

Brief Curriculum Vitae of Dr Vijay Janyani, Professor



Dr. VIJAY JANYANI *B. Engg., M. Engg., Ph.D. (U.K., under Commonwealth Scholarship)*
Professor and Ex-Head, Department of Electronics and Communication Engineering
Former Professor-in-charge, Continuing and Digital Education Center (CDEC)
Former Head, Materials Research Center
Ex-Chair, IEEE Rajasthan Sub Section (2018, 2019)
Ex-Associate Dean (Research and Consultancy)
Ex-Associate Dean (International Affairs)
Ex-Coordinator, National Knowledge Network & Virtual Classroom Project
Ex-Coordinator, Global Initiative of Academic Networks (GIAN)
Chief Vigilance Officer

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Date of Birth: 27th April 1972

EDUCATION

⇒ **Ph.D.** in Electronics Engineering (Under Commonwealth Scholarship and Fellowship Plan UK), UK (2002-2005)

Specialisation: Time Domain Modelling of Nonlinear and Dispersive Optoelectronic Materials and Devices

⇒ **Master of Engineering** in Electronics and Electrical Communication (1994-1996)

Malaviya National Institute of Technology (NIT Jaipur, erstwhile MREC), India

Honours: *GATE Scholarship*

⇒ **Bachelor of Engineering** in Electronics and Communication Engineering, (1989-1994)

Malaviya National Institute of Technology (NIT Jaipur, erstwhile MREC), India

Honours: *Merit Scholarship, II position in University*

TEACHING / RESEARCH EXPERIENCE

About 32 years of teaching and research experience. Presently full Professor at the Department of Electronics and Communication Engineering, Malaviya National Institute of Technology (MNIT), Jaipur, India. Completed various visiting assignments also during this period.

AWARDS

- Awarded the **Commonwealth Scholarship** (Commonwealth Scholarship and Fellowship Plan – CSFP-UK) for pursuing PhD Degree at United Kingdom (2002-2005).
- Awarded the **Career Award for Young Teachers** (CAYT) by All India Council for Technical Education (AICTE), India that is awarded to young talented teachers of India who have established competence in their area of specialization (2005-2008).
- Visiting Faculty, **Seconded by MHRD, Govt of India** (under Faculty Secondment Scheme) to

Asian Institute of Technology (AIT) Bangkok to teach advanced Master's Course (2010).

- Awarded Travel Support Grant by **DST, New Delhi, Govt of India** to deliver Keynote Speech at the International Conference on Electronics, Circuits and Systems Design (ICECSD) held in Paris, France in 2009.
- **Merit Scholarship of MNIT Jaipur** (then MREC Jaipur) during the entire B. Engg. Program that is awarded to meritorious students of the Institute (1989-1994).
- **GATE National Scholarship of India** during the entire M. Engg. Program that is awarded to meritorious students at a national level (1994-1996).

SPONSORED RESEARCH PROJECTS

INTERNATIONAL:

- India-Poland Bilateral Research Project (DST-NAWA) "Highly Localized, Coherent and Tunable Photon Source using Nonlinear Plasmonics and Elastomeric Actuator for Photothermal Therapy of Cancer Cells and Improved Detection in Bio-Sensing", -- As Principal Investigator (2020-2022).
- Indo-Egypt Collaborative Research Project (DST-ASRT) "Modeling and Implementation of Free Space Optical Transceiver For Next Generation Optical Communication Applications".--As Principal Investigator (2016-2018)
- Indo-Japan Collaborative Research Project (DST-JSPS) "Micro-structured all optical components for Photonic Integrated Circuit (PICs) applications".--As Co-Principal Investigator (2014-2016)
- Indo-Ukraine Collaborative Research Project (DST-DKNII) "Modeling and characterization of Lithium Niobate (LiNbO₃) based optical devices using surface geometric techniques for their applications in Integrated Optical Circuits (IOCs)".--As Co-Principal Investigator (2014-2016)
- UK-India Education and Research Initiative (UKIERI): Major Award (Collaborative Research Project) on "Microstructured Optical Fibers". The project is supported by the British Council, UK and involves leading UK and Indian research groups with complementary expertise's.--As Principal Investigator / Coordinator from MNIT (2007-2011)

NATIONAL:

