

DR. N.VIJAYAKUMAR
PROFESSOR



Contact Information

Official Address : Associate Professor, Department of Electronics &
Communication Engineering, Government Engineering College
Barton hill, Trivandrum-695035

Email : dr.nvkr@gmail.com

Phone : +91-9446700859

Professional Qualifications

B-Tech	Specialization	Electronics & Communication Engineering
	Institute/University	University of Kerala
	Year	1988
M-Tech	Specialization	Microwave and Television Engineering
	Institute/University	University of Kerala
	Year	1990
PhD	Specialization	Optical Communications
	Institute/University	Indian Institute of Technology, Kharagpur
	Year	2000

Area/Research Interests

- Optical Communications

Professional Experience

- Assistant Professor in CET (1991-1995)
- Assistant Professor in CET (1998-2000)
- Associate Professor in Govt. Engg Wayanad (2000)
- Associate Professor in CET (2000-2011)
- Professor in Govt. Engg Barton Hill (2011-Till date)

Responsibilities/Position (Department, College and University)

- Chairman, Board of Studies, BSc. Statistics University of Kerala, from June 2000 to June 2001.
- Coordinator Network Project funded by Swiss Agency for Development & Co-operation, College of Engineering, Trivandrum, Kerala, from June 2001 to April 2004.
- Member, Board of Studies, Department of Opto-Electronics, University of Kerala, from June 2002 to Till Date.
- Network Administrator, College of Engineering, Trivandrum, Kerala, India, from June 2001 to April 2004.
- Member, Technical Committee, Centre for Development of Imaging Technology (CDIT), from June 2007 to Till Date.
- Convener Inspection Committee, Government of Kerala & Honourable High Court of Kerala, from 2010 to 2010.
- Member, Board of UG Studies, University of Kerala, 2010 to Till Date.
- Approved research guide Kerala University & Kerala Technological University Member, University of Kerala, 2010 to Till Date

Publications (Journals/ International Conferences)

International

1. Joseph Zacharias, Vijayan Civin, and Vijayakumar Narayanan, "DWDM millimeter wave generation and wavelength reuse in radio over fiber systems," Microwave and Optical Technology Letters (SCI indexed), ISSN: 1098-2760, vol. 59, no.4, pp. 983-986, April 2017.
2. Sreedevi P, N. Vijayakumar, " 1Tbps al-optical OFDM transmission Based on Wavelet Transform," International journal of microwave and optical technology(SCI – indexed), Vol 12, No.4, pp 317-324, July 2017
3. Tony Jose and Vijayakumar Narayanan, "Effect of Gain Contouring in EDFAs on BER Performance of WDM Based Radio over Fiber Links" SPIE Journal: Optical Engineering (SCI indexed), American Institute of Physics,2017 (Accepted)
4. N. Vijayakumar, and R. Sreeja, "A feed forward method for stabilizing the gain and output power of an Erbium Doped Fiber Amplifier (EDFA),Microwave and Optical Technology Letters(SCI Indexed), Vol. 51, issue 9, p-2156, John Wiley, USA, 2009
5. N. Vijayakumar and Nisha S. Nair, "Modeling Temperature dependent non linearity of a Laser diode using Fuzzy logic", International Journal Of Microwave and Optical Technology (SCI indexed),Vol.2, No.4,p491-497, September 2008

