

## BIO-DATA

**Sukanta K. Tripathy, Professor**

**PG Department of Physics, Berhampur University, Odisha, India-760007**

**Date of Birth:** 2<sup>nd</sup> July 1969.

**Contact Details:** Scientist Nagar, Near P and T Dispensary, New Bus stand Road, Berhampur, Odisha.

**e mail:** skt.phy@buodisha.edu.in, sukantakutripathy@yahoo.co.in

**Current Position:** Professor

**Highest Qualification:** PhD

**Research Area:** Applied Photonics (Third generation solar cell, optical sensors)

**Teach courses on:** PG Courses

Condensed Matter and Materials Physics,

Electronics,

Fiber Optics.

### **Pre Doctoral Courses**

Advanced Experimental methods in Physics

Advanced Solid State Physics

**Courses Developed:** Fiber Optics, Advanced Experimental methods in Physics

**Education:** PhD: 2003, Berhampur University.

M.Phil: 1994, Berhampur University.

M.Sc: 1990 (First class), Berhampur University.

BSc: 1988 (First class), Berhampur University,

**Assignment Abroad:** Visiting scientist on collaborative research  
Brunel University,London-2016  
University of ElectroCommunication,Japan;2014  
Institute of Atomic and Molecular Science(IAMS),Taiwan:2011  
Centre for Condensed Matter Sciences(CCMS),Taiwan.:2011

**PhD Thesis:** Completed: 08

- Mihir Hota - Fiber Optics
- Gopinath Palei - Silicon on Insulator
- Lingaraj Sahu - Optical Interconnectors
- Nilamber Muduli - Optoelectronic
- Deepanjali Mishra- Optoelectronics.
- J.suryanarayan Achary-Photonics
- Ms Madhulika Sunderray,NanoPhotonics
- Sangita Kumari Swain:Materials Science

**MTech/MPhil Dissertation:** Completed: 10

- Mrs. Pramita Nayak , - Fiber Optics
- Ms. Sonali P Dash, - Fiber Optics
  
- Mr. Ashes K Tripathy, - Computer Generated Holography
- Ms. Smruti Mishra, - Photonic Crystal Fiber
- Ms. Ipsita Dhar - Photonic Crystal Fiber
- Mr.Ashish Kumar Hota, -Fiber Optic Sensor based on PCF/FBG
- Ms Padmalaya Sathapathy-Fiber Optic Sensor
- Debaparna Mazumdar,Biological inspired devices
- Nikita Nayak,Solar Cell
- Preeti Dash,Solar Cell

**Research Projects:( four hundred lakhs)**

DST,Odisha-2013:PI: Enhancement of Solar Energy capture using Optical Fiber

UKIERI,DST and British Council:2014-2016:Co PI: Development of solution processed CdTe@ZnTe core shell nonocomposite solar cell.

DST FIST:Coordinator:Experimental facility for design and characterizations of third generation solar cell.

OHEPEE,Govt. of Odisha:Coordinator(PI)CoE for NanoScience and Technology for the development of sensor:

### **Books Edited/ Published**

- Advanced Materials, American Institute of Physics(AIP) ,2017
- Functional Materials, American Institute of Physics (AIP) (2012)
- Material Science and Engineering -Scitech Publisher,Chennai,2009,2010,2011,2012,2015

(Prescribed as a Reference book in Undergraduate Curriculum under BijuPatanaik University of Technology, Rourkela)

### **Wokshop/Conference/Seminar /Webinar:**

- Chief speaker, National Webinar on Digital resources for higher Educaton,03.07.2021.Ganjam College ,Ganjam
- Invited speaker,GIFT,Bhubaneswar,Role of Physics in designing healthcare instruments,19.6.2021
- Resource Person ,AICTE Sponsered STTP ,24-29,May 2021,Biosensor Design using using Surface Plasmon Resonance.RIPS,BERHAMPUR
- Resource Person,AICTE Faculty Development Program,GITA,Bhubaneswar,FDTD Technique for sensor Design based on nanomaterials coating.
- Resource person Faculty Development Program, Sambalpur University, Jyotibibihar.11.2.2021 to 12.02.2021.
- Resource person, Short term training program on Recent Advancements in Fiber Optics Technology,RAFOT-2020 from 12.10.2020 to 17.10.2020,GIET University,Gunpur 765022.
- Invited Speaker, Advances and research opportunities in Electronics and Telecommunication,Bharati Vidyapitha Unversity,Pune-4-8 August 2020
- Invited Speaker ,Chandrayan,Rotary club of Berhampur-8<sup>th</sup> September - 2019
- International conference on future trends in engineering .management ,science and technology,ICFTEMST,5-6 Jan 2019,GIET University as an invited speaker “Recent Advances in Optical Sensing using Optical Fiber Quantum Dot Hybrid”.
- Recent Trends in Materials Science,RTMS-2019 GM University,Sambalpur as invited speaker,18-19March 2019,”Sensing with Photonic Crystal and Hybrid Quantum Dot Optical Fiber Structure”
- Emerging Trends in Rare Earth ,ETRE-2019,24.12.2019,IREL OSCOM.Discussion for collaboration and mobilization of fund for the CoE,Berhampur University.
- Resource Person,FDP,Academic Staff College,Ravi Shankar University,Raipur December 2018.
- International Conference in Optics and Photonics(XLI Conference of Optical Society of India) November 23-26,2017
- International Conference on Frontiers on Materials Science and Technology,NIST ,Berhampur 2015

- Photonics 2014 at IIT Kharagpur Dec13-16 2014
- .Two day Training Program in Lumerical FDTD,at Department of Electronics and Communication Engineering IISc ,Bangalore Jan -2014
- “International Workshop on Nano sensor Science and Technology” between 27th Feb-1st March 2013 at NIST, Berhampur collaborating with Naval Research Lab
- “Photonics-2012” at IIT Madras between 9th -12th Dec 2012.
- “Annual Photonics workshop” between 27th -28