CURRICULUM VITAE OF DR. ABHIRUP DAS BARMAN

1. NAME: Abhirup Das Barman

2. DESIGNATION: Professor

3. DEPARTMENT: Radio Physics & Electronics, Calcutta University

4. **QUALIFICATION**: M.Tech, Ph.D.

5. SPECIALIZATION/RESEARCH INTEREST: Optical-Wireless, Microwave Photonics and Signal Processing in Communication,

6. RESIDENTIAL ADDRESS: C/59 Baghajatin Pally, P.O: Regent Estate, Kolkata 700092

PHONE: (091)9123653966, **EMAIL**: abhirup1.rpe@gmail.com

7. WORKING EXPERIENCE: **i)**Indian Engineering Service (IES), UPSC, Govt. of India, Dy. Director Engineering, Doordarshan Kendra Kolkata, 10 years **ii)** Faculty in the Department of Radio Physics and Electronics, Calcutta University 18 years, Professor since 2014, continuing.

7a. INDUSTRIAL EXPERIENCE

i) Installation and maintenance of high power terrestrial television transmitters, satellite unlinking earth stations. Major work: Installation of Digital Earth Station "DD Bangla" Satellite Channel in 2002

ii) Video-MPEG compression trial for satellite link in collaboration with Tandberg UK 2000.

iii) Certified resource person of India from CPI Incorporation Canada on Klystron, 2001.

iv) Liaison technical officer, Govt. of India during Pvt. FM installation at Kolkata in 2003

v) Field trial experiment with US for uplink and downlink in KU band for DTH service in Calcutta and India by Doordarshan in 2002

vi) Resource person of Doordarshan Staff Training Institute (Technical) at Bhubaneswar.

7b. RESEARCH, PUBLICATIONS AND ACADEMIC CONTRIBUTIONS (Year 2000 onwards)

A) Major published papers in peer reviewed journals

33) Ipsita Sengupta, Shounak Dasgupta, Abhirup Das Barman, "Index and mode modulated orthogonal frequency division multiplexing with enhanced spectral efficiency"   Wiley Transaction on Emerging Telecommunications Technologies, 10-Jan 2023, Print ISSN: 2161-3915, Online ISSN: 2161-3915, Article DOI: 10.1002/ett.4735

32) Avirup Das, Nabanita Das, **Abhirup Das Barman**, "Multi-hop D2D Communication in Cellular Networks to Minimize EMR", **IEEE Transactions on Green Communications and Networking** (Special Issue - Energy-Efficient Reconfigurable Wireless Communication & Networks), Print ISSN: 2473-2400, DOI: 10.1109/TGCN.2021.3139286, Dec, 2021

31) Sujoy Mondal and **Abhirup Das Barman**," Human auditory model based real-time smart home acoustic event monitoring", **Multimedia Tools and Applications, Springer**, *Print ISSN – 1568-2358,* 81.1 (2022): 887-906

30) Chaudhuri, R.B., **Barman, A.D**. and Bogoni, A., "Photonic 60 GHz sub-bands generation with 24-tupled frequency multiplication using cascaded dual parallel polarization modulators", **Optical Fiber Technology, Elsevier** *58*, pp. 1-10, May 2020

29) Sujoy Mondal and **Abhirup Das Barman**, "Speech Activity Detection using Time-Frequency Auditory Spectral Pattern", **Applied Acoustics, Elsevier**, 167, pp-1-6, May 2020

28) Avirup Das, Nabanita Das, Sasthi C. Ghosh and **Abhirup Das Barman**," Cooperative Spectrum Mobility in Heterogeneous Opportunistic Networks for IoT" **Wireless Personal Communications Springer,** 2020

27) Chaudhuri, R.B., **Barman, A.D**., A. Mukhopadhyay and Bogoni. A., "Design and analysis of all optical RF transceiver using polarization modulators", **Journal of Optical and Quantum Electronics, Springer,** Vol. 52, Issue 235, pp 1-16, March 2020

26) Avirup Das, Nabanita Das, **Abhirup Das Barman** and SubhankarDhar, "*Energy Incentive for Packet Relay Using Cognitive Radio in IoT Networks,"* **IEEE Communications Letters**, page(s): 1-3, Print ISSN: 1089-7798, June 2019

25) **Chaudhuri, R.B**.,**Barman, A.D**., and Bogoni. A ,"*Advanced Design System based Modelling of Tunable Multi-band Microwave and Millimeter wave Generation using Cascaded Mach–Zehnder Intensity Modulator*", **Journal for Light and Electron Optics, Elsevier**, Jan 2019

24) **Chaudhuri, R.B**. and **Barman, A.D**., "*Generation of an optical frequency comb based on two cascaded dual-parallel polarization modulators*". **Applied Optics, OSA**, *57*(30), pp.9164-9171, 2018

23)S. Karar, **A. Das Barman**, "*Two-Stage Rate Allocation Game in Wireless Access Networks With PON Backhaul*", **IEEE Communications Letters**" PP:1814 – 1817, August 2018

