Curriculum Vitae

Personal Data

Name:	**Dr. Pabitra Nath**
Affiliation:	Department of Physics Tezpur University, Napaam 784028, Assam India
email:	pnath@tezu,ernet.in, pnath07@gmail.com

Higher Education

2011-2012:	**Post Doctoral study** (as a visiting scholar) University of Illinois at Urbana Champaign, USA through Boysacst fellowship program 2010-11 funded by the Ministry of Science and Technology, New Delhi. | Advisor: Prof. B.T Cunninghum
December 2009:	**Ph.D.** Thesis Title **"Design consideration of enhanced sensitive fiber optic sensors for various applications"**, Gauhati University, Guwahati Assam. | Advisor: Prof. P Dutta , Co- Advisor: Prof. K.C Sarma
February 2000:	**M.Sc. Physics**, 1st Class (Rank: 2nd)
Specialization	(i) *Condensed matter physics*, (ii) *Electronics and Photonics*, Tezpur University, Assam, India
September 1997:	**B.Sc. Physics** (Hons.) 1st class (Distinction), Gauhati University, Guwahati 781014, Assam, India.

Professional career

June 2020 - December 2022:	**Head,** *Sophisticated Analytical Instrumentation Centre*, Tezpur University, Napaam, Tezpur 784028,
2015-Current:	**Professor** *Department of Physics, Tezpur University, Napaam, Tezpur 784028, India.*
2012-2015:	**Associate Professor**, *Department of Physics, Tezpur University, Napaam, Tezpur 784028, India.*
2010-2012:	**Assistant Professor**, *Department of Physics, Tezpur University, Napaam, Tezpur 784028, India.*
2003-2010:	**Assistant Professor**, *Department of Electronics and Communication Technology, Gauhati University, Assam, India, 781014.*
2001-2003:	**Lecturer**, *Department of Physics, Jagiroad College, Jagiroad, Assam, India.*

Courses Taught

1. Photonics
2. Nanophotonics
3. Geometrical and Physical Optics
4. Fibre optics communication and technology
5. Semiconductor electronics
6. Analog electronics
7. Sounds and acoustics
8. Basic Physics in B.Tech program

Academic Accomplishments

Number of PhD supervised:	04
PhD thesis submitted:	02
Number of ongoing PhD students:	04
Number of M.Sc. projects supervised:	84
Number of Patent filed:	05

List of patents filed

1. **"A portable device for detection and quantification of perishable and adulterated food spoilage including fish spoilage"** M.Yumnam, D.Hatiboruah, **P. Nath**, S.Satyseelan and P.Mishra (Indian Patent application number 202211032587)
2. **"Design of a universal holder for sensing and imaging studies in all variant smartphones"** D.Hatiboruah, D.Rabha and **P. Nath** (Indian Patent application number 202131060631)
3. **"Methods And Apparatus of Multi-Modal Microscopic Imaging on a smartphone and OLED display illumination"** D. Rabha, and **P. Nath** (Indian Patent application number 202231030989)
4. **"Smartphone based polarized fluorescence spectroscopic device for early detection of cervical cancer'** S. Shukla, S.Ahiwar, D.Hatiboruah, **P. Nath** and A.Pradhan (Indian Patent application number 202111006127)
5. **"Method and apparatus for monitoring chemical toxicity and biological species in water using smartphone"** I. Hussain, K. Ahamad, and **P. Nath** (Indian Patent application number 201631022922)

Entrepreneurial experience

Incorporated a start-up-**Labdig Innovations and Systems Pvt Ltd (Reg no. 022556) at Tezpur University**

Scholarships and Awards

2022: **JSPS Invitational Fellowship program 2022** to visit Applied Chemistry Laboratory,at the University of Keio,Yokohama Japan for a period of 10 months

2019: **INSA** bilateral exchange program award. Visited University of Hebrew, Jerusalem Israel during July 1-14, 2019

2017: **BIRAC-SRISTI, Gandhian Young Technological Innovation (Gyti) award** for the project titled *"Smartphone based instrumentation for monitoring of water quality with reference to resource poor regions"* from Society for Research and Initiative in Sustainable Technologies and Institutions (Sristi) India.

