

Curriculum Vitae

Personal Information

Name: **Dr. Jitendra Kumar Mishra**
Address: Department of Electronics & Communication Engineering
Indian Institute of Information Technology Ranchi
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Nationality: Indian
Gender : Male

Educational Qualifications

Degree	Specialization	University/Institute	Year of Passing	Marks/CGPA	Class/Division
Ph.D.	Optical Communication	IIT (ISM) Dhanbad	November 2016	–	–
Exchange Research Fellow	Optical Communication, Photonics	City, University of London, UK	Dec. 2014 to Dec. 2015	–	–
M. Tech.	Telecommunication Engineering	NIT Durgapur	2010	9.10 (CGPA)	First
B. E.	Electronics & Communication Engineering	R.G.P.V., Bhopal	2007	78.91 %	First with Hons.

Work Experience

Designation	Institute/Organization	Duration
Assistant Professor	Indian Institute of Information Technology Ranchi	21/12/2018 to till date
Assistant Professor	Indian Institute of Information Technology Nagpur	30/07/2018 to 20/12/2018
Assistant Professor (NPIU-TEQIP-III)	BIT Mesra, Ranchi	04/01/2018 to 25/07/2018
Temporary Faculty	NIT Raipur	06/02/2017 to 03/01/2018
Assistant Professor	Noida Institute of Engineering & Technology, Greater Noida	14/08/2011 to 01/08/2012
Assistant Professor	IIMT college of Engineering, Greater Noida	26/07/2010 to 13/08/2011

Administrative Responsibility:

- Faculty In-charge, Research & Infrastructure
- Faculty In-charge, Machine Learning & Artificial Intelligence Research Cell
- Member of Senate
- Faculty In-charge, Student Affairs- IIIT Nagpur

Awards and Achievements

- Recipient of the Areas+ Erasmus Mundus Fellowship by European Commission for one year of research in City, University of London, UK during Ph.D.
- Founder member and Vice-president of IIT (ISM) OSA Student Chapter.
- Avails MHRD Scholarship during Ph.D and M.Tech. program.
- Graduate Aptitude Test in Engineering (GATE-2008) Qualified.

Technical skills

- MATLAB, OptiSystem, OptSim, FemSIM, OptiFiber, OptiGrating

Research Interests

- Optical Communication, Photonics, Communication Engineering

Title of Ph.D. Thesis

- Multicore Fibers for High Capacity Optical Interconnect Communication System

Member of Professional Bodies

- IEEE- Institute of Electrical and Electronics Engineers
- OSA- The Optical Society
- SPIE- The Society of Photo-Optical Instrumentation Engineers

Journal Review Boards

- Reviewer of IEEE Journal of Lightwave Technology
- Reviewer of IEEE Photonics Journal
- Reviewer of IEEE Access

Conferences/Workshop Attended as session chair/Reviewer

- Technical Session Chair in “1st International Conference on Nanoelectronics, Machine Learning”, Internet of Things & Computing Systems (NMIC-2021) organized by IETE & ISVE during March 13 -14th , 2021.
- Technical Session Chair in “2nd International Conference on Microelectronics, Communication Systems, Machine Learning & Internet of Things (MCMi-2021)” organized by ISVE Ranchi during Oct 23 -24th , 2021.
- Technical Session Chair in “6th International Conference on Microelectronics, Computing, Communication Systems (MCCS-2021)” organized by ISVE Ranchi during July 17 -18th, 2021.
- Reviewer of innovative ideas/innovations received under the INSPIRE Awards-MANAK for the year 2020-21, Department of Science and Technology, Govt. of India.
- Reviewer of innovative ideas/innovations received under the INSPIRE Awards-MANAK for the year 2021-22, Department of Science and Technology, Govt. of India.
- Primary Evaluator in Toyathon 2021, Ministry of Education’s, Innovation Cell, Govt. of India.
- Invited Talk in FDP on Virtual Lab: Electronics and Communication Engineering at MMMUT, Gorakhpur on 13th October 2020.

Organisational Skills and Competences

- Organised a Faculty Development Programme on "Photonics" sponsored by AICTE Training and Learning (ATAL) Academy from 03/11/2020 to 07/11/2020.
- Organised a Faculty Development Programme on "Photonics" sponsored by AICTE Training and Learning (ATAL) Academy from 21/09/2021 to 25/09/2021.
- Organised an International OSA Network of Students Conference 2016 at Dhanbad during September 7 to 10, 2016 sponsored by OSA The Optical Society.
- Organised an international lecture talk Perfect Absorption in Near-dielectric Gratings on March 18, 2016 by Prof. Martijn De Sterke, University of Sydney, Australia sponsored by OSA student chapter.
- Organised an international lecture talk The Miracle of Light in Micro-sensing" on Dec. 22, 2015 by Prof. Nan-Kuang Chen, National United University, Miaoli, Taiwan sponsored by OSA and SPIE student chapter.
- Organised a guest lecture titled Quantum Cascaded Laser and It's applications in Spectroscopy, Chemical and Biological Detection on Oct. 31, 2014 by Mr. Harish Sinha, MD, Ash Scientific Ltd., UK sponsored by OSA and SPIE student chapter.
- Organised the talk titled Wavefront Aberrations, Adaptive Optics and Applications in Vision Science on July 2014 by Prof. Vasudevan Lakshminarayan, University of Waterloo, Canada sponsored by OSA and SPIE student chapter.
- Workshop on Recent Trends in Photonics Technology (RTPT 2014), April 4-5, 2014 sponsored by OSA and SPIE student chapter.
- Organised the optics demonstration in an Indian School of Learning, Dhanbad sponsored by OSA and SPIE student chapter.