- ISRO Sponsored research project on "Simulation Analysis and Implementation of Soft Decision Forward Error Correction Codes for High Speed Free-Space/Satellite Optical Communication"--As Co-PI (2023-ongoing)
- DST (Department of Science and Technology), New Delhi, Sponsored research project on "High Performance Thin Film CIGS Solar Cell For Portable Electronic Devices"--As Project Mentor (2019-2022)
- DST (Department of Science and Technology), New Delhi, Sponsored research project on "Efficiency Enhancement in Thin Film GaAs Solar Cell using Photonic Crystal as a Back Reflector"--As Principal Investigator (2015-2018)
- DRDO (Defence Research and Development Organisation), New Delhi, Sponsored research project on "Tunable Photonic Crystal Devices"--As Principal Investigator (2009-2012)
- Career Award for Young Teachers (CAYT) Sponsored by All India Council for Technical Education (AICTE), New Delhi for developing numerical models for nonlinear optics. -- As Principal Investigator / Coordinator (2005-2008)
- Ministry of Human Resource Development (MHRD), New Delhi sponsored research project "Design of millimeter-wave planar antennas for mobile wireless application" -- as *Co-Principal Investigator* (2000-2004)

CURRENT RESEARCH INTERESTS

Photonics, Optical Communication, Optical Materials and Devices, Modelling and simulation, Optical

waveguides and gratings, materials with dispersive nonlinearity, tunable photonic crystal waveguide devices, spatio-temporal dynamics of short pulses, all-optical phenomena, applications of novel photonic structures in solar photovoltaics.

THESES SUPERVISED

Nineteen (19) PhD theses completed under my supervision, four (4) are underway. More than sixty (60) PG theses examined and supervised. Many PhD thesis examined.

MEMBERSHIP OF PROFESSIONAL BODIES

- Senior Member IEEE (USA), #40359907
 - Senior Member OSA (USA), #961421
 - Senior Member SPIE (USA), #03185903
 - Life Fellow OSI (India), #L488
 - Life Fellow IETE (India), #F130878
 - Life Member ISTE (India), #LM28287
 - Life Member ILA (India), #771
 - Senior Member IACSIT, #80349418
 - Life Member ISCEE, #LM0337
 - Life Fellow IE (India), #F-1242713
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SOCIETAL ACTIVITIES

- Delivered invited or keynote talks in many countries under **OSA Traveling Lecturer Program**, and **SPIE Distinguished Lecturer Program** or on other invitations. Delivered Invited talks and chaired technical sessions at a number of reputed International and National conferences and workshops.
- Chairman of the IEEE Rajasthan Sub-Section under R10 for 2 consecutive years (2019, 2018).
- Founder president of IRISWORLD society, a not-for-profit society aimed to develop and promote the associations and networks of professionals, scientists, and engineers.
- Established SPIE Student Chapter as the founder faculty advisor.
- Contributed to the development of OSA student chapter
- Faculty advisor of IEEE Photonics Society Student Chapter
- Organised International conferences and Faculty Development Programs.
- Reviewer of many reputed journals and conferences.

Selected List of Publications in Journals

[last 3 years only, followed by selected publication relevant to the examination area. A complete list can be found at https://mnit.ac.in/dept_ece/profile?fid=TKO=]

1. Manish Jangid, Vijay Janyani, "Design and performance analysis of an ITO-Si-graphene hybrid nanostructure-based surface plasmon resonance sensor for enhanced gas detection", *Diamond & Related Materials*, Elsevier, <https://doi.org/10.1016/j.diamond.2025.112357>, 2025
2. Manish Jangid, Vijay Janyani, "Efficient Sensing Platform Utilizing Surface Plasmon Resonance Detection with ZnO Graphene Hybrid Nanocomposites", *Sensing and Imaging*, Springer, <https://doi.org/10.1007/s11220-025-00602-9>, pp 1-17, 2025
3. Durgesh Kumar, Piyush Agrawal, Vikas Mittal, Kuldeep Soni, Amit Kumar Garg, Vijay Janyani, Moustafa H. Aly, "Inter/Intra-ODN capable TWDM PON architecture for efficient OLT resources sharing over different optical networks", *Optical Fiber Technology*, Elsevier, <https://doi.org/10.1016/j.yofte.2024.104116>, 2025
4. P. Sharma, S. Baloda, D. Verma, V. Janyani, R. Sharma and N. Gupta, "Multiwall Carbon Nanotube/ Polydimethylsiloxane composites based dry electrodes for bio-signal detection", *IEEE Journal on Flexible Electronics*, IEEE, <https://doi.org/10.1109/JFLEX.2024.3367648>, pp 108-114, 2024