6. N. Vijayakumar and Sudhish N. George, "Design optimization of EDFAs using Artificial Neural Networks", SPIE Journal: Optical Engineering (SCI indexed), American Institute of Physics, 2008
7. N. Vijayakumar and Nisha S. Nair, "Solitons in the context of optical fiber communications", International Journal of Optoelectronics & Advanced materials (SCI indexed) Vol. 9, No.12, pp 3702-3714, December 2007
8. N. Vijayakumar, and Nisha S. Nair, "A Neuro – fuzzy model for propagation analysis through Erbium doped fibers", International Conference on Nonlinear Waves: Theory and Experiment, Tashkent, Uzbekistan, P37, January 2008
9. N. Vijayakumar and Nisha S Nair, "An ANFIS based method for design optimization of soliton based links", International Conference on Computer and Communication Engineering (ICCC-08), IEEE Communications Society, Kuala Lumpur, Malaysia, p565, 2008
10. Elizabeth George, Pradeep R. and N. Vijayakumar, "Multicell Subcarrier Multiplexing System for Radio over Fiber Communication," IETE International Conference on Robotics and Automation, March, 2016, Trivandrum.
11. Sreedevi P. and Vijayakumar Narayanan, "Bi-Directional All-Optical OFDM," 12th International Conference on Fiber Optics and Photonics (PHOTONICS-2014), 13-16 December 2014, IIT Kharagpur.
12. Sreenath S. L., Jijo Jose, Tony Jose and Vijayakumar Narayanan, "Gain Contouring in Erbium Doped Fiber Amplifiers Using Photonic Switching," 12th International Conference on Fiber Optics and Photonics (PHOTONICS-2014), 13-16 December 2014, IIT Kharagpur.
13. Karthikeya, R. Pradeep, M. Jeevan and N. Vijayakumar, "A Novel Architecture for Full Duplex WDM RoF system converged with wired network using Dual Drive MZM and Light re-modulation using RSOA", IEEEco-sponsored 9th International Conf on wireless and optical on networks – WCON-2012, 21-22 September, 2012, Indore, Madhya Pradesh, India
14. M. Jeevan, R. Pradeep, N. Vijayakumar and Karthikeya, "The reduction of Channel power instabilities in Raman Amplifiers for ROADM configured WDM networks", IEEEco-sponsored 9th International Conf on wireless and optical on networks – WCON-2012, 21-22 September, 2012, Indore, Madhya Pradesh, India
15. Pradeep R, Navitha K Krishnan, and Vijayakumar N, "A Hybrid optical/ wireless communication systems for high data rate" International Conference on IEEE recent advances in Intelligent Computational Systems, September 22 -24, 2011, Trivandrum, India
16. Tony Jose, Vijayakumar Narayanan, "Nonlinearity Reduction in Subcarrier Multiplexed Radio over Fiber Systems," International Journal of Engineering and Advanced Technology, ISSN: 2249 – 8958, Volume-7, Issue-1, October 2017, pp. 37-40.
17. Joseph Zacharias and Vijayakumar Narayanan, "Full Duplex Radio over Fiber System with Carrier Recovery and Reuse in Base Station and in Mobile Unit," International Journal of Engineering and Advanced Technology (IJEAT), ISSN: 2249 – 8958, vol.6, no.6, pp. 1-5, August 2017.