Seminars/Workshops Attended

- Attended Faculty Development Programme organised and conducted by Teaching Learning Centre, IIT Madras from Jan. 31st to Feb. 04th, 2018.
- Attended International Workshop on "Optical Wave and Waveguide Theory and Numerical Modelling (OWTNM 2015)," organised by the City, University of London, UK on 17th to 18th April 2015.
- Attended "Workshop on Recent Advances in Photonics (WRAP 2013)," organised by the Physics Department at Indian Institute of Technology Delhi on 17th to 18th December 2013.
- Attended "Professional Skills Development programme on Soft Computing Methods (SCM- 2013)," Organised by the Electronics Engineering Department at IIT (ISM) Dhanbad on 20th to 24th March 2013.

Sponsored Research Projects

1. Spatially multiplexed transmission using hybrid modulation format for next information revolution

(Principal Investigator)

Sponsor: IIIT Ranchi, Faculty Research Scheme

Fund: Rs. 4,50,000

Status: Ongoing

2. Photonic crystal waveguide based bio-sensor for healthcare applications

(Co-Principal Investigator)

Sponsor: TEQIP-III, Collaborative Research Scheme

Fund: Rs. 12,28,000

Status: Ongoing

Ph.D. Thesis Supervised

S.No.	Title of the Thesis	Research area	Year	Supervisor/ Co- Supervisor	Completed/ On- going
1.	Performance Analysis of Optical Communication System Using Machine Learning Techniques	Machine Learning Photonics	2019	Supervisor	On- going
2.	IoT based Air quality monitoring & cleaning with Plasma Cluster Ionizer using Machine Learning	Machine Learning, IoT	2019	Supervisor	On- going
3.	A Holistic Approach Towards Precision Agriculture Using Advanced Machine Learning Techniques	Machine Learning, IoT, Agriculture	2019	Supervisor	On- going
4.	Machine Learning Approach towards 6G Optical Wireless Communication systems	Optical Wireless Communication	2020	Supervisor	On- going
5.	Design and Analysis of Spatially Multiplexed Multicore Fiber Based Communication System	Multicore Fiber	2021	Supervisor	On- going

Book Chapters

1. S. Agarwal, J. K. Mishra, and V. Priye, "Analysis of Nano Opto-Mechanical Tuning of Photonic Crystal Waveguide-Based Device for Pressure Sensing," In: A. Dhawan, V.S. Tripathi, K.V. Arya, K. Naik (eds) Recent Trends in Electronics and Communication. LNEE, vol 777, pp 993-1000, 2022, Springer, Singapore. ISBN- 978-981-16-2761-3.

https://doi.org/10.1007/978-981-16-2761-3_86.

2. S. Agarwal, J. K. Mishra, and V. Priye, "Design and Analysis of Thermo-optic Photonic Crystal Waveguide-Based Optical Modulator," In: A. Dhawan, V.S. Tripathi, K.V. Arya, K. Naik (eds), Recent Trends in Electronics and Communication. LNEE, vol 777, pp 1001-1007, 2022, Springer, Singapore. ISBN- 978-981-16-2761-3. https://doi.org/10.1007/978-981-16-2761-3_87.

List of Publications

Journal Papers:

1. S. Agarwal, J. K. Mishra, and V. Priye, "Highly sensitive MOEMS integrated photonic crystal cavity resonator for nano-mechanical sensing," *Optics Communications*, vol. 474, 126150, 2020.
2. S. Agarwal, J. K. Mishra, and V. Priye, "Thermal Design Management of Highly Mechanically Stable Wavelength Shifter Using Photonic Crystal Waveguide," *Superlattices and Microstructures*, vol. 142, 106510, 2020.
3. S. Agarwal, J. K. Mishra, and V. Priye, "Augmenting Performance of a MEMS Cantilever-Based Photonic Crystal Waveguide for Switching Applications," *Applied Optics*, vol. 58, no. 31, pp. 8449-8456, 2019.
4. J. K. Mishra, B. M. A. Rahman, and V. Priye, "Rectangular Array Multicore Fiber Realizing Low Crosstalk Suitable for Next Generation Short Reach Optical Interconnects with Low Misalignment Loss," *IEEE Photonics Journal*, vol. 8, no. 4, 2200614, 2016.
5. J. K. Mishra, V. Priye, and B. M. A. Rahman, "Augmenting Data Rate Performance for Higher Order Modulation in Triangular Index Profile Multicore Fiber Interconnect," *Optics Communications*, vol. 371, pp. 40–46, 2016.
6. J. K. Mishra, V. Priye, and B. M. A. Rahman, "Error Probability Performance of a Short-Reach Multicore Fiber Optical Interconnect Transmission System," *Optics Letters*, vol. 40, no.19, pp. 4556–4559, 2015.
7. J. K. Mishra, and V. Priye, "Design of Low Crosstalk and Bend Insensitive Optical Interconnect Using Rectangular Array Multicore Fiber," *Optics Communications*, vol. 331, pp. 272-277, 2014.
8. N. Pathak, G. K. Mahanti, S. K. Singh, J. K. Mishra, and A. Chakraborty, "Synthesis of Thinned Planar Circular Array Antennas Using Modified Particle Swarm Optimization," *Progress In Electromagnetics Research Letters*, vol. 12, pp. 87-97, 2009.