5. Bipin K. Saw, Vijay Janyani, Ghanshyam Singh, "Coherent Circular Polarized Shift Keying Modulation Analysis over Malaga Distribution and F Distribution with Pointing Errors in Free Space Optical Communication", *Optical and Quantum Electronics*, Springer, <https://doi.org/10.1007/s11082-023-05297-4>, pp 1-19, 2023
 6. Abhinav Bhatnagar, Hitesh Kumar Sharma, Deepak Negi, Srinivasa Rao Nelamarri, Vijay Janyani, "Fabrication and Characterization of CuInGaSe Thin Films Deposited on Silicon and Quartz Substrates Using One Step Sputtering", *Silicon*, Springer, <https://doi.org/10.1007/s12633-023-02752-5>, 2023
 7. Vinay Kanungo, Rukhsar Zafar, Praveen K. Jain & Vijay Janyani, "An optimized hybrid nanostructure for tunable radiation and filter characteristics in optical circuits", *Journal of Optics*, Springer, <https://doi.org/10.1007/s12596-023-01528-9>, 2023
 8. Hitesh Kr Sharma, Vijay Janyani, D. Boolchandani, Atul Kr Sharma, "A study of ZnO doped PDMS towards boosting of triboelectricenergy harvester performance", *Memories - Materials, Devices, Circuits and Systems*, Elsevier, <https://doi.org/10.1016/j.memori.2023.100082>, 2023
 9. Ashish Kumar, Arathy Varghese, Dheeraj Kalra, Anshuman Raunak, Jaiverdhan, Mahanth Prasad, Vijay Janyani, R.P. Yadav, "MEMS based Piezoresistive and Capacitive Microphones: A review on Materials and Methods", *Materials Science in Semiconductor Processing*, Elsevier, <https://doi.org/10.1016/j.mssp.2023.107879>, 2023
 10. Sudarshan Kumar Jain, Vijay Janyani, Nikhil Deep Gupta, "Optical analysis of thin film cadmium telluride solar cell using nanoparticles for efficiency enhancement", *Optical and Quantum Electronics*, Springer, <https://doi.org/10.1007/s11082-023-04940-4>, pp 1-17, 2023
 11. Puneet Sharma, Ritu Sharma, Vijay Janyani, Deepak Verma, "Development of a Multi-Modal graphene nanoparticles (GNP)-Polydimethylsiloxane (PDMS) Flexible Sensor for Human Activity Monitoring and Health Assessment", *International Journal of Electrochemical Science*, Elsevier, <https://doi.org/10.1016/j.ijoes.2023.100236>, 2023
 12. A. Kumar, A. Varghese, G. Sharma, M. Kumar, G. K Sharma, M. Prasad, V. Janyani, R.P. Yadav, K. Elgaid, "Optimization and fabrication of MEMS based piezoelectric acoustic sensor for wide frequency range and high SPL acoustic application", *Micro and Nanostructures*, Elsevier, <https://doi.org/10.1016/j.micrna.2023.207592>, 2023
 13. Bipin K. Saw, Vijay Janyani, Ghanshyam Singh, "Analysis of coherent-OFDM modulation for FSO communication over F distribution with pointing errors", *Optics Communications*, Elsevier, <https://doi.org/10.1016/j.optcom.2023.129677>, 2023
 14. Bipin K. Saw, Vijay Janyani, Ghanshyam Singh, "Performance Analysis of Adaptive PPM- GMSK-SIM Modulation over F-Turbulence Channel Model in FSO Communication", *Optical and Quantum Electronics*, Springer, <https://doi.org/10.1007/s11082-023-04821-w>, pp 546 (1-14), 2023
 15. M. Mansor, N. H. Zainol Abidin, N. Mohd Yusoff, K. Y. Lau, J. Y. C. Liew, Vijay Janyani, Amit Kumar Garg, M. T. Alresheedi, and M. A. Mahdi, "Tungsten trioxide nanocomposite for conventional soliton and noise-like pulse generation in anomalous dispersion laser cavity", *Nanotechnology Reviews*, De Gruyter, <https://doi.org/10.1515/ntrev-2022-0535>, pp 20220535, 2023
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16. Mayur K. Chhipa, Boddapati T. P. Madhav, Savarimuthu Robinson, Vijay Janyani, Bhuvneshwer Suthar, "Realization of all-optical logic gates using a single design of 2D photonic band gap structure by square ring resonator", *Optical Engineering*, SPIE, <http://dx.doi.org/10.1117/1.OE.60.7.075104>, 2021
 17. Abhinav Bhatnagar, Sulabh Srivastava, Vijay Janyani, "Design and performance investigation of a highly efficient copper-indium-gallium-selenide (CIGS) solar cell", *Journal of Nanophotonics*, SPIE, doi: 10.1117/1.JNP.15.036006, 2021
 18. Mayur Kumar Chhipa, B.T.P. Madhav, Bhuvneshwer Suthar, Vijay Janyani, "High data rate and ultra-compact optical encoder based on 2D linear photonic crystal ring resonator", *OQE*,
 19. Nikhil Deep Gupta, Vijay Janyani, "Analysis of Photonic Crystal Diffraction Grating Based Light Trapping Structure for GaAs Solar Cell", *IETE Journal of Research*, Taylor and Francis, DOI: 10.1080/03772063.2019.1565957, 2019
 20. Radhouene Massoudi, Monia Najjar, Mayur Kumar Chhipa, Vijay Janyani, Savarimuthu Robinson, "Modeling of Small Size and Low Crosstalk Dense Wavelength Division Multiplexing Demultiplexer Based on Photonic Micro Ring Resonator", *Journal of Nanoelectronics and Optoelectronics*, American Scientific Publishers, DOI: <https://doi.org/10.1166/jno.2018.2317>, pp 825-830, 2018
 21. Harshul Balani, Ghanshyam Singh, Manish Tiwari, Vijay Janyani, and Ashish Kumar Ghunawat, "Supercontinuum generation at 1.55 μm in As₂S₃ core photonic crystal fiber", *Applied Optics*, OSA, DOI: <https://doi.org/10.1364/AO.57.003524>, Vol. 57, Issue 13, pp. 3524-3533, 2018

