Priye, "Parametric Analysis of Silicon Nanowire Optical Rectangular Waveguide Sensor," *IEEE Photonics Technol. Lett.*, vol. 28, no. 24, pp. 2889–2892, Dec. 2016.

Scopus Indexed Journal:

1. D. Srivastava, W. Bhattacharya, S. Vardhan, N. Malviya, and R. R. Singh, "Parametric optimization of hollow core photonic crystal fiber and its comparison with conventional single mode fiber," *Results Opt.*, vol. 9, p. 100294, Dec. 2022.

International Conferences:

- [1] K. Awasthi, N. Malviya, and A. Kumar, "Subwavelength Grating Slot Waveguide Based Refractometric Chemical Sensor with Improved Sensitivity," 2026, pp. 107–114.
- [2] S. M. Hussain, N. Malviya, and P. Pareek, "Investigation of Quantum Machine Learning for Smart Eco System Focusing on Energy Optimization," 2025, pp. 135–150.
- [3] R. Ranjan, P. Pareek, and N. Malviya, "Numerical Analysis of Electrically Pumped Si-GeSn/GeSn Quantum Well Transistor Laser," in *2022 International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD)*, 2022, pp. 73–74.
- [4] R. R. Singh, D. Srivastava, W. Bhattacharya, N. Malviya, and A. Singh, "Performance analysis for mode confinement loss of photonic crystal fiber with circular air hole rings around the solid core," in *Micro-Structured and Specialty Optical Fibres VII*, 2022, p. 23.
- [5] N. Malviya, R. Ranjan, and P. Pareek, "Design of Slot Waveguide based Directional Coupler for Optical Sensing of low concentration of Ethanol in Water," in *2022 International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD)*, 2022, pp. 155–156.
- [6] P. Pareek, L. Singh, R. Ranjan, N. Malviya, and V. Agarwal, "Examination of Resonant Cavity Enhanced Strain Compensated SiGeSn/GeSn Interband MQWIP," in *2022 International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD)*, 2022, pp. 11–12.
- [7] D. Srivastava, W. Bhattacharya, R. R. Singh, and N. Malviya, "Tailorability of Power Splitting Ratio in a Cuboidal Silicon-on-Insulator based Power Splitter," in *JSAP-Optica Joint Symposia 2022 Abstracts*, 2022, p. 21a_C304_5.
- [8] M. Nishit and Wridheeman Bhattacharya; Devansh Srivastava; Ritu Raj Singh,, "Hollow Core Photonic Crystal Fiber Sensor for Sensing Hemoglobin and Water Component in Blood," in *The Japan Society of Applied Physics*, 2022, vol. 83, no. 23p-A406-4, p. 1153.
- [9] J. K. Mishra, V. Priye, B. M. A. Rahman, and N. Malviya, "Frequency-interleaved SDM transmission over multicore fiber for next-generation short-reach optical interconnect systems," in *Micro-Structured and Specialty Optical Fibres V*, 2018, p. 5.
- [10] R. R. Singh, V. . Priye, S. Kumari, and N. Malviya, "SNORW Biosensor for Measuring Glucose Level in Blood Samples," in *Optical Sensing and Detection V*, 2018, p. 42.
- [11] P. Pareek, N. Malviya, V. Palodiya, and J. K. Mishra, "Detectivity evaluation in SiGeSn/GeSn multiple quantum well photodetector," in *c*, 2018, vol. Part F125-.
- [12] N. Malviya, B. Singha Deo, and V. Priye, "Silicon-on-insulator-based slab to slot waveguide mode coupler," in *Silicon Photonics: From Fundamental Research to Manufacturing*, 2018, p. 45.
- [13] L. Singh, P. Pareek, N. Malviya, and J. K. Mishra, "Theoretical investigation of electro-absorption in strain compensated Tin doped group IV alloy based quantum well," in *Nanophotonics VII*, 2018, p. 75.

