

Profile

Dr.X.Susan Christina

Academic Qualifications

- **Ph.D.** in Information and Communication Engineering, Anna University, Chennai, 2013 *Thesis: Design of Novel All-Optical Logic Gates based on Photonic Crystals*
- **M.E.** in Optical Communication, Alagappa Chettiar College of Engineering and Technology, Anna University, Chennai,
- **B.E.** in Electronics and Communication Engineering, Bharathidasan University, Trichy , 1991

Research Interests

- Optical Computing: All-Optical Logic Gates
- Photonic Crystal Devices
- Optical Sensors
- Optical Signal Processing
- RF Devices

Professional Experience

Over 28 years of Teaching and Administrative Experience

Professor and Principal, M.A.M. College of Engineering and Technology, Trichy (Dec 2019 till date)

Professor and Principal, MIET Engineering College, Trichy (Feb 2014 - Dec 2019)

Assistant Professor and Professor, Mookambigai College of Engineering, Trichy (Oct 1998 – Feb 2014)

Lecturer, Jeyaram College of Engineering, Trichy (July 1996 – Sep 1998)

Grants

- DST Grant : Rs. 2000000 for the project **Rural livelihood transformation by converting the auto-rickshaws to electric rickshaws with green-powered charging stations using solar and wind energy**
- **AICTE Grants:** Over Rs. 7,00,000 - FDP on VLSI Design
- **AICTE Grant** : Rs 3,00,00 – National Level Seminar on RF ID.
- **AICTE Grant** : Rs.10,00, 000 - MODROBS – Advanced Optical Communications Lab

- **ISRO Grant:** Rs. 30,000 for organizing a national seminar on Terahertz Communication.

Publications

- 1) Elizabeth Caroline Britto· Sathish Kumar Danasegaran, Susan Christina Xavier, S Lalithakumari,"Investigation of Electromagnetic Wave Propagation in a Defected Photonic Crystal Square Lattice Structure" Journal of Electronic Materials 52 (2), 1177-1185(2023), **SCI Indexed Impact factor- 2.047**
- 2) S Senthilkumar, U Surendar, XS Christina, J William," A Compact Phased Array Antenna for 5G MIMO Applications", Wireless Personal Communications 128 (2023), 2155-2174 **SCI Indexed Impact factor- 2.017**
- 3) Michael, M., Caroline, B.E. & Christiana, S. Design and performance analysis of PhC based 4-bit all-optical gray code converter for binary and BCD inputs. Opt Quant Electron 54, 414 (2022). <https://doi.org/10.1007/s11082-022-03800-1> **SCI indexed.**
- 4) Elizabeth Caroline Britto· Sathish Kumar Danasegaran, Susan Christina Xavier, Jeyarani Jeyaseelan," Soil Nutrient Detection Based on Photonic Crystal Hexagonal Resonator for Smart Farming, Brazilian Journal of Physics, Vol 51, pages507–514 (2021) **SCI Indexed Impact factor- 1.326**
- 5) Sathish Kumar Danasegaran, Elizabeth Caroline Britto, Susan Christina Xavier," Exploration of Trigonal Patch Antenna Characteristics with the Impact of 2D Photonic Crystal of Various Air Hole Shapes" Journal of Electronic Materials volume Vol 50, pages 5365–5374 (2021) **SCI Indexed Impact factor- 1.938**
- 6) Elizabeth Caroline, Margarat Michael , and Susan Christina, " Design and performance analysis of SOA-MZI-based Tbps all-optical gray converters with M-ary DPSK coded binary, gray, and octal inputs" Optical Engineering Vol. 60(1), January 2021 , pp 015103-1 - 015103-14, **SCI Indexed Impact factor – 0.99.**
- 7) Margarat Michael, B. Elizabeth Caroline, and Susan Christina Xavier " M-ary DPSK coded binary to gray, BCD to gray, and octal to binary all-optical code converters based on SOA-MZI configuration at 500 Gb/s" **OSA - AppliedOptics**, Vol. 59, No. 27, September2020. Pp 8126-8135, **SCI Indexed Impact factor – 1.96.**
- 8) B. Elizabeth Caroline,Susan Christina Xavier,A.P. Kabilan,Johnson William," Performance analysis and comparison of optical signal processing beamforming networks: a survey" , **Springer -Photonic Network Communications**, February 2019, Volume 37, Issue 1, pp 38–52, **SCI Indexed, Impact factor: 1.203**
- 9) Jenny.M and X.Susan Christina, "Diagnosing The Condition Monitoring System Using FPGA- Based Altium Nanoboard" International Journal For Technological Research In Engineering, June 2017, Volume 4, Issue 10, PP 2179-2181
- 10) Suraj Kumar S and X.Susan Christina, " Design Of High Performance System On Chip Master Slave Based Advanced DMA" International Journal of Emerging Trends in Science and Technology, August 2016, Vol.03, Issue08, Pages 71-74
- 11) Chandralekha D. and X.Susan Christina, "Efficient Flow Control And Congestion Averting Mechanism In NOC Router Architecture" International Journal of Emerging Trends in Science and Technology, August 2016, Vol.03, Issue08, Pages 14-19