2010-11: **BOYSCAST fellowship** from SERB-DST, New Delhi to pursue Post-Doctoral Study at the University of Illinois at Urbana, Champaign USA.

2007: **J.N.Tata endowment loan Scholarships** for higher studies in abroad and in India.

2007: **Amiyabala Devi best young Scientist award** for best research paper presentation at the 5th Conference of Physics Academy of the North East, held at Gauhati University(1-2$^{nd} March, 2007$).

2001: **Junior Research Fellowship (JRF)** by Council of Scientific and Industrial Research (CSIR) and University Grant Commission (UGC), CSIR-UGC.

2000: **Graduate Aptitude Test for Engineers (GATE)**2000 in Physics

1992: **National Scholarship scheme** under Ministry of Human Resource Development, Government of India at the 10th level exam.

Involvement in other activities of the University

1. **Head**, Sophisticated analytical instrumentation center (SAIC),Tezpur University 2020-till date
2. Served as a hostel warden at Tezpur University during the period 2013-2016.
3. Member of the Core-committee group in the Tezpur University Student Council election 2019
4. Secretary, Tezpur University Alumini Association since November 2018-till date
5. Member of Annual Committee Report,Tezpur University 2019-20

Journal Publications (In referred journals)

1. S.Biswas,D.Devi,D Sarma D Hatiboruah N Chamuah, N D Namsa and **P.Nath**"Detection and analysis of rotavirus in clinical stool samples using silver nanoparticle functionalized paper as SERS substrate" (accepted)
2. P Das,R Pegu, S Bhattacharya and **P.Nath**"Smartphone-based sensing for accurate estimation of chlorophyll in tea leaves" (Unider review)
3. D,Sarma,K K Nath, S Biswas, I Chetia, L S. Badwaik, G A Ahmed and **P.Nath**"SERS determination and multivariate classification of antibiotics in chicken meat using gold nanoparticle decorated electrospun PVA nanofibers" **Microchimica Acta** 190 (2), 1-11 (2023)
4. S.Biswas, D.Sarma,D.Devi, N D Namsa and **P.Nath**"Gold nanoparticle decorated blu-ray DVD as a highly reproducible SERS substrate for detection and analysis of rotavirus RNA in laboratory environment" **J Biophotonics** e202200138 (2022) (doi.org/10.1002/jbio.202200138)
5. S.Shukla,A.N Sha, D.Hatibouah, S.Ahirwar, **P.Nath** and A. Pradhan, " Design fabrication and testing of 3D rpinted smartphone-bsed device for collection of intrinsic fluorescence from human cervix" **Scientific Reports** 12 (1) 1-9, (2022)
6. D.Sarma, S Biswas,D Haitboruah, N.Chamuah and **P.Nath** "100 GSM paper as SERS substrate for trace detection of pharmaceutical drugs in aqueous medium", **J Physics D: Applied Physics**, 55 (38), 385102, (2022)
7. M Nath, S Biswa, **P.Nath** B. Choudhyry,Synergy of Adsorption and Plasmonic Photocatalysis in Au-CeO2 Nanosystem: Experimental Validation and Plasmonic, **Langmuir** 38, 24, 7628–7638 (2022)
8. D Rabha, D Hatiboruah, and **P.Nath** " An affordable, handheld multimodal microscopic system with onboard cell morphology and counting features on a mobile device" **Analyst** (DOI https://doi.org/10.1039/D1AN02317A)
9. D Hatiboruah,S Biswas, D.Sarma and**P.Nath** " A smartphone-based photometric and fluorescence sensing for accurate estimation of zinc ion in water" **Sensors Actuators A: Physical** volume 341, 113586(2022)
10. P Das,S Biswas, S S Bhattacharyab, and **P.Nath** "Carbon Nanodot-Neutral Red based Photometric and Fluorescence sensing for trace Detection of Nitrite in Water and Soil Using Smartphone" **ACS Applied Nanomaterials**,volume 5 (3), 3265-3274 (2022)
11. D Rabha, M A Rather, M Mandal and **P.Nath**, "Programmable illumination smartphone microscopy (PISM):A multimodal imaging platform for biomedical applications" **Optics and Lasers in Engineering**, volume 151, 106931 (2022).
12. P Das, B Chetry, S Paul, SS Bhattacharya, and **P. Nath**, "Detection and quantification of phosphate in water and soil using a smartphone" **Microchemical Journal**, volume 172, 106949 (2022).
13. Y D Devi,H B Goswami, S Konwar, C Doley.....**P.Nath** and N.Namsa, " Immunoinformatics mapping of potential epitopes in SARS-CoV-2 structural proteins" **Plos One**,volume 16 (11), e0258645 (2021)