22)S. Melo, S. Maresca, S. Pinna, F. Scotti, M. Khosravanian, ArismarCerqueira S. Jr., F. Giannetti, **A. Das Barman**, and A. Bogoni*," Photonics-Based Dual-Band Radar for Landslides Monitoring in Presence of Multiple Scatterers*", **IEEE Journal of Lightwave Technology**, Volume: 36, Issue:12, Pg. 2237-2343, 2018

21) S. Ghosh, S. Karar, **A. Das Barman, "***A Pricing based Rate Allocation Game in TVWS Backhaul and Access Link for Rural Broadband*", **IEEE Systems Journal,** Print ISSN: 1932-8184, Online ISSN: 1937-9234, DOI: 10.1109/JSYST.2018.2842140, PP(99):1-8 · June 2018

20)S. Karar, **A. Das Barman** , "*Proactive Caching with Content based Pricing for Cooperative Femtocells in Two-tier Heterogeneous Networks*" , **Journal of Communication Systems, Wiley,** Volume31, Issue8, pp. 1-22,**Feb 2018**

19)Senjuti Khanra, Ipsita Sengupta and **A. Das Barman**, "*Small and Large Signal Analysis using Circuit Model of InGaAs/InP based Uni-Travel Carrier Photodiode*", **J. Opt. Quantum Electronics**, **Springer**, Vol. 49, Issue. 374.PP. 1-24,**Oct., 2017.**

18) Karar, S. and Barman, A.D., "*Improving data rate of indoor users through time sharing access of femtocell service in underlay heterogeneous network*", **Electronics Letters,** *54*(2), pp.103-105, **2017.**

17) Karar, S. and **Barman, A.D,***"Opportunistic spectrum access for cooperative unlicensed femtocells in two-tier heterogeneous networks utilizing HARQ feedback",* **Computer Networks, Elsevier**, *Vol. 123, pp.64-76,* **May 2017**.

16) Alak Halder and **A. Das Barman**, "*Adaptive Pre-Compensation of LEDs for Improved Decoding of N-CSK in Visible Light Communication***, Journal of Optical and Quantum Electronics, Springer,** vol. 49, Issue 92, pp.1:15, **Jan 2017**

15) S. Karar, S. Ghosh, **A. Das Barman,** *"Promoting femtocell cooperation through incentive for improving data rate of indoor users in underlay heterogeneous network",* **IET Communications**, 10(17), pp. 2407 – 2415, **Aug. 2016.**

14) Banerjee Chaudhuri, R., **Das Barman, A**., Bhanja, S., Majumder, A. and Kar, S.,. Low phase noise frequency tripled microwave signal generation using external optical modulation, *Microwave and Optical Technology Letters*, *Wiley*, *58*(5), pp.1082-1085, **2016**

13)S. Karar, **A. Das Barman**, *"Opportunistic Sub-channel and Transmit Power Allocation in an OFDMA Based Cognitive Femtocell Network",* **Wireless Personal Communication, Springer**, *2015, 84(2), pp.1303-1323.*

12)Senjuti Khanra and **A. Das Barman**, "*Photo Response Characteristics from Computationally efficient Dynamic Model of Unitravel carrier Photodiode*", **Journal of Optical and Quantum Electronics**, Springer, vol. 48, no. 2, pp. 1-11, Dec 2015.

11) Alak Halder and **A. Das Barman***," Improved Performance of Colour Shift Keying using Voronoi Segmentation for Indoor Communication*", **Journal of Optical and Quantum Electronics, Springer**, vol. 47, Issue 6, Pages1407-141, June 2015.

10) Senjuti Khanra and **A. Das Barman**, "*Circuit Model of UTC-PD with High Power and Enhanced Bandwidth Technique*", **Journal of Optical and Quantum Electronics, Springer**, Pages 1397-1405, June 2015

9) I. Sengupta and **A. Das Barman**, "*Investigation of inter-channel crosstalk mitigation by assist light in a TOAD switch by using electrical equivalent circuit model of SOA*", **Journal of Optical and Quantum Electronics, Springer**, Jan. 2014.

8) I. Sengupta and **A. Das Barman**, "*Analysis of optical re-modulation by multistage modeling of RSOA*", **Optik, Elsevier**, vol. 125, pp. 3393–3400 February, 2014

7) I. Sengupta and **A. Das Barman** and P. K. Basu, "*Circuit model for analysis of SOA-based photonic switch*", **Journal of Optical and Quantum Electronics, Springer**, vol. 41, no. 11, pp. 837-847, June, 2010.

6) **Abhirup Das Barman**, Mirco Scaffardi, Soumitra Debnath, Luca Potì, Antonella Bogoni, *"Design tool and its experimental validation for SOA-based photonic signal processing",* **Journal Optical Fiber Technology, Elsevier**, 15, pp. 39-49, 2009

5) N. Andriolli, M. Scaffardi, **A. Das Barman**, P. Castoldi, L. Potì, A. Bogoni, "*All-Optical Packet Switched Interconnection Network based on Modular Photonic Digital Processing*", Journal **IET Communications,** UK, Volume 3, Issue 3, p. 477-486, March 2009.