- 12) Kulandaisamy and **X.Susan Christina**, “Peripheral Virtual Component Interface For Advanced Interconnect Protocols” International Journal of Emerging Trends in Science and Technology, August 2016, Vol.03, Issue08, Pages 86-93
- 13) **Susan Christina Xavier**, B. Elizebeth Carolin, Arunachalam P. Kabilan, William Johnson, “Compact photonic crystal integrated circuit for all-optical logic operation” **IET Optoelectronics Journal** , Volume: 10, Issue: 4, August 2016 Page(s): 142 – 147, **SCI Indexed, Impact Factor: 1.506**
- 14) N.Vaijyanthi, B. Elizabeth Caroline and **X. Susan Christina**, “Decomposition of Mammogram Images based on Bi-dimensional Complete Ensemble Empirical Mode Decomposition with Adaptive Noise” **Australian Journal of Basic and Applied Sciences**, 9(31) September 2015, Pages: 674-678, **SCOPUS indexed, SJIF : 3.84**
- 15) S Jennet Jaya Sharmila, **X Susan Christina** and B Suganthi “Hybrid Ram- CAM based Pipelined Register Renaming and Recovery for Multi Core Processors” International Journal of Engineering Research and Science and Technology, March 2015, Vol. 1, No. 1, pp 227-233, ISSN No 2347-3258
- 16) M Pushpa, **X Susan Christina** and K Javid “Design of Low Cost Energy Efficient Reliable NOC Router”, International Journal of Engineering Research and Science and Technology, March 2015, Vol. 1, No. 1, pp 277-282, ISSN No 2347- 3258
- 17) V Geetha and **X Susan Christina**, “Optimal Repair Rate And Area Reduction For Embedded Memories By Using BIRA & AMT”, International Journal of Engineering Research and Science and Technology, March 2015, Vol. 1, No. 1, pp 19-25, ISSN No 2347- 3258
- 18) C Amsarani, **X Susan Christina** and Biji Rose , “Flash Storage System Using BAGC”, International Journal of Engineering Research and Science and Technology , March 2015, Vol. 1, No. 1, pp 60-67, ISSN No 2347- 3258
- 19) **X. Susan Christina** , K. Javid and C. Mahalakshmi, “Comparative Analysis Of Decimal Matrix Code With Parity Matrix Code”, International Journal of Engineering Research and Science and Technology, March 2015, Vol. 1, No. 1, pp 141-146, ISSN No 2347-3258,2015
- 20) **X. Susan Christina**, K. Javid and C. Mahalakshmi, “ Improved Error Correction Capability using Parity Matrix Code”, International Journal of Advance Research and Innovation, March 2015, pp 110-112, ISSN No 2347- 3258
- 21) **X. Susan Christina**, S. Ramya and S. Maheswari, “Estimation of signal parameters for multiple target localization”, ICTACT Journal on Communication Technology, December 2014, Vol. 05, Issue 04,pp 1039-1044 ISSN Number 0976-0091
- 22) **Susan Christina Xavier**, KabilanArunachalam, Elizabeth Caroline and William Johnson, “Design of two-dimensional photonic crystal- based all-optical binary adder”, **SPIE- Optical Engineering**, Vol.52, No.2, pp 025201-1-6, 2013, **SCI Indexed, Impact factor – 0.99.**