- [14] N. Malviya and V. Priye, "Multiple scale analysis of vertical silicon slot waveguide for nonlinear applications," in *Optics InfoBase Conference Papers*, 2018, vol. Part F125-.
- [15] N. Malviya and V. Priye, "Nonlinear Pulse Compressor on Silicon Slot Hybrid Optical Waveguide," in *Frontiers in Optics 2017*, 2017, p. JTu3A.56.
- [16] V. Kumar, N. Malviya, and V. Priye, "Estimation and Compensation of Coupling Loss between Bend and Straight Silicon Waveguides," in *Frontiers in Optics 2016*, 2016, p. JTh2A.178.
- [17] V. Priye and N. Malviya, "Enhanced Optical Power Confinement in Optimally Designed Silicon Slot Waveguide," in *13th International Conference on Fiber Optics and Photonics*, 2016, p. W3A.54.
- [18] J. T. Andrews et al., "Towards a Wearable Non-invasive Blood Glucose Monitoring Device," *J. Phys. Conf. Ser.*, vol. 365, p. 012004, May 2012.
- [19] N. Malviya, S Chouksey, Om P Choudhury, J Solanki, J T Andrews and P K Sen, "MOEMS Light Couplers for Silicon-on-Insulator Type Michelson Interferometer", accepted in *Journal of Physics: Conference Series*.

OUTREACH ACTIVITIES

Reviewer

Optical Communication, Optical and Quantum Electronics, Optical Fiber Technology, Scientific Report, Optical Engineering (SPIE)

Invited Talk/Seminars Presented

1. A expert lecture Workshop on Fiber Optic Sensors and its Applications (WFOSA)-2024 at IIT(ISM) Dhanbad [04 Dec, 2024]
2. A expert lecture in The Photonics Spectrum 2024 organized by NSUT Delhi [10-11 Aug 2024]
3. A expert lecture in Recent trends of communication: Photonics Technology organized by School of Electronics Engineering of VIT Vellore from 01-Aug-2022 to 05-Aug-2022. [4 Aug 2022]
4. A lecture on Silicon Photonics: From Fundamental to Devices in Online Faculty Development Program on "Recent Trends in Physical Science" by Govt Government College, Manawar, MP [22 March 22]
5. Subwavelength Silicon Photonic Devices on FDP program "Nanoelectronics Devices: Materials to Applications (NDMA-2021)" at IIIT Ranchi. [10-Dec, 21]
6. Silicon Photonics: From Fundamental to Devices at SPIE Student Chapter NIT Warangal [07-Nov, 20]
7. Hands on session on Comsol Multiphysics in Atal Faculty Development Program at IIIT Ranchi [05-Nov, 20]
8. Design and analysis of Electro-Optic Modulator through COMSOL in Recent trends in Photonics Technology (RTPT) 2018 at IIT (ISM) Dhanbad. [25-27, Oct-18]
9. A lecture on "Components of the Computer" in Computer Awareness Program under "Unnat Bharat Abhiyaan" at IIT (ISM) Dhanbad. [21-25, May-18] [20-24, Aug-18]
10. Designing and analysis of slot optical waveguide on COMSOL Multiphysics in Recent trends in Photonics Technology (RTPT) 2015 at IIT (ISM) Dhanbad. [21-22, Aug-15]
11. Demonstration of software tool COMSOL for optical waveguides in short term course "Optical Communication, Network and Photonics Devices (OCNPD) 2015" at IIT (ISM) Dhanbad. [18-20, Dec-15]
12. Analysis of optical fiber characteristic using COMSOL Multi-physics in RTPT 2014 at IIT (ISM) Dhanbad. [04-05, April-14]

Conference Attended

1. 16th International Conference on Fiber Optics and Photonics – 2024 at IIT Khargpur [12-15 Dec 2025]
2. International Symposium on Quantum Computing and Innovation organized by C-DAC Kolkata and Patna at IIT BHU, Varanasi [14-15 July 2023]

3. 22nd International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD 2022) [12-16 Sept 2022]
4. 2020 Conference on Lasers and Electro-Optics ("CLEO") in Online Mode [11-15, May-20]
5. Photonics Europe 2018, Strasbourg, France. [22-26, Apr-18]
6. Frontier-in-Optics, Washington DC, USA. [17-21, Sept-17]
7. 13th International Conference on Fiber Optics and Photonics, Kanpur. [04-08, Dec-16]
8. IEEE International Conference on Microwave and Photonics (ICMAP-2015) at IIT (ISM) Dhanbad. [11-13, Dec-15]
9. 12th International Conference on Fiber Optics and Photonics, Kharagpur. [09-12, Dec-12]
10. International Conference on Recent Trends in Physics, Devi Ahilya University, Indore. [04-05, Feb-12]