4) A. Malacarnie, Jing Wang, Y. Zhang, **Abhirup Das Barman**, G. Berrettini, L. Potì, and A. Bogoni, "*20 ps-Transition Time All-Optical SOA-based Flip-Flop used for Photonic 10 Gb/s Switching Operation without any Bit Loss*", **IEEE Journal of Selected Topics in Quantum Electronics**, Vol.14, N0-3, , pp. 808-815, June 2008

3) **Abhirup Das Barman**, and P. K. Basu, "*Incoherent In-band Crosstalk Induced Power Penalty in Amplified Wavelength Division Multiplexed Networks: a Comparative Study using Gaussian and Chi-squared Probability Distribution Functions",* **Journal IET, Circuits, Devices and Syst.,** UK, 2, (1), pp.139-143, 2008.

2) **Abhirup Das Barman**, IpsitaSengpta and P. K. Basu, "*A simple SPICE model for traveling wave semiconductor laser amplifier*", **Microwave & Opt. Technol. Letters** (USA), 49(7), pp.1558-61, July 2007

1) P. Rao and **Abhirup Das Barman**, "*Speech Formant Frequency Estimation: Evaluating a non-stationary analysis method*", **Signal Processing, Elsevier**, 80 , pp. 1655-1667, July 2000.

B) **Published papers in the conferences**

55. Abhirup Das Barman, Senjuti Khanra, and Suman Ghosh, " Alamouti Coded Asymmetrically Clipped Optical OFDM for Improved Performance of Multi-Mode Fiber", 5th Regional Conference on Radio Science (URSI-**RCRS** 2022), IIT Indore, Dec-2-4, 2022

54. Sujoy Mondal, Abhirup Das Barman," Improved speech activity detection using cochleagram spectral basis by non-negative matrix factorization", (Best paper award in this

stream), ici2c-2021,International Conference RCC Institute of Information Technology, Kolkata, Aug 21-22, 2021

53. A. Das Barman, Arnav Mukhopadhyay, A. Bogoni "Energy Efficient Frequency Octupling using Mach-Zehnder Optical Modulator", International conference on Computer and Devices for Communication (CODEC-2019), 19-20 December, 2019.

52. Avirup Das, N. Das and A. D. Barman, "Cooperative Cognitive Radio for Wireless Opportunistic Networks," 11th International Conference on COMmunication Systems & NETworks" *IEEE* COMSNETS, 9-11, Jan,2019

51. Ipsita Sengupta, and Abhirup Das Barman, "Analysis of Bias Current Modulation Performance in RSOA with its Electrical Equivalent Circuit Model", *International Conference on Emerging Technologies for Sustainable Developmet (ICETSD '19),* Government College of Engg. And Leather Technology, pp.370-373, 5-6 March, 2019.

50. Avirup Das, N. Das and A. D. Barman, "Frequency planning for load balancing in Vehicular Networks", presented in 7th N2Women and WICE: Professional Development Workshop, IEEE International Conference on Communications, ICC 20-24 May, 2018

49. Rangana Banerjee Chaudhuri,, Arnav Mukhopadhyay, Antonella Bogoni and Abhirup Das Barman,"Software Defined Optically Generated Pre-coded QPSK Modulated Microwave Signal" Paper ID_1570495941, IEEE International Conference IMARC 2018, 28-30 Nov. Kolkata, 2018

48. Rangana Banerjee Chaudhuri, Arnav Mukhopadhyay and A. Das Barman, "Linearity Analysis of a Frequency Tripled Optically Generated Radio Frequency Signal", IEEE 3rd International Conference on Microwave & Photonics (ICMAP), ISM Dhanbad, 9-11Feb. 2018.

47.Melo, S., Maresca, S., Pinna, S.,S., Khosravanian M., Cerqueira A., Giannetti F., Das Barman, A., Bogoni, A. "High precision displacement measurements in presence of multiple scatterers using a photonics-based dual-band radar", IET International Conference on Radar Systems 2017, (CP728), Belfast, Ireland 2017. (The article placed third in the ranking for the "Best Student Paper Award).

46. A. Das, S. C. Ghosh, N. Das and A. Das Barman, "Q-Learning Based Co-operative Spectrum Mobility in Cognitive Radio Networks", has been accepted at 42nd Annual IEEE Conference on Local Computer Networks (LCN), October 9-12, 2017, Singapore

45.Abhirup Das Barman and Alak Halder, "Indoor visible light communication with smart lighting technology ", SPIE International Conference Photonics West (OPTO), San Francisco California, Jan 28-, February2, 2017;

44 .S. Karar, A. Das Barman, "Iterative approach to Stackelberg power control game for densely deployed co-channel femtocells", WISPNET 2017, Chennai, 22-24 March 2017

43. Sujoy Mondal , Abhirup Das Barman, "Gammatone Filter Spectral Cues for Acoustic Noise Classification" in Frontiers of Research on Speech and Music (FRSM- 2016)" ISBN 978-93-81693-07-3, North Orissa University, Baripada, Orissa, India, 11-12 November 2016.