14. T Kashyap, S Biswas, S Ahmed, D Kalita,**P. Nath** and B Choudhury, "Plasmon activation versus plasmon quenching on the overall photocatalytic performance of Ag/Au bimetal decorated g-C3N4 nanosheets under selective photoexcitation: A mechanistic understanding with experiment and theory" **Applied Catalysis B: Environmental**, Volume 298, 5 December 2021, 120614(2021)

15. D Hatiboruah, B. Takudar, K Ahamad and **P. Nath**, "Dual mode smartphone based sensing for estimation of sulphate and chloride in water" **IEEE Sensors Journal**, (2021)(10.1109/JSEN.2021.3088502).

16. D Rabha and **P. Nath**, "Wide-field multi-model microscopic imaging using smartphone" **Optics and Lasers in Engineering** Volume 137, 106343, (2021).

17. P Das, S Paul, S S Bhattcharya and **P. Nath**, "Smartphone based spectrometric analyzer for accurate estimation of pH level in soil" **IEEE Sensors Journal** 20,2839 - 2845, (2020)

18. D Hatiboruah, T Das, N Chamuah, D Rabha, B Talukdar, U Bora, K U Ahamad and **P. Nath**, "Estimation of trace-mercury concentration in water using a smartphone" **Measurement**, Volume 154,107507, (2020)

19. D.Hatiboruah, D, Devi, N. Nima and **P. Nath**,"Turbidimetric analysis of growth kinetics of bacteria in the laboratory environment using smartphone" **J Biophotonics**,13, e201960159, (2020)

20. D.Rabha, A.Sarmah and **P. Nath**, "Design of a 3D printed smartphone microscopic system with enhanced imaging ability for biomedical applications" **Journal of Microscopy**, 276,13-20, (2019)

21. N.Chamuah, A. Saikia, A.M Joseph and **P. Nath**, "Blu ray DVD as SERS substrate for reliable detection of albumin, creatinine and urea in urine" **Sensors and Actuators B:Chemical**, 285, 108- 115, (2019)

22. I. Hussain and **P. Nath**, Design of a 3D printed compact interferometric system and required phone application for small angular measurements" **Review of Scientific Instruments**, 80, 103111 (1-8),(2018)

23. N.Chamuah, N.Bhuyan, P.Pratim Das, N.Ojah, A.J Choudhury T.Medhi and **P. Nath** "Gold coated electrospun PVA nanofibers as SERS substrate for detection of pesticides" **Sensors and Actuators B: Chemical**, 273, 710-717, (2018)

24. I. Hussain, A. J. Bora, D. Sarma, K. U. Ahamad and **P. Nath**, Design of a Smartphone Platform Compact Optical System Operational Both in Visible and Near Infrared Spectral Regime "**IEEE sensors Journal**, 18 (12), 4933-4939 (2018)

25. N. Chmauah, A.Hazarika D. Hatiboruah and **P. Nath**, "SERS on paper: an extremely low cost technique to measure Raman signal" **Journal of Physics D: Applied Physics**, 50 (48), 485601 (2017)

26. N. Chmauah, L.Chetia, N.Zahan, S.Dutta, G.A Ahamad and **P. Nath**, " A Naturally occurring diatom frustules as SERS substrate for detection and analysis of chemicals" **Journal of Physics D: Applied Physics**, 50,175103 (2017)