Workshop Attended

1. 6-Day Online Faculty Development Program on "Photonic Quantum Key Distribution Network and its Realization" organized by Malaviya Mission Teacher Training Centre, IIT(ISM) Dhanbad, Jharkhand [25-30 June 2025].
3. International Workshop on Photonics and Optoelectronics Devices (IWPOD)-2024 at IIIT Ranchi [26-30 Jan 2024]
4. VLSI to System: Silicon to End Application Approach by AICTE, Arm Education and STMicroelectronics [31-04 Aug. 2023]
5. Quantum Computing using Indigenous Quantum Simulator QSim Jointly organized by IIT Roorkee and C-DAC Hyderabad [06-28 May 2023]
6. Online Faculty Development Program on "Recent Trends in Physical Science" by Govt Government College, Manawar, MP [21-26, March-22]
7. Technological Interventions using Wireless Communication by NITTTR, Chandigarh (5 Days) [18-22, May-20]
8. Recent Trends in Photonics Technology 2018 at IIT (ISM) Dhanbad. (5 Days) [07-11, Oct-18]
9. 26th International Workshop on Optical Wave & Waveguide Theory and Numerical Modelling at Bad Sassendorf, Germany. (2 Days) [13-14, Apr-18]
10. Technical Development Program on "Modeling and Simulation of Optical Devices" at IIT (ISM) Dhanbad. (1 Days) [08, Jul-17]
11. Emerging Trends in Photonics Technology at IIT (ISM) Dhanbad. (2 Days) [02-03, Feb-17]
12. Personal Communication and Optical Monitoring System for Coal Mines at IIT (ISM) Dhanbad. (5 Days) [06-10, Feb-17]
13. Basic Introduction to Optoelectronics Device Modeling and Simulation Tools at IIT (ISM) Dhanbad. [03, Sep-16]
14. Workshop on "Fiber Optics and Optical Communications (FOCO) 2016" at Ajmer, India. (5 Days) [02-06, Mar-16]
15. Optical Communication, Network & Photonics Devices 2015 at IIT (ISM) Dhanbad. (3 Day) [18-20, Dec-15]
16. Recent Trends in Photonics Technology 2015 at IIT (ISM) Dhanbad (2 Days) [21-22, Aug-15]
17. Recent Trends in Photonics Technology 2014 at IIT (ISM) Dhanbad. (2 Days) [4-5, Apr-14]
18. International interaction meeting on X-Ray Lithography at Indus-2 at RRCAT, Indore. (1 Days) [23, Feb-13]
19. National workshop on Nanophotonics at SGSITS, Indore. (3 Days) [26-28, Sept-13]
20. Hands on training on Nanofabrication at CEN, IIT-Bombay. (5 Days) [18-22, March-13]
21. Chip Focus based on CMOS at Oriental College of Science and Technology, Bhopal. (2 Days) [30-31, March-07]

Other Activities:

Organisational/Managerial experiences

- Deployment of Samarth ERP Portal of MoE at IIIT Ranchi

- **Faculty Coordinator** of First “Institute Industry Interaction 2020” at IIIT Ranchi [22nd Feb, 2020]
- **Coordinator** of Recent trends in Photonics Technology (RTPT) 2018. [25-27, Oct-18]
- **Web administrator** of website of OSA IIT(ISM) Student Chapter. [Jan-15 – Dec-17]
- **President** of OSA IIT(ISM) Student Chapter. [Jan-17 – Dec-17]
- **Secretary** of OSA IIT(ISM) Student Chapter. [Jan-16 – Jan-17]
- **Coordinator** of Recent Trends in Photonics Technology 2017, 5 Days Workshop. [07-11, Oct-17]
- International OSA Network of Students (IONS) Dhanbad 2016 as a **Co-Convener & Web administrator** . [07-10, Sep-16]
- **Student coordinator** of Optical Communication, Network and Photonics Devices (OCNPD) 3 Days Short Term Course. [18-20, Dec-15]
- **Coordinator** of Recent trends in Photonics Technology (RTPT 2015), 2 Days Workshop. [21-22, Aug-15]
- **Organizing member** of National workshop on Nano-photonics at SGSITS, Indore, India. [26-28, Sept-13]

DECLARATION

I hereby declare that the above particulars are true to the best of my knowledge and belief.

Dr Nishit Malviya