42. S. Agarwal, A. Das and N. Das, "An Efficient Approach for Load Balancing in Vehicular Ad-hoc Networks", In 10th IEEE International Conference on Advanced Networks and Telecommunications Systems (ANTS), 6-9 Nov., 2016

41. S. Khanra and A. Das Barman, "High Power Amplifier Photodiode Combining Uni-traveling Carrier Photodiode and HEMT", 4th National Conference on Materials, Devices and Circuits in Communication Technology (MDCCT 2016), 2016, Burdwan, India.

40. Das, A., Ghosh, S. C., Das, N., and Barman, A. D.," Cooperative spectrum mobility in heterogeneous opportunistic networks using cognitive radio", IEEE 40th Conference on Local Computer Networks (LCN), Clearwater Beach, Florida, USA,(pp. 402-405), 2015.

39. S. Khanra and A. Das Barman, "Traveling Wave Model of Uni-travelling Carrier Photodiode", International Conference on Optics and Photonics (ICOP 2015), Feb 20-22, 2015, Kolkata, India.

38. S. Khanra and A. Das Barman, "Photoresponse Characteristics from Computationally Efficient Dynamic Model of Uni-traveling Carrier Photodiode", 15th International Conference on Numerical Simulations on Optoelectronics Devices (NUSOD), 2015, Sept 7-11, Taipei, Taiwan.

37. S. Khanra and A. Das Barman, "Performance Comparison of In0.53Ga0.47As and GaAs0.51Sb0.49 based UTC-PD by Traveling Wave Model", 6th International Conference on Computers and Devices (CODEC), 16-18 Dec, 2015, Kolkata, India

36. Alak Halder and Abhirup Das Barman, "Nonlinear compensation of LEDs for Improved Performance in CSK Based Indoor Visible light Communication", 6th IEEE International Conference on Computers and Devices (CODEC), 16-18 Dec, 2015, Kolkata, India

35. SujoyMondal , Abhirup Das Barman, "Clustering based Voiced-Unvoiced-Silence Detection in Speech using Temporal and Spectral Parameters" 2nd IEEE International Conference on Research in Computational Intelligence and Communication Networks (ICRCICN), 20-22 Nov, 2015, Kolkata, India.

34. Partha Banerjee, Abhirup Das Barman, "Spectral Overlap Based Compressed Spectrum Sensing for a Wireless mesh Network", IEEE International Conference on Control, Instrumentation, Energy & Communication (CIEC), 31 Jan-2 Feb, 2014 Kolkata, India

33. S. Khanra and A. Das Barman, "Circuit Model of UTC-PD with High Power and Enhanced Bandwidth Technique", IEEE 14th International Conference on Numerical Simulations on Optoelectronics Devices (NUSOD), 1-4 Sept. 2014, Palma de Mallorca, Spain.

32. AlakHalder , A. Das Barman, "Improved Performance of Colour Shift Keying using Voronoi Segmentation for Indoor Communication" 15th International Conference NUSOD 2014, Palma de Mallorca, Spain Sept 1-4, 2014

31. Senjuti Khanra, A. Das Barman, "Circuit Model of UTC-PD with High Power and Enhanced Bandwidth Technique", 15th International Conference NUSOD 2014, Palma de Mallorca, Spain Sept 1-4, 2014

30 Sandip Karar, A. Das Barman, " An Overlay Cognitive Radio Model Exploiting the Polarization Diversity and Relay Cooperation" 1st International Doctoral Symposium on Applied Computation and Security Systems, , Kolkata, April 18-20, 2014

29. SandipKarar, A. Das Barman, "Interference Mitigation in Overlay Cognitive Radio Using Orthogonal Polarization", National Conference on Emerging Trends on Computing and communication (ETCC-2014), B P P I MT, Kolkata, March 22-13, 2014   Springer ISBN 978-81-322-1816-6.

28. Sandip Karar, A. Das Barman, "Overcoming the SNR-Wall for energy detection using the autocorrelation of cyclic prefix based OFDM signal", National Conference on Communications (NCC), IIT Delhi, 15-17 Feb 2013. Paper ID #1569696741.

27. Rangana Banerjee Chaudhuri, A. Das Barman, "Mitigation of Chromatic Dispersion Electronically in a Coherent Optical Communication System", International Conference on Microwave & Photonics, ISM Dhanbad, 13-15 Dec 2013. Paper ID #.42, 978-1-4799-2174-4/13/$31.00 2013 © IEEE

26. Senjuti Khanra, A. Das Barman, "Linearity Analysis of Uni-Traveling Carrier Photodiode for mmWave Applications", International Conference on Microwave & Photonics, ISM Dhanbad,13-15 Dec 2013. Paper ID #.162, 978-1-4799-2174-4/13/$31.00 ©2013 IEEE

25. A. Das Barman, "Auto-Correlation Based Spectrum Sensing at Low SNR for Cognitive Radio", International Conference on Communication, Circuits and Systems, (iC3S-2012), School of Electronics Engineering, KIIT University, Bhubaneswar , India October 5-7, 2012. Paper ID: MOC-137.