Conference Papers:

1. D. K. Jha and J. K. Mishra, "Performance Evaluation of DWDM Optical Transmission System Using Deep Learning Technique," in IEEE Photonics

- Conference (IPC), 2021, Vancouver, BC, Canada.
2. J. K. Mishra, A. Kumar, S. Agarwal, P. Pareek and V. Priye, "Spatially multiplexed multicore fiber communication to fuel the next information revolution, " in Proc. SPIE, vol. 11355, Photonics Europe 2020, April 2020, Strasbourg, France.
 3. P. Pareek, R. Ranjan, S. K. Pandey, J. K. Mishra, A. K. Kushwaha, "Performance Comparison of Tin-based Group IV SQWIP and MQWIP in Dark Conditions," in Proc. SPIE 11345, Nanophotonics VIII, 113452A, Photonics Europe 2020, April 2020, Strasbourg, France.
 4. R. Ranjan, P. Pareek, S. K. Pandey, S. Kumar, and J. K. Mishra, "Investigation of GeSn/SiGeSn Nanostructured Layer for Sensors in Mid-infrared Application," in Proc. SPIE, vol. 11345, Nanophotonics VIII, 113452K, Photonics Europe 2020, April 2020, Strasbourg, France.
 5. P. Pareek, N. Malviya, V. Palodiya, and J. K. Mishra, "Detectivity Evaluation in SiGeSn/GeSn Multiple Quantum Well Photodetector," paper 21a_211B_5, JSAP-OSA Joint Symposia 2018, September 2018, Nagoya Japan.
 6. J. K. Mishra, N. Malviya, V. Priye, and B. M. A. Rahman, "Frequency-interleaved SDM Transmission over Multicore Fiber for Next Generation Short-reach Optical Interconnect Systems," in Proc. SPIE, vol. 10681, Photonics Europe 2018, May 2018, Strasbourg, France.
 7. P. Pareek, L. Singh, N. Malviya, and J. K. Mishra, "Theoretical Investigation of Electro-absorption in Strain Compensated Tin Doped Group IV Alloy Based Quantum Well," in Proc. SPIE, vol. 10672, Photonics Europe 2018, May 2018, Strasbourg, France.
 8. B. M. A. Rahman, J. K. Mishra, and C. Pan, "Design and Optimization of Photonic Devices and Optical Fibers for Space-division Multiplexing," in Proc. SPIE, vol. 10560, Photonics West 2018, Jan. 2018, San Francisco, California, United States.
 9. J. K. Mishra, A. S. Raghuvanshi, B. Acharya, N. Malviya, and V. Priye, "Strongly Coupled Multicore Fiber with Low DMD for Future Short Reach Optical Interconnect Transmission Systems," in National Conference on VLSI, Communication and Computing (VCC-2017), Dec. 2017, Raipur, India.
 10. V. Priye, J. K. Mishra, and B. M. A. Rahman, "Challenges of Multicore Fiber Application in Next Generation Short Reach Optical Interconnects," in 13th International Conference on Fiber Optics and Photonics (Photonics 2016), paper W2A.3, Dec. 2016, Kanpur, India.
 11. V. Priye and J. K. Mishra, "High Bandwidth Density Optical Interconnect Using Rectangular Array Multicore Fiber," in 12th International Conference on Fiber Optics and Photonics (Photonics 2014), paper S5A.10, Dec. 2014, Kharagpur, India.
 12. J. K. Mishra and V. Priye, "Estimation of Crosstalk in α -Index Profile Multicore Fibers for Optical Interconnect Applications," IEEE International Conference on Microwave and Photonics (ICMAP), Dec. 2013, Dhanbad, India.
 13. J. K. Mishra and V. Priye, "Crosstalk in Dissimilar Four Core Coupled Multi-core Fiber due to Bend," 6th IEEE International Conference on Advanced Infocomm Technology (ICAIT), pp.198-199, July 2013, Hsinchu, Taiwan.