27. I. Hussain, M.Das, K.Ahamad and **P. Nath**, "Water salinity detection using smartphone"**Sensors and Actuators B: Chemical**, 239, 1042-1050 (2017)

28. S Dutta, D J Sarma, P. Das, B Borah, K. Gupta, T Medhi, M. Mandal and **P. Nath**, "Protein, Enzyme and Carbohydrate Quantification Through Smartphone Using Colorimetric Digitization Techniques: Replacing spectrophotometer"**Journal of Biophotonics**, vol. 5, 623-633, (2017)

29. N.Chamuah, G.P.Vaidya, A.M.Joseph and **P. Nath** "Diagonally Aligned Squared Metal Nano-Pillar with increased hotspot density as a highly reproducible SERS substrate" **Plasmonics**, 12 (5), 1353-1358 (2017)

30. I Hussain, K.Ahamad and **P. Nath**, "Low-cost, robust and field portable smartphone platform photometric sensor for detection of fluoride level in drinking water" **Analytical Chemistry**, 89(1), 767-775, (2016)

31. S.Dutta,K.SaikiaandP. Nath,"SmartphonebasedLSPRsensingplatformforbio-conjugation detection and quantification",**RSC Advances**, 6 (26), 21871-21880(2016)

32. I. Hussain, K. U. Ahamed and **P. Nath**, "Water turbidity sensing using a smartphone", **RSC Advances**, 6(26), 22374-22382 (2016).

33. S.Dutta, A.Patil, D. Sarma and **P. Nath**, "Dye assisted pH sensing using a smartphone"**IEEE, Photonics Technology Letters**, 27 (22), 2363-2366 (2015).

34. R.Boruah, D.Mahanta, A. Choudhury, **P. Nath**, and G Ahmed, "Surface plasmon resonance based protein bio-sensing using a Kretschmann configured double prism arrangement" **IEEE Sensors Journal**, Vol.15,(12), 6791-6796 (2015).

35. I.Husain and **P. Nath**, "Smartphone based platform optical set-up measuring /256 optical phase difference in an interference process" **Applied Optics**, vol. 54 (18), 5739-5742 (2015).

36. S.Dutta, D.Sarma and **P. Nath**, "Ground and river water quality monitoring using smartphone based pH sensor" **AIP-Advances**, 5, 057151-9, (2015).

37. N.Chamuah and **P. Nath**, "Periodically varying height in metal nanopillar for enhanced generation of localized surface Plasmon field" **Plasmonics** 10 (6), 1367-1372 (2015)

38. S.Dutta,A.ChoudhuryandP. Nath,"Evanescentwavecoupledspectroscopicsensingusing smartphone" **IEEE, Photonics Technology Letters**, 26(6), 568-570 (2014)

39. **P. Nath**, I. Hussain and R.Biswas, "Liquid level sensing based on periodic evanescent field absorption from a multimode optical fiber" **Current Science**, 106(3) pp.424-427 (2014)

40. **P. Nath**, I.Hussain, S.Dutta and A.Choudhury "Solvent treated paper resistor for filter circuit operation and relative humidity sensing" **Indian Journal of Physics**, 88(10), 1093–1097 (2014)

41. R.Biswas and **P. Nath**, "Sensitivity analysis of two-fiber optic sensors" **Indian Journal of Physics**, 88(10),1105–1110(2014)

42. I. Husain, A. Choudhury and **P. Nath** "Fiber-optic volumetric sensor based on Beer-Lambert principle" **IEEE Sensors Journal**, 13(9) pp.3345-3346 (2013)

43. D Gallegos, K D. Long, H Yu P P. Clark Y Lin S George, **P. Nath** and B T. Cunningham "Label-Free Bio-detection using a Smartphone" **Lab on a Chip**,13, 2124-2132, (2013)

44. **P. Nath**. R. Biswas, S. K. Neog and A. Choudhury, "All fiber-optic sensor for monitoring pressure fluctuations in ON/OFF state" **IEEE Sensors Journal**,13(4), 1148-1152.(2013)