- 23) **X. Susan Christina** and A. P. Kabilan, “Compact design of all-optical logic gates based on self-collimation phenomenon in two dimensional photonic crystal,” **SPIE-Optical Engineering**, Vol.51, No.4, pp 045201-1-6 2012 – **SCI Indexed Impact factor – 0.99.**
- 24) **X. Susan Christina** and A. P. Kabilan, “Design of Optical Logic Gates Using Self-collimated Beams in 2D Photonic Crystal”, **Springer- Photonic Sensors** Vol. 2, No. 2, pp. 173–179, 2012. **SCI Indexed**, **Impact factor – 1.814**
- 25) P. Elizabeth Caroline, A.P. Kabilan and **X.Susan Christina**, “PVF2 Coated Single Mode Fiber based Optical Beam former”, **International Journal of Microwave and Optical Technology**, 2010 Vol. 5, No. 2, pp. 99-104, **SCOPUS Indexed, Impact factor- 0.150.**
- 26) **X.Susan Christina**, A.P. Kabilan and P. Elizabeth Caroline. “Ultra Fast Computing Using Photonic Crystal Based Logic Gates”, **International Journal of Computer Science and Information Security**, 2010, Vol. 8, No. 2, pp. 152-155, **Impact factor 0.553.**
- 27) **X. Susan Christina**, A.P. Kabilan and P. Elizabeth Caroline, “Ultra Compact All Optical Logic Gates Using Photonic Band-Gap Materials”, **Journal of Nan electronics and Optoelectronics**, 2010, Vol. 5, No.3, pp 397-401, **SCI Indexed, Impact factor – 1.09.**
- 28) **X. Susan Christina**, M.Sangeetha Justine, K.Rekha, U.Subha and R.Sumathi, “Realization of BCD adder using Reversible Logic”, **International Journal of Computer Theory and Engineering**, 2010, Vol. 2, No. 3, pp 333-337.
- 29) A.P. Kabilan, P. Elizabeth Caroline and **X.Susan Christina**, “Optical MEMS Based Signal Processor for smart antenna in Mobile broad- band communication”, **International Journal of Microwave and Optical Technology**, 2009, Vol. 4, No. 1, pp. 52-59, **SCOPUS Indexed, Impact factor – 0.150**
- 30) A.P. Kabilan, P. Elizabeth Caroline and **X.Susan Christina**, “An optical beam former for smart antennas in mobile broadband communication”, **Inderscience- International Journal of Mobile Communications**, 2009, Vol. 7, No.6 pp. 683 - 694, **SCI Indexed Impact factor – 1.742**

Book Chapter

1. Sathish Kumar Danasegaran, Elizabeth Caroline Britto, K. Sagadevan, Susan Christina Xavier, book **Photonic Crystal and Its Applications for Next Generation Systems** Chapter **High-Frequency Photonic Crystal- Based Terahertz Antenna for Medical Applications** pp 187–204, **Springer Tracts in Electrical and Electronics Engineering** book series (STEEE) - Scopus index, 2023
2. Elizabeth Caroline Britto, Sathish Kumar Danasegaran, Susan Christina Xavier, A. Sridevi, and Abdul Rahim Sadiq Batcha, “Study of Various Beamformers and Smart Antenna Adaptive Algorithms for Mobile Communication” **Smart Antennas Latest Trends in Design and Application**, Springer 2022- Part of the **EAI/Springer Innovations in Communication and Computing** book series (EAISICC)
3. Kabilan Arunachalam and Susan Christina Xavier, **Photonic Crystals Introduction, Applications and Theory**, Vol. 4, pp. 63–80, **InTech Publishers**, 2012.