22. N.D. Gupta, V. Janyani, M. Mathews, Monika, R. Singh. , "Design and Fabrication of InGaN/GaN Superlattice based Solar Cell using Photonic Crystal Structure", *Journal of Nanophotonics*, SPIE, DOI: <https://doi.org/10.1117/1.JNP.12.043505>, Vol. 12, Issue 4, PP 043505, 2018
23. Anton Bourdine, Vladimir Burdin, Vijay Janyani, Ashish Kumar Ghunawat, Ghanshyam Singh, Alexander Zhukov, "Design of Silica Multimode Optical Fibers with Extremely Enlarged Core Diameter for Laser-Based Multi-Gigabit Short-Range Optical Networks", *Photonics*, MDPI Publishers, DOI: <https://doi.org/10.3390/photonics5040037>, 5 (4), pp 1-21, 2018
24. Nikhil Deep Gupta; Vijay Janyani, "Design and Analysis of Light Trapping in Thin Film GaAs Solar Cells Using 2-D Photonic Crystal Structures at Front Surface", *IEEE Journal of Quantum Electronics*, IEEE, DOI: 10.1109/JQE.2017.2667638, Vol 53, Issue 2, 2017
25. N.D. Gupta and V. Janyani, "Lambertian and Photonic Light Trapping Analysis with Thickness for GaAs Solar Cells based on 2D Periodic Pattern", *IET-Optoelectronics*, IET Digital Library, DOI: <https://doi.org/10.1049/iet-opt.2017.0002>, Volume 11, Issue 5, p. 217 – 224, 2017
26. Nikhil Deep Gupta, Vijay Janyani, "Efficiency Enhancement in Thin Film GaAs Solar Cell Using Photonic Crystals as Reflection and Diffraction Gratings for Light Trapping", Springer, Cham (Switzerland), DOI: https://doi.org/10.1007/978-3-319-29096-6_43, Part of the Springer Proceedings in Physics book series (SPPHY, volume 178), 2016
27. G.Singh, S. Bothra, P. Jain, S. Gupta, R.P.Yadav, V. Janyani, "High Performance Digital Optical Switch", *Photonic Letters of Poland*, Photonics Society of Poland, vol. 3 (1), pp. 38-40, 2011
28. G. Singh, R.P. Yadav, V. Janyani , "Optimized Digital Optical Switch using Proton-Exchanged Lithium Niobate Waveguides", *Int. Journal of Optics and Photonics*, 4(1):3-8, 2010
29. N. Joshi, V. Janyani, "Efficient Coupling of Light into Photonic Crystal Waveguides using Chirped Photonic Crystal Tapers", *Journal of Optics*, Springer, DOI: 10.1007/s12596-009-0020-y, 2009
30. G. Singh, R. P. Yadav, V. Janyani , "Integrated MMI Couplers based 4×4 All Optical Switch with Absolute Loss Uniformity", *Photonics Letters of Poland*, vol. 1 (4), 187-189, 2009