45. **P. Nath** , H.K singh, D.Tiwari and T.Basumatary Fiber-optic liquid level sensor based on coupling optical path length variation. **Review of Scientific Instruments**, 83, 055006 (2012)

46. **P. Nath** and M. Buragohain, "Fiber optic sensor for non-intrusive refractive index measurement of reactive chemical solutions" **Pramana-Journal of Physics**, 79(6), 1525-1532 (2012)

47. R.Boruah, **P. Nath**, D.Mohanta, G.A.Ahmed, A.Choudhury, "Photonic properties of butterfly wing infiltrated with Ag-nanoparticles" **Nano Science and Nanotechnolgy Letters**, 3,(4) 1-5, (2011)

48. R.Boruah, **P. Nath**, D.Mohanta, G.A. Ahmed and A.Choudhury, " Thickness dependent surface Plasmon resonance (SPR) response", **International Journal of Nanotechnology and Applications**, 5(4) 407-412 (2011)

49. **P. Nath**, "A novel- fiber optic sensor probe with enhanced sensitivity" **Current Science**,100 (4), 517-519 (2011)

50. **P. Nath**, "Non-intrusive refrarcometer sensor" **Pramana-Journal of Physics** 74 (4), 661-668, (2010)

51. **P. Nath**, "Angled tip fiber probe as humidity sensor" **Sensors and Transducers Journal**, 116 (5), 131-138 (2010)

52. **P. Nath**, "Enhanced sensitive fiber optic sensor with double pass evanescent field absorption" **Microwave and Optical Technology Letters**, 51(12), 3004-3006, (2009)

53. **P. Nath**, H.K.Singh P Datta, K Ch. Sarma. "All-fiber optic sensor for measurement of liquid refractive index",**Sensors and Actuators: A Physical**, 148, 16-18 (2008)

54. **P. Nath**, P Datta, G Jose, K C. Sarma "Lightwave splitting in two dimensional photonic crystal analogue of directional coupler", **Optics Communications**, 281, 4784–4787(2008)

55. **P. Nath**, H.K.Singh P Datta, K Ch. Sarma "Cobalt Chloride doped polymer film for relative humidity measurement" **Sensors and Transducers Journal**, 91, (4)127-133 (2008)

56. **P. Nath**, P Datta, K Ch. Sarma "All Fiber optic sensor for liquid level measurement" **Microwave and Optical Technology Letters**, 50 (7) 1982-1984, July (2008)

Conference proceedings publications

1. T Das, D Hatiboruah, N Chamuah, I Hussa in, U Bora and **P. Nath**, Accurate estimation of mercury level concentration in water using smartphone , SPIE Photonics Europe, Strasbourg France, 22-26 April 2018.

2. I. Hussain and **P. Nath**, "Low cost, robust and field portable smartphone based sen- sor for water quality monitoring" India International Science Festival, National Physical Laboratory 07-11 December, 2017.

3. S.Dutta and **P. Nath**, "Average size estimation of noble metal nanoparticles through LSPR using smartphone" XL conference of the OSI International conference on Light and Light based Technologies, Tezpur University 26-28 November, 2016.(Selected for best OSA Poster award in the conference).

4. N Chamuah, L.Chetia, S Dutta, N Zahan, G.A.Ahmed and **P. Nath**, "Naturally occurring biosilica for SERS based applications", XL conference of the OSI International conference on Light and Light based Technologies, Tezpur University 26-28 November, 2016

5. I. Hussain, K. U. Ahamad and **P. Nath**, "Smartphone based instrumentation for water quality monitoring with reference to resource poor regions" XL conference of the OSI International conference on Light and Light based Technologies, Tezpur University 26-28 November, 2016.

6. S.Dutta and **P. Nath**, "Smartphone based platform for colorimetric sensing of dyes" IEM-OPTRONIX 2014, Salt Lake Kolkata.

7. N.Chamuah and **P. Nath**, "Low cost optical technique for measuring refractive index of clear and transparent liquids" IXth Biennial PANE Conference 2014 (abstract pp).