Conference proceedings:

- 1) **X.Susan Christina** and R.Chitra , “Obfuscation techniques for preventing piracy and over building”, in 7th International conference on Advances in Science Engineering and Technology organized by Rajiv Gandhi Institute of technology, Bengaluru 24th April 2017
- 2) **X.Susan Christina** and T.Kasthuri ‘Efficient method for Error correction and Error detection using OLS code’ in an International conference organized by SBM Engineering college Dindigul on 3rd March 2016.
- 3) **X.Susan Christina**, and S.Surajkumar “Design of high performance master slave bus based advanced Direct memory access” in an International conference organized by SBM Engineering college Dindigul on 3rd March 2016.
- 4) **X.Susan Christina**, K.Javid and C.Mahalakshmi , “ Error Correction Capability Using Parity Matrix Code” Proceeding of International Conference on Electrical, Information and Communication Technology Sponsored by Science and Engineering Research Board (SERB), M.A.M College of Engineering, Trichy, India, 2015,(March 6 & 7th) ISBN -978 -93-5156-328-0
- 5) V. Koushik, N. Kanagaraj and **X. Susan Christina**, “A Novel Design of Multiple Band H-Shape slot antenna for data communication”, Proceedings of International Conference on Innovations in Information, Embedded and Communication System, Coimbatore, India, 13th and 14th Mar 2014
- 6) **X.Susan Christina**, S.Ramya, “Estimation Of Signal Parameters For Multiple Target Localization” , Proceeding of International Conference on Recent Trends in Engineering and Technology (ICRTET- 2014),Mount Zion College of Engineering and Technology, Tamil Nadu,India, 2014 13/03/2014 ISBN No. 978-93-5137-551-7
- 7) J.Priscilla , **X.Susan Christina**, “Small Delay Defect Test Pattern Analysis Using Adaptive Frequency with AC-Plus Scan Method”, Proceeding of International Conference on Recent Trends in Engineering and Technology (ICRTET-2014),Mount Zion College of Engineering and Technology, Tamil Nadu, India, 2014 ISBN No. 978-93-5137-551-7)
- 8) A.P. Kabilan, **X. Susan Christina**, P. Elizabeth Caroline, “Photonic Crystal based all Optical OR and XOR Logic Gates”, Proceedings of IEEE *Xplore*, International Conference on Computing ,Communication and Networking, Karur, Tamil Nadu, India, 2010. ISBN: 978-1-4244- 6591-0,
- 9) A.P. Kabilan, **X. Susan Christina**, P. Elizabeth Caroline, “Realization of Optical Logic Gates Using Photonic Crystal”, Proceeding of ICOP 2009-International Conference on Optics and Photonics, Chandigarh, India, 2009 – OSI sponsored .
- 10) **X.Susan Christina**, P. Elizabeth Caroline, A.P. Kabilan,, “Design of Optical Logic Gates Using Photonic Crystal,” Proc. of IEEE *Xplore* International Conference AHICI(First Asian Himalayas International Conference on Internet), Nepal, 2009
- 11) P. Elizabeth Caroline, A.P. Kabilan, **X. Susan Christina** “Optical beam former for cellular CO-OFDM System” Proceedings of IEEE *Xplore*, International Conference on Computing ,Communication and Networking, Karur,India, 2008.