18. Joseph Zacharias, Supriya S S, Merin Philip, and Vijayakumar Narayanan, "20 Gb/s 60 GHz QAM RoF system using injection locking in a Fabry Perot Laser diode," in IEEE International Conference on Signal Processing and Communication (ICSPC 2017), Coimbatore, July 2017.
19. Tony Jose, Vijayakumar Narayanan, "Experimental Study on FPGA Based Nonlinearity Reduction in a Laser Diode," International Journal of Engineering and Advanced Technology, ISSN: 2249 – 8958, Volume-6, Issue-5, June 2017, pp. 145-148.
20. Joseph Zacharias, Anju Krishnan R, Josy Joy, Saritha Elizabeth, and Vijayakumar Narayanan, "Full duplex millimeter-wave Radio over Fiber system using optical heterodyning and self-homodyning" in IEEE International Conference on Trends in Electronics and Informatics (ICEI-2017), Tirunelveli, May 2017.
21. Joseph Zacharias, Merin Philip, Supriya S S, and Vijayakumar Narayanan, "60 GHz OFDM Radio-over-Fiber System Based on Fabry-Perot Laser," in IEEE International Conference on Circuit, Power and Computing Technologies (ICCPCT-2017), Kollam, April 2017.
22. Joseph Zacharias and Vijayakumar Narayanan, "Two-band QAM data transmission using parallel Mach Zehnder modulators in RoF system," International Journal of Engineering and Advanced Technology (IJEAT), ISSN: 2249 – 8958, vol.6, no.4, pp. 118-121, April 2017.
23. Pradeep R. and Dr. N Vijayakumar, "A Novel Single Sideband Subcarrier Multiplexing Technique for Radio over Fiber Communication Systems," International Journal for Advanced Research in Engineering and Technology(IJARET) Vol 8, Issue.2, pp. 17-23, Mar-Apr 2017.
24. Joseph Zacharias, Civin Vijayan, and Vijayakumar Narayanan, "Improving Dynamic Range of RoF System Using Dual Drive Mach-Zehnder Modulator," in International Conference on Optical and Wireless Technologies (OWT-2017), MNIT, Jaipur, March 2017.
25. Sreedevi P, N. Vijayakumar, "Integrated All-Optical OFDM –WDM Transmission of 4x2.5Gbps data over 50km for a Radio over Fiber Network," International Journal of Engineering and Advanced Technology (IJEAT).
26. Joseph Zacharias, Jayakrishnan S B, and Vijayakumar Narayanan, "82 GHz millimeter wave transmission over OFDM ROF system," International Journal of Engineering and Advanced Technology (IJEAT), ISSN: 2249 – 8958, vol.6, no.1, pp. 1-4, October 2016.
27. Tony Jose, Vijayakumar Narayanan, "Techniques for Gain Control in Optical Amplifiers," International Conference on Information Systems, Energy, Environment and Safety Emerging Scenarios (ISEES 2016), Govt. Engineering College, Barton Hill, Trivandrum, Sep 2016.
28. Pradeep R. and Dr. N Vijayakumar, "Performance Analysis of Mach-Zehnder Modulator in Radio over Fiber Systems," International Journal for Advanced Research in Engineering and Technology(IJARET) Vol.7, Issue.5, pp. 45-52, Sep-Oct 2016.
29. Joseph Zacharias, Sushy Anna George, and Vijayakumar Narayanan, "External modulation schemes in OFDM-ROF links," International Journal of Advanced Research in Engineering and Technology (IJARET), ISSN: 0976-6480, vol.7, no.4, pp. 96-104, July-August 2016.

30. Joseph Zacharias, Celine George, and Vijayakumar Narayanan, "Hybrid wired and wireless system involving non-uplink technique," *International Journal of Engineering and Advanced Technology (IJEAT)*, ISSN: 2249 – 8958, vol.5, no.6, pp. 124-127, August 2016.
31. Joseph Zacharias, Fincy Mariam Koshy, and Vijayakumar Narayanan, "OFDM modulated full-duplex WDM-ROF system," *International Journal of Advanced Research in Engineering and Technology (IJARET)*, ISSN: 0976-6480, vol.7, no.4, pp. 65-71, July-August 2016.
32. C B Chandu, Joseph Zacharias, and Vijayakumar Narayanan, "Carrier recovery and reuse in full-duplex radio over fiber 60GHz millimeter-wave system based on frequency quadrupling," in *IEEE International Conference on Emerging Trends in Engineering, Technology and Science (ICETETS-2016)*, Pudukkottai, February 2016, pp.176-181.
33. Tony Jose, Vijayakumar Narayanan, "Design of a Gain Flattened Doped Fiber Amplifier with Stabilized Power Output for WDM Transmissions," *2015 International Conference on Microwave, Optical and Communication Engineering (ICMOCE)*, IIT Bhubaneswar, 2015, pp. 193-196.
34. Pradeep R. and Dr. N Vijayakumar, "A Novel Single Wavelength Balanced Technique to Suppress Second Order Distortion in RoF System," *IEEE International Conference on Computational Systems (ICCC)* November, 2015, Trivandrum.
35. T S Sreereshmi, Joseph Zacharias, and Vijayakumar Narayanan, "Simulation of WDM-PON and radio over fiber with single Mach Zehnder modulator," in *IEEE International Conference on Control Communication and Computing (ICCC-2015)*, Trivandrum, November 2015, pp.401-406.
36. H Naveen, Joseph Zacharias, and Vijayakumar Narayanan, "2× 2 MIMO RoF system at 60 GHz employing 64 QAM double sideband modulation," in *IEEE International Conference on Control Communication and Computing (ICCC-2015)*, Trivandrum, November 2015, pp.396-400.
37. Seena Gopan, Pradeep R., and Dr. N Vijayakumar, "A Full Duplex Radio Over Fiber System Using Fiber Bragg Grating Filter," *IEEE International Conference on Computational Systems and Communications (ICCSC)*, 17-18 December 2014, Trivandrum.
38. Lakshmi Mohan, Pradeep R., and Dr. N Vijayakumar, "A Novel Architecture for ROF WDM PON Integration Using PDM and Remote Modulation," *IEEE International Conference on Computational Systems and Communications (ICCSC)*, 17-18 December 2014, Trivandrum.
39. Namitha K. N., Pradeep R. and N. Vijayakumar, "A Simple Frequency Up-Conversion Scheme for a 60 GHz RoF System with Remodulation," *11th International Conference on Wireless and Optical Communication Networks (WOCN 2014)*, 11-13 September 2014.
40. Jijo Jose, Sreenath S. L., Tony Jose and N. Vijayakumar, "Study of Performance Enhancement of Wavelength Reuse Multichannel Radio over Fiber (RoF) System," *International Conference on Signal and Speech Processing (ICSSP-14)*, 21-23 August 2014, TKMCE, Kollam.
41. Sreedevi Prasanna and Vijayakumar Narayanan, "Influence of Optical Amplifier Parameters on the Performance of a Photonic OFDM in a Radio over Fiber Link," *International*