24. Abhirup Das Barman and Ipsita Sengupta, "PAPR reduction of an optically converted pre-coded OFDM signal by SOA" International Conference on Innovative Techno Management Solutions for Social Sector (IEMCON 2012) organized by Institute of Engg. And Management, Kolkata, on 17th to 18th January, 2012. (Paper ID: 28).

23. Ipsita Sengupta, A. Das Barman, "Adjustable gain controlled SOA for optical burst receiver" International conference on Computer and Devices for Communication (CODEC-2012), 17-19 December, 2012.

22. A. Das Barman, Alak Halder, "Performance Analysis of Doppler Shift Induced Optical Filtering and Inband Crosstalk Penalties in Intersatellite Link Optical Switching Nodes", International conference on Computer and Devices for Communication (CODEC), 17-19 December, 2012.

21. S. Mondal, A. D. Barman and A. K. Datta,"ARM7 Microcontroller Based Digital PRBS Generator", International Conference Micheal Faraday IET India Summit organized by Young Professional Section, IET Kolkata Local Network, Kolkata, India, November 25, 2012.

20. A. Das Barman, Senjuti Khanra, "Equivalent Circuit Model of UTC Photodiode", International conference on Computer and Devices for Communication (CODEC-2012), 17-19 December, 2012.

19. Abhirup Das Barman and Ipsita Sengupta, "Performance analysis of RSOA for wavelength reused upstream transmission in passive optical network" (CALCON-2011) organized by Jadavpur University, Kolkata, on 4th to 5th November, 2011. (Available at IEEE explore) (Paper ID: EC021).

18. Ipsita Sengupta and Abhirup Das Barman, "Analysis of intensity modulated OFDM signal by circuit model of SOA" (CALCON-2011) organized by Jadavpur University, Kolkata, on 4th to 5th November, 2011. (Available at IEEE explore) (Paper ID: EC022).

17. Ipsita Sengupta and Abhirup Das Barman, "A Versatile Circuit Model of SOA" (INDICON-2010) organized by Jadavpur University, Kolkata, on 17th to 19th December, 2010. (Available at IEEE explore, Paper ID: 263).

16. Ipsita Sengupta and Abhirup Das Barman, "An Unified Circuit Model of Semiconductor Optical Amplifier" International Conference on Fiber Optics and Photonics (PHOTONICS-2010), IIT Guwahati, 12-15 December, 2010. (Pg. 77).

15. Rikmantra Basu, Abhirup Das Barman, P.K.Basu, "Modeling of Semiconductor Optical Amplifier using a Simple Asymmetrical Multiple Quantum-Well Structure", International Conference on Applied Optics & Photonics, ICONTOP-2009, April 1-4, 2009, Kolkata, India

14. Rikmantra Basu, Abhirup Das Barman and P K Basu, "Modeling of Transistor Laser Optical Amplifiers under Steady State and Transient Conditions" 9th International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD 2009) organized

by Gwangju Institute of Science and Technology (GIST), Republic of Korea,14-18 September, 2009.

13. Ipsita Sengupta, and Abhirup Das Barman, "Study of Performance Degradation Introduced by ADD/ DROP Multiplexing Operation in a SOA-Based WDM Ring Network Theoretical and Experimental Investigations", International conference CODEC-2009, Hyatt Regency Kolkata, OLT-5136, 14-16 Dec. 2009 (*Available at IEEE explore)*

12. I. Sengupta and A. Das Barman and P.K.Basu, *"Circuit Model for Analysis of SOA-Based Photonic Switch"* 9th International Conference on Numerical Simulation of Optoelectronic Devices (NUSOD 2009) organized by Gwangju Institute of Science and Technology (GIST), Republic of Korea,14-18 September, 2009.

11. A. Das Barman, F. Fresi, I. Sengupta, L. Potì, A. Bogoni, "Theoretical and Experimental Investigation of Inter-Channel Crosstalk Mitigation by Assist Light in a TOAD De-Multiplexer", International conference CODEC-2009 Hyatt Regency Kolkata OLT-LS03,14-16 Dec. 2009.

10. Abhirup Das Barman, Ipsita Sengupta and P. K. Basu, "Circuit model for static and dynamic analysis of SOA", International Conference on Fiber Optics and Photonics, (PHOTONICS-13-17 December, 2008, IIT Delhi, India.

9. S. Debnath, A. Das Barman, R. Gangopadhyay, A. Bogoni and L Poti, "An Augmented Reservoir model for a reflective SOA International Conference on Fiber Optics and Photonics(PHOTONICS-2008) December 13-17, 2008, IIT Delhi, India.

8. S. Dasgupta and Abhirup Das Barman, "Design of Narrow Band WDM Channel De-Multiplexer by Fiber Bragg Grating" International Conference on Fiber Optics and Photonics (PHOTONICS-2008) organized by IIT Delhi, 14-17 December, 2008.

7. Fresi F., Berrettini G., Das Barman A., Debnath S., Potì L., and Bogoni, "A Single RSOA Based ONU for RZ Symmetrical WDM PONs at 2.5 Gb/s", Intl. conference on Photonics in Switching Proceedings S-06-2, 4-7 August 2008, Hokkaido, Japan.