8. N. Chamuah, N. Zahan and P. Nath, "Enhanced generation of localized surface plasmon resonance field condition upon attachment of metal nanoparticle on diatom frustules" International conference on electronic devices, circuits, applied electronics and communication technology, Gauhati University 8-10 October, 2015.

9. I. Hussain and **P. Nath**, "Estimation of turbidity and total suspended solid concentration in environmental water bodies using a smartphone" International conference on electronic devices, circuits, applied electronics and communication technology, Gauhati University 8-10 October, 2015.

10. N. Chamuah and **P. Nath**, "Generation of Enhanced LSPR Field in Periodically Varying Height Metal Nano-pillars" COMSOL conference 2015, Pune.

11. S.Dutta and **P. Nath**, "Smartphone based platform for measuring transmission bands of colored filters" International Conference on Optoelectronics and Photonics 2015, University of Calcutta, XXXIX Conference of Optical Society of India20-22 February 2015.20

12. I.Hussain and **P. Nath** "Design and development of highly sensitive inclinometer using a smartphone" International Conference on Optoelectronics and Photonics, University of Calcutta XXXIX Conference of Optical Society of India 20-22 February 2015

13. **P. Nath**, S. Dutta and A. Choudhury, "Smartphone based platform for surface resonance medium sensing" 24th Anniversary World Congress on Biosensors, 27-30 May 2014, Melbourne Australia.
14. B. Duarah and **P. Nath**, "Solvent treated flexible super capacitor" International Conference on Green Energy and smart material through Science and Technology, 21-24 January 2014 Gauhati University,
15. **P. Nath**, M. Buragohain, S. N Sarkar, P.Datta, "All fiber optic confocal microscope with submicron depth resolution" BiOS SPIE Photonics West 24-29 January 2009, San Jose, CA United states.
16. R. Saikia, M Buragohain, P Datta, P. Nath, KBarua "Fiber-Optic pH Sensor Based on SPR of Silver Nanostructured Film" AIP Conf. Proc. – June 29, 2009 – Volume 1147, pp. 249-255,TRANSPORT AND OPTICAL PROPERTIES OF NANOMATERIALS: Proceedings of the International Conference—ICTOPON-2009; doi:10.1063/1.3183440.
17. **P. Nath**, A.K.Kalita,K.C. Sarma and P.Datta, "High dynamic range relative humidity sensor" 5th conference of Physics Academy of the North-East , Gauhati University pp 47 1-2 March 2007.
18. **P. Nath**, J P Narzary, M H Sodial, J C Nath, K C. Sarma and P Datta , "Multi probe fiber optic relative humidity sensor based on enhanced evanescent wave absorption" 8th international conference on Optoelectronic, Photonics and Fiber optics, University of Hyderabaad, India 2006.
19. **P. Nath**, A.K.Kalita, H.K.Singh, M.Das, D.Barua, D. Chakder and P.Datta, "Intensity modulated fiber optic sensor for milligram weight pressure measurement" 11th National seminars on Physics and technology of sensors, University of Pune 27feb 1st March 2006.
20. **P. Nath**, A.K.Kalita, K.C.Sarma and P.Datta, "Intensity modulated fiber optic sensor for micrometer displacement measurement" 50th Annual Technical Session and national conference of Assam Science society, Abstract vol. pp 180 (2005).

Invited Talks Delivered

1. 'Monitoring various environmental parameters using handheld mobile device', Workshop on Sensors, Indo-South Korea Joint Network Center for Environmental Cyber Physical Systems 23-26 November 2021, jointly organized by IIT Indore, IIT Roorkee, and Gauhati University, India
2. 'Smartphone: A Smart sensing platform for water quality monitoring in resource- poor settings', Indo-US Virtual Workshop on Smart Sensors and Analytics for Clean Water International Centre for Clean water, IIT Madras, India, June 24, 2021
3. 'Raman Spectroscopy and UV-VIS spectrometer delivered talk as a resource person at the 3rd phase of Technical Quality Improvement Program TEQIP held at Dibrughar University, June 1, 2019.
4. 'Remembering Sir C V Raman on the eve of Inscignis INSCIGINIS-2019 Tezpur University February 27, 2019.
5. 'Smartphone based sensors: An emerging sensing platform of 21st century', Institute of Science and Technology, Gauhati University December 21, 2018.
6. Lab-on-phone: An emerging sensing platform of 21st centuryPhysics Academy of North East (PANE) Assam University Diphu Karbi Anglong November 22-24, 2018.
7. Lecture series on the works of Noble Laureates- 2018 Noble prize in Physics Tezpur University, Assam, November 14-16, 2018.
8. Smartphone : A new platform for various sensing studies" talk delivered as resource person at the Refresher course on Environmental Studies held at Gauhati University, October 6, 2018.