Conference on Signal and Speech Processing (ICSSP-14), 21-23 August 2014, TKMCE, Kollam.

42. Raji K, Joseph Zacharias and Vijayakumar Narayanan, "Simulation and Analysis of a Full Duplex DWDM RoF System Using Optimized Phase Modulator and an OADM," 2014 International Conference on Communications, Signal Processing and Computers, ISBN: 978-1-61804-215-6.
43. Sreedevi P. and N. Vijayakumar, "Transmission System Performance of Optimized Real All-Optical OFDM for Radio over Fiber System," 2013 IEEE International Conference on Control Communication and Computing (ICCC), 13-15 December 2013, Trivandrum.
44. Nithyamol V R, Joseph Zacharias and Vijayakumar Narayanan, "60 GHz Photonic Millimeter Wave Link Short-Range Experiment for Transmitting DPSK Signal Over a Distance of 10m," 2013 IEEE International Conference on Control Communication and Computing (ICCC), 13-15 December 2013, Trivandrum.
45. Vidya M S, Joseph Zacharias and Vijayakumar Narayanan, "Four-Wave Mixing Suppression by Combining Phase Modulation and Dispersion Management with Data Rates Up to 10 Gbps," 2013 IEEE International Conference on Control Communication and Computing (ICCC), 13-15 December 2013, Trivandrum.
46. Sreehari H., Sreedevi Nair S. and Vijayakumar Narayanan, "Temperature Resilient Measurement of Refractive Index for Liquids," 7th International Conference on Sensing Technology (ICST 2013), Massey University, New Zealand, Dec 3 – Dec 5, 2013, New Zealand.
47. Sreedevi P and N. Vijayakumar, "A Low Complex Real Photonic OFDM for Radio-Over-Fiber System," International Conference on Advanced Nanomaterials and Emerging Engineering Technologies (ICANMEET 2013), 24-26 July 2013, Chennai, India.
48. Sabi S. and N. Vijayakumar, "Performance Analysis of Wireless Optical Links with Different Modulation Formats," International Conference on Control, Communication & Computing (ICCC 2010), 18-20 Feb 2010, Trivandrum, India.
49. Asish B. Mathews, Pradeep R., and N. Vijayakumar, "A Novel Nonlinearity Compensation Technique for Radio over Fiber Links," International Conference on Control, Communication & Computing (ICCC 2010), 18-20 Feb 2010, Trivandrum, India.
50. Narayanan Vijayakumar and Tony Jose, "Performance Improvement in Radio over Fiber (RoF) Links by Minimizing Non Linearities in Sources and Amplifiers," 10th International Conference on Fiber Optics and Photonics: PHOTONICS-2010, IIT Guwahati.
51. Tony Jose and Vijayakumar N, "The performance enhancement of RoF system using Non linearity reduction in EDFAs" International Conference on Technological Trends- ICTT 2010", Trivandrum, India
52. S. Sasikumar and N. Vijayakumar, "Control of dispersion induced ISI in high speed optical links", International conference on Opto electronics, Information and Communication Technologies, ICOICT-2009, Trivandrum, India, p463, February 2009.