- 12) J. William, **X.Susan Christina** and P.Palanisamy, “Design Of Noise Cancellation In Hearing Aids Using Adaptive Null Beam forming Technique”, Proceedings of IEEE international conference signal and Image Processing (ICSIP 06), pp. 1046-1050, Dec. 2006, Hubli, India.
- 13) Kabilan, A.P., Caroline, P.E., **Christina, X.S.**, “MEMS based optical signal processing beam former” Proceedings of IEEE *Xplore*, Third international conference on Wireless and optical Communication Networks, Bangalore, India, 2006.
- 14) Caroline, P.E., **Christina, X.S.**, Kabilan, A.P. “Optical Signal Processor for Multibeam Array Antennas using Inverse Piezoelectric Effect”, Proceedings of IEEE *Xplore*, Tenth regional conference on Communication TENCON’05, Melbourne, Australia, 2005

Professional Recognition

1. Invited as a resource person for delivering Lecture on “Reversible Logic Gates” at CSI – Trichy Chapter & IE (I) Trichy, 2006.
2. Invited as a resource person for delivering Lecture on “Soft Computing in Mathematical Research” at Holy cross college, Trichy, 2007.
3. Invited as a resource person for delivering Lecture on “Optical Network” at AICTE sponsored Faculty Development Programme organized by Srinivasa Polytechnic, Tamil Nadu, India, December – 2009.
4. Invited as a resource person for delivering Lecture on “Microstrip Antenna” at Anna University sponsored Faculty Development Training Programme (FDTP) on “Antenna & Wave Propagation” organized by IFET College of Engineering, Tamil Nadu, India, 12th to 18th December – 2014 (13/12/2014).
5. Session Chair and Keynote speaker in the International Conference on Recent Trends in Engineering and Technology (ICRTET-2014) organized by Mount Zion College of Engineering and Technology, Tamil Nadu, India, on 13th and 14th March 2014
6. Session Chair in the International Conference on Recent Trends in Engineering and Management organized by Indra Ganesan College of Engineering, Trichy, Tamil Nadu, India, on 12th and 13th April 2014
7. Session Chair and speaker in the National Conference on Signals, Systems And Wireless Communication- NCSSWC-2k14 organized by Vivekanandha College of Technology for Women Tamil Nadu, India, 2014
8. Invited as a resource person for delivering Lecture on “Overview of Nan electronics & Introduction to Photonic Crystal” at TEQIP II sponsored two weeks FDP on “Nano Technology Applications in Engineering and Technology” (NAET- 2015) organized by Anna University (BIT Campus), Tiruchirappalli from 06 -19 May 2015 (14/05/2015)
9. Session Chair and Keynote speaker in the International Conference on Electrical, Information and Communication Technology Sponsored by Science and Engineering Research Board (SERB) and organized by M.A.M College of Engineering, Trichy, India, on 6 & 7th March 2015
10. Invited as a resource person for delivering Lecture on “Microstrip Antenna” at Anna University sponsored Faculty Development Training Programme (FDTP) on “Antenna & Wave Propagation” organized by IFET College of Engineering, Tamil Nadu, India, 12th to 18th December – 2014 (13/12/2014).

11. Invited as a chief guest and delivered lecture on “Mathematics in Engineering Application” at Holy Cross College Trichy on one day international seminar, 18th December 2018.
12. Reviewed around 20 articles for more than ten internationally reputed journals including Optical Engineering (SPIE), Optoelectronics (IET), Fiber and Integrated Optics(Taylor & Francis), Electronics Letter, Chinese Optics Letter, Journal of Nan photonics(SPIE), Journal of Optical Communications, Photonic Network Communications (Springer), Journal of Modern Optics (Tylor and Francis), Optics Communication(Elsevier).
13. Doctoral member for 8 Research Scholars.
14. Question paper setter for many Autonomous colleges and Deemed Universities

Research Guiding

Mrs. C. Sindhuja	AI/ML technology in Dentistry	Course work Completed
Mrs. R. Annapoorani	Device Modelling	Course work

Professional Affiliation

- Life member for Indian Society for Technical Education
- Member of Institute of Engineers(India)
- Fellow of IETE