6. Abhirup Das Barman, "Design tool and experimental validation for a photonic bit comparator based on SOAs ", 11-th International Workshop on Photonic Networks and Technologies, 21-22 June, 2007, Scuola Superiore Sant'Anna, Pisa, Italy

5. P. K. Basu and Abhirup Das Barman, "SPICE and Reservoir Models for semiconductor optical amplifiers for high speed optical signal processing", Intl. Workshop on Physics of Semiconductor Devices (IWPSD) 17-20 Dec, 2007, IIT Mumbai. (*Available at IEEE explore).*

4. Abhirup Das Barman, "Modelling of an All Optical Flip-Flop", 12-th International Workshop on Photonic Networks and Technologies, 13-14 Dec, 2007, CNIT, Pisa, Italy.

3. A. Das Barman, S. Debnath, M. Scaffardi, L. Potì, A. Bogoni, "Modelling and Implementation of photonic digital subsystem for bit comparison" Photonics in Switching, (LEOS), California, USA TuB2.4, P-61, August 2007. (*Available at IEEE explore*).

2. Abhirup Das Barman, and P. K. Basu, "Coherent inband crosstalk induced power penalty in amplified wavelength division multiplexed networks", Int.Conf.on Computer Devices & Communications (CODEC 06),18-20 Dec, 2006, Hyatt Regency Kolkata.

1. Abhirup Das Barman and P. K Basu, "Coherent Inband Crosstalk Introduced Power Penalty in Amplified Wavelength Division Multiplexed Networks:A Comparative Study Using Gaussian and Chi-Squared Probability Distribution Functions" International conference on Computer and Devices for Communication (CODEC) organized by Institute of Radio Physics and Electronics, Calcutta University, 18-20 December, 2006.

C) Book Chapters

1. S. Karar, S. and A. D. Barman (2014). Interference Mitigation in Overlay Cognitive Radio Using Orthogonal Polarization. In Emerging Trends in Computing and Communication (pp. 43-52), Springer India.

2. S. Karar and A. D. Barman (2015). An Overlay Cognitive Radio Model Exploiting the Polarization Diversity and Relay Cooperation. In Applied Computation and Security Systems (pp. 125-136), Springer India.

3. A. Das Barman, Arnav Mukhopadhyay, A. Bogoni (2019) "Energy Efficient Frequency Octupling using Mach-Zehnder Optical Modulator", Computer and Devices for Communication.

D) Completed Projects

1. Principal Investigator of Photonics-based advanced environment monitoring system for an enhanced pEVENTION of landslide and structural failure risks – PREVENTION: Joint Indo Italy bilateral Project DST Govt. of India, Sanction No: INT/Italy/P-16/2016 (SP), dated 28/07/17, Rs 26.56 Lakh, Period 2017-2020

2. Principal Investigator at IRPE of Mobile Broadband Service Support over Cognitive Radio Networks Funding Agency: ITRA, Ministry of Communications and Information Technology vide letter no. ITRA/15(63)/Mobile/MBSSCRN/01 dated Sep19, 2013 Amount: Rs 137.56 lakhs, Period 2013 -2019

On-going Project

3. Co-PI of DST-SRB National ST Radar Facility, University of Calcutta

E) Invited Talks

International:

31.. **Abhirup Das Barman** "*Indoor visible light communication with smart lighting technology*", SPIE, Photonics West (OPTO) 2017, San Francisco, California, USA, Jan 28-Feb 2, 2017

30.. **Abhirup Das Barman,** " *Improved Performance of Colour Shift Keying using Voronoi Segmentation for Indoor Communication*" 15th International Conference NUSOD 2014, Palma de Mallorca, Spain Sept 1-4 2014

29.. **Abhirup Das Barman,** " *Improved Performance of Colour Shift Keying using Voronoi Segmentation for Indoor Communication*" 15th International Conference NUSOD 2014, Palma de Mallorca, Spain Sept 1-4 2014

National:

28. **Abhirup Das Barman, "**Wireless Visible Light Communication 5G Enabling Technology", Recent Trends in Electromagnetics and Optics (RiTEOp), IIEST, Electronics and Telecommunication Engineering Dept, Shibpur, 10:30 to 11:45 am, 18th Jan, 2023

27. **Abhirup Das Barman,** Visible light communication- its challenges and solutions, Faculty development program (FDP) at NIT Delhi, 2:30 to 4:30 pm, October20, 2021

26) **Abhirup Das Barman,** "Visible Light Communication through Indoor lighting", 2nd International Conference on Ubiquitous & Emerging Concepts on Sensors & Transducers – UEMCOS2020, 16-18 Oct, at the University of Engineering and Management, Kolkata, October 16, 2020

25. **Abhirup Das Barman,** Tutorial talk on "Signal Processing in Communications", Department of ECE, Techno International, New Town, Kolkata, 27th August, 2019

24. **Abhirup Das Barman**, Tutorial talk on "DFT- a Useful Tool in Signal Processing", *DMBSP-2019*, NSHM Knowledge Campus, Durgapur**,** in association with IEI on 9th April, 2019.