53. N. Vijayakumar and V.S. Lali, "A Temperature resilient refractometer", International Conference on Opto-Electronics and Photonics, ICOL-2005 Dehradun, India, 2005
54. N. Vijayakumar, "Optimum allocation of optical amplifiers in soliton links using lumped EDFA repeaters", International Conference on Photonics, Indian Institute of Technology Bombay, cd – 1cd – 1, 2002
55. N. Vijayakumar and Samuel Varghese, "Studies on Bit Error Rate of soliton links using lumped EDFA repeaters", International Conference on Millennium Challenges on Optics and Opto Electronics and XXVII Annual Conventions of Optical Society of India, p-125 p-128, 2001
56. N. Vijayakumar and S.S. Pathak, "Temperature dependence of EDFA gain", International Conference on Fiber Optics and Photonics, IIT Delhi, Vol-3, p-2343 p-2345, 1998
57. N. Vijayakumar and S. S. Pathak, "Soliton pulse width optimization and amplification by EDFA", International Conference on Photonics. IIT Madras, p565 – p569, 1996

National

58. Seena R., Pradeep R. and N. Vijayakumar, "A Full Duplex Radio over Fiber System Using Remodulation by Fiber Bragg Grating (FBG)," National Conference on Technological Trends (NCTT 2014), August 2014, Trivandrum, India.
59. Sreenath S L, Tony Jose and Vijayakumar Narayanan, "Gain Contouring in Erbium Doped Fiber Amplifiers," 3rd National Conference on Emerging Technologies (NCET 2014), 1-2 August 2014, Trivandrum, India.
60. Jijo Jose, Tony Jose and Vijayakumar Narayanan, "Optical Signal Processing for the Performance Enhancement of RoF System," 3rd National Conference on Emerging Technologies (NCET 2014), 1-2 August 2014, Trivandrum, India.
61. Lakshmi Mohan V, Pradeep R and N. Vijayakumar, "Integrated Bi-Directional OFDM RoF-WDM PON System Using Dual Polarization and Remote Modulation," 3rd National Conference on Emerging Technologies (NCET 2014), 1-2 August 2014, Trivandrum, India.
62. Seena R, Pradeep R and N. Vijayakumar, "Remodulation Using Fiber Bragg Grating in A Radio Over Fiber System," 3rd National Conference on Emerging Technologies (NCET 2014), 1-2 August 2014, Trivandrum, India.
63. Raji K, Joseph Zacharias and Vijayakumar Narayanan, "Simulation and Analysis of DWDM RoF System Using Optimized Phase Modulator and an Interleaver Filter," 14th National Conference on Technological Trends, 30-31 August 2013, Trivandrum.
64. Nithyamol V R, Joseph Zacharias and Vijayakumar Narayanan, "Short-Range Indoor Experiment for transmitting DPSK Signal via Photonic Millimeter Wave Link System," 1st National Conference on Systems, Energy & Environment (NCSEE '13), GEC Kannur, India.
65. Vidya M S, Joseph Zacharias and Vijayakumar Narayanan, "Suppression of Four-Wave Mixing by Combining Phase Modulation and Dispersion Varying Fiber of Length up to 50 km," 1st National Conference on Systems, Energy & Environment (NCSEE '13), GEC Kannur, India.
66. Jeevan M, Pradeep R and N Vijayakumar, "Transient Reduction in Raman Amplifiers for WDM networks", National Conference on Technological trends NCTT – 2012, Trivandrum, Kerala, India, CD-1, 2012