9. Surface enhanced Raman Spectroscopy (SERS) : A nanomaterial assisted phenomena, Invited lecture delivered at the Dept. of Instrumentation and USIC, Guahati University September 14, 2018.
10. Smartphone: a new platform for different sensing studies , Orientation Programme-2018 at University Science and Technology, Meghalaya (USTM) September 14, 2018.
11. Lab-on-phone: A new platform to obtain user-friendly sensing system, Mini Symposium Center for Lasers and Photonics (CELP), IIT, Kanpur, March 23, 2018.
12. Smartphone platform sensors: an emerging technique for monitoring of different chemicals present in environmental water bodies, International Topical meeting on Adaptive and applied optics, (INTOPMAA) IIST, Thiruananthpuram 11-13 August 2017, Kerala India
13. Optical fiber for communication and sensing applications Feel the light- an Optics outreach program organized by the SPIE-IITG student chapter Department of Physics IIT Guwahati February 6, 2016.
14. SERS-an effective technique for detection and analysis of different elements Feel the light- an Optics outreach program organized by the SPIE-IITG student chapter Dept of Physics IIT Guwahati February 6, 2016.
15. Sensing and bio-sensing research using smartphones International Conference on Advances in Light Technologies and Spectroscopy of materials (ICALTSM-2016) January 16-18, Lucknow University India.
16. Optics Research Activities at Tezpur University, Assam one day symposium to celebrate to celebrate International Year of Light, IIT Guwahati 31 October 2015.

Research Projects (On-Going and Completed)

1. **Design of a smartphone platform fluorescence microscopic system for resource poor regions** ,ASTEC, Guwahati 781005 Assam (2019-2021)
2. **Smartphone based instrumentation for water quality monitoring with reference to resource poor regions**, BIRAC-SRISTI GYTI, 2017-19.
3. **Smartphone based optical microscope for clinical applications**, extramural research project funded by ICMR, New Delhi, 2016-19.
4. **"Design Consideration of metal nanostructures for getting extremely enhanced Raman signal"** approved by DST New Delhi under Start-up research grant for young scientist 2014-17.
5. **Fiber optic sensors system and design** funded by Tezpur University under start-up research grant
6. **Real-time sugar concentration monitoring adapting multimode fiber optic sensor** Funding agency: University Grant Commission (UGC), India 2008.
7. **Simulation study of Light wave propagation through 2 Dimensional Photonic crystal optical filters using FEMLAB (COMSOL multi physics)** software Funding agency: University Grant Commission (UGC), India 2006.

Membership in Professional Association

1. Life member of Photonics Society of India (65)
2. Life member of Optical Society of India (L-695)

Other Professional Activities

- Organized **XL International Conference on Light and Light based Technologies (ICLLT) 2016** at Tezpur University during November 26-28, 2016.

- Acted as **consultant** for Quiet Wing Technologies Inc, Kirkland, Washington, USA on **"Design and development of fiber optic fuel level sensing gauge"** with effect from *1st November 2009 to 31st May 2010*.
- **Reviewer of the following journals:** Scientific reports, Advanced optical Materials (Wiley) Optical Engineering (SPIE), Photonics Technology Letters (IEEE), Journal of Sensors (IEEE), Applied Optics (OSA) Plasmonics (Springer), Sensors and Actuators A: Physical (Elsevier) Sensors and Actuators B: Chemical (Elsevier)Advanced functional materials (Wiley)