23. **Abhirup Das Barman, "***Capacity Enhancement through Network Densification of Small Cells*", Feb3, 2019 at the National Conference on 'Information Photonics & Electronics' (*IPC '19*) during 1st - 3rd February 2019, B.P. Poddar Inst. of Technology, Kolkata.

22. Abhirup Das Barman, " *Network Densification and Interference Management in Femto-Cells* **"**National Workshop on 5G and IoT- The New Internet Perspective LNMIIT, Jaipur, 2:30-3:30 pm 8th December, 2018

21. **Abhirup Das Barman**, "*Fundamentals of Digital Signal Processing and its application in video*" Academic Staff College, Calcutta Univ, 2 pm -5 pm, 16th March 2018

20. **Abhirup Das Barman**, "*Challenges and Solutions to Present Generation Cellular Systems*" Academic Staff college, Calcutta Univ, 10:30 am -1:30 pm, 15th March 2018

19 .**Abhirup Das Barman**, Keynote address "*Multi Access Optical Network*", Indira Gandhi Institute of Technology, Sarang, Odissa, 11:30am -1:00 pm, 26th Feb,2018

18. **Abhirup Das Barman,** "*Generation and Optical Processing of Low Phase Noise Microwave Signal*", IEEE sponsored 4th Intl. conference on opto-electronics and applied optics (OPTRONIX-2017) University of Engineering and Management, Kolkata, Nov. 2, 2017

17. **Abhirup Das Barman**, "*4G Cellular System and Beyond*", IEEE GRNSS local chapter, NetajiSubhash Engineering College, Kolkata, 7th September, 2017.

16**. Abhirup Das Barman "***Key Challenges and Solutions to Present and Next Generation Cellular Systems*", IEEE Society local chapter, Kalyani Government Engineering College, 11am-1 pm, 21st August, 2017.

15. **Abhirup Das Barman**, "*Indoor visible light communication using white LEDs*" Faculty development program, University of Engineering & Management, Kolkata, 6th Jan, 2017

14**. Abhirup Das Barman, "**Next generation optical access technologies, research towards unlimited bandwidth access...." IIEST, Shibpur 26th Sept 2016

13.**Abhirup Das Barman,** "*Future Challenges in Mobile Communication*", ITRA Workshop at NERIST-2016, Arunachal Pradesh,1 hour, 8th May 2016

12. **Abhirup Das Barman,** "*Flexible High Speed Hybrid Optical Access Network Last Mile Unlimited Bandwidth Access*" (Part-1); Winter school on Advances in Semiconductor Advances in semiconductors, Communication, Electronics, and Nano-Technology (ASCENT – 2014),UGCNRCPS Outreach program 1 hour , May 29, 2014, 12:30-13:30, NITCampus, Yupia, Auranachel Pradesh.

11. **Abhirup Das Barman,** "*Optical Orthogonal Frequency Division Multiplexing (OFDM) in Direct Detection Multimode Fiber Links (Part-II)*", 1 hour, Winter school on Advances in Semiconductor Advances in semiconductors, Communication, Electronics, and Nano-Technology (ASCENT – 2014),1 hour , May 28, 2014, 12:30-13:30, NIT Campus, Yupia, Auranachel Pradesh.

10.**Abhirup Das Barman,**" *Next Generation Optical Access Network*", Faculty Development Program on Fundamentals of Fiber and Wireless Communication for the Next Generation System, Sponsored by TEQIP- PH-II, Jan 31, 2014, 11AM-1 PM, Institute of Radio Physics & Electronics, Jan 31, 2014, 11AM-1 PM, Jan27- Feb.1, 2014.

9. **Abhirup Das Barman,** "*Fading and power adaptation in a wireless channel*", Convergence of Electronics, Communication and Signal Processing, B.P. Poddar Inst. of Technology & Management Kolkata Nov 1, 2014.

8. **Abhirup Das Barman,** "*A Tutorial on OFDM for 4G Communications*", Nov 9, 2013, 10AM- 1 PM, AICTE Sponsored Faculty Development program on Recent Trends in Communication Systems, B.P. Poddar Inst. Of Technology & Management Kolkata, 7-21 Nov.2013,

7**. Abhirup Das Barman,** "*Next Generation PON Technologies- Research Towards Unlimited Bandwidth Access*", Aug.30, 12-1 PM, National Conference on Emerging Areas of Photonics & Electronics (EAPE-13), B. P. Poddar Institute of Management & Technology, August 30-31, 2013.