67. Karthikeya G S, Pradeep R and N. Vijayakumar, "Simulative analysis of WDM RoF Architecture for Full Duplex Wired and wireless Network" National Conference on Technological trends NCTT – 2012, Trivandrum, Kerala, India, CD-1, 2012
68. Aneesha Sasidharan S and Vijayakumar N, "Laser Phase Noise Reduction Techniques for High Seed Optical Systems", National Conference on Technological trends NCTT – 2012, Trivandrum, Kerala, India, CD-1, 2012
69. Athira AP, Pradeep R., and Dr. N Vijayakumar "Bidirectional WDM RoF Transmission System Using RSOA and Electro Absorption Modulator," NCTT Aug 2011, CET, Thiruvananthapuram.
70. Lintumol, Pradeep R., and Dr. N Vijayakumar "A Predistortion Technique for Mach-Zehnder Modulator in 60GHz OFDM Based RoF Systems," NCTT Aug 2011, CET, Thiruvananthapuram.
71. Anoop Johnson, G. Jayakrishna Raj and N. Vijaya Kumar, "A spectral method PMD compensation in High speed optical systems" National Conference on Technological Trends - NCTT-2011, Trivandrum, India
72. S. Sabi and N. Vijayakumar. "Simulation of a modem using DPIM using wireless optical links" National Conference on Technological Trends -2010, Trivandrum, India
73. Biju P and N. Vijayakumar, "An efficient and precise method of launching light to monomode fibers from incoherent sources", National Conference on Technological trends NCTT – 2010, Trivandrum, Kerala, India, CD-1, 2010
74. S. Sasikumar and N. Vijayakumar, "Dispersion Induced ISI mitigation in high speed optical links", National Conference on Technological trends NCTT – 08, Trivandrum, Kerala, India, CD-1, 2008
75. R.Sreeja and N. Vijayakumar, "The performance enhancement methods for a photonic Communication system ", National Conference on Technological trends NCTT – 08, Trivandrum, Kerala, India, CD-1, 2008
76. Sudhish N George and N. Vijayakumar, "Design and characterization of Doped Fiber Amplifiers", National Conference on Technological trends NCTT – 07, 2007
77. Nisha S. Nair and N. Vijayakumar, "Simulation of Non-linear effects influencing sub pico second pulse propagation in monomode fibers", National Conference on Technological trends NCTT – 07, CD-1, 2007
78. N. Vijayakumar and V S Lali, "An Improved method for analysis of soliton pulse evolution", National Conference on Technological trends NCTT – 06, Trivandrum, Kerala, India, CD-1, 2006
79. N. Vijayakumar and S. S. Pathak, "On Upgrade of soliton links using lumped EDFA repeaters", National Conference on Communications, Distributed signal processing, Networking and protocols. IIT Kharagpur, P463-p465, 1997
80. N. Vijayakumar and S. S. Pathak, "On Optimum Design of Erbium Doped Fiber Amplifiers", National Symposium of Fiber Optics, Sensors and Networking, IIT Kanpur, C-57 – C-60, 1994

FDPs, Workshops and Conferences attended

- Digital Communications and ISDN- Regional Engineering College, Calicut, INDIA (18-05-1992 to 30-05-1992)
- Opto-Electronics- Indian Institute of Science, Bangalore, India (02-05-1993 to 25-06-1993)
- Recent trends in Telecommunication Systems Planning and Modelling- IIT Kharagpur, India (30-06-1997 to 11-07-1997)

- Instruction Enhancement Program on Network Management- Indian Institute of Science, Bangalore, India (12-06-2000 to 16-06-2000)
- VHDL and Simulation Tools- College of Engineering, Trivandrum (19-02-2001 to 03-03-2001)
- Internet Tools for Education- Regional Engineering College, Calicut, India (14-06-2001 to 15-11-2001)
- IT Enabled Supply Chain Management- TKM College of Engineering, Kollam, India (29-10-2001 to 10-11-2001)
- Intellectual Property Rights- College of Engineering, Trivandrum (17-03-2006 to 18-03-2006)