6.**Abhirup Das Barman,** "*Dispersion and Nonlinearity in fiber Optic Transmission*" Jan. 25, 2014 ,10:30-1 PM Faculty Development Program on Advancement in Microelectronics, VLSI Design and Optoelectronics Devices with Mixed Signal Analysis, Narula Institute of Technology, from 13th January to 25th January 2014

5**. Abhirup Das Barman,**"*Passive Optical network*", Advances in Photonics, Electronics and Communication Systems (APECS -2012), UGCNRCPS Outreach program, Tejpur University, 1:30 hrs, Jan 22nd, 2012

4.**Abhirup Das Barman,** "*Time and Frequency Sampling and Elements of Signal Processing*", Winter school on Physics and Technology of Sensors (PHYTENS-2012), UGCNRCPS, Institute of Radio Phy. & Electronics, Nov 23, 2012, 3 hours

3. **Abhirup Das Barman,**   "*Dispersion and Nonlinearity in fiber Optic Transmission*"   (Part-1), UGC-NRC-PS workshop CITADEL, at SMIT, Sikkim Manipal University, 2:00 pm: 3:00 pm, duration 1.00 hrs, March 22, 2013

2. **Abhirup Das Barman,**   "*Advanced Optical Modulation Techniques* "(Part-2), UGC-NRC-PS workshop CITADEL, at SMIT, Sikkim Manipal University, 4:00pm: 5:00 pm, duration 1.00 hrs, March 22, 2013

1. **Abhirup Das Barman,** "*Next Generation Broadband Optical Communication System in   Access Network: Issues & Challenges*", IEEE sponsored National conference CALCON 11, IEEE Circuits and Systems Society, Jadavpur University, Nov. 4, 2011

F) Research Guidance

5. **Avirup Das,** (PhD Reg No. 1003/Ph.D. (Tech.) Proceed/2017)
Title: Cooperative Spectrum Mobility In Heterogeneous Opportunistic Network Using Cognitive Radio
Awarded in 2022

4. **Rangana Banerjee Chowdhuri**, (Ph.D. registration number: 6247/Ph.D. (Tech.) Proceed/2016,
Title: *Photonic generation of RF signals and optical comb using external optical modulation*,
Awarded in 2021

3. **Sandip Karar** (Ph.D. registration number: 5558/Ph.D.(Tech)Proceed/2015,
Title*: Resource allocation and cooperative communication for femtocells in next generation, heterogeneous networks,* Awarded in 2019

2. **Senjuti Khanra** (Ph.D. registration No. 7579/Ph.D.(Tech.) Proceed/2014**,**
Title: *Modeling of uni-traveling carrier photodiode for wireless photonic transmitter,*
Awarded in 2018

1. **Ipsita Sengupta** (Ph.D. registration No**.:**533 Ph. D. (Tech) Proceed/2009**,**
   Title: *Circuit modeling of semiconductor optical amplifiers for optical links and network,*
   Awarded in 2015

G) International visit for joint Research Activity

 1. Photonics Network National Laboratory, Pisa, Italy, Jan 2- to Dec 19, 2007
    Research activity on Semiconductor Optical Amplifier: Theory and experiments

 2. Photonics Network National Laboratory, Pisa Italy, Jan 28-Feb 28 , 2009
    Joint research activity on modeling of SOA in nonlinear processing

 3. Aalborg University Denmark, Dept. of Electronic System, Sept 7, 2010 - April 17, 2011
     Research activity on Cognitive Radio and Wireless communication

 4. University of Limerick, Ireland, Sept 21, 2015 - Nov 18, 2015
     Experiments on Reflective SOA for WDM PON application

 5. Photonics Network National Laboratory, Pisa Italy, Sept. 8- Sept.22 , 2019
    Bilateral joint project activity on Photonic based advanced system for environmental monitoring

H) International Fellowship/ Financial support

 1. CNIT, scholarship from Italy for research work, 1 year , 2007
 2. TEQIP fellowship, Research collaboration work, Italy Pisa 2 months, 2009
 3. Erasmus Mundus Post-doctoral scholarship, Aalborg University Denmark, 8 months, 2010
 4. TEQIP funded, oral presentation in Intl Conference NUSOD 2014, Palma de Mallorca, Spain Sept 1-4, 2014
 5. Erasmus Mundus European Union scholarship, Limerick University, Ireland, 3 months, 2015
 6. DST funded, Invited talk at Photonic West (OPTO), San Francisco, California USA, Jan-Feb 2017
 7. Indo-Italy bilateral DST Project fund, Photonics Network National Laboratory, Pisa Italy, Sept. 2019

I) Other Activities

Chairman, International Conference CODEC 2019, organized by IRPE, University of Calcutta

Convener, Syllabus revision of ECE B.Tech. IRPE, 2019

Convener, International Conference CODEC 2012, organized by IRPE, University of Calcutta

Member, Syllabus revision committee ISM, Dhanbad

Reviewer, peer reviewed international journals

Regular reviewer, national and international conferences

PhD thesis examiner in NITs, IITs and State Universities

Expert member in the Selection Committee for the post of Assoc. Professor/Professor to other national/central universities

Expert member in Staff selection commission Kolkata and Public service commission Tripura

Coordinator, one week Faculty Development Program (FDP) at IRPE in 2014

Coordinator, three weeks Winter School at IRPE, 2009

Secretary, Reunion of IRPE, 2006

Life member, Indian Broadcasting Engineering Society (BES)

(Dr. Abhirup Das Barman)
Date: 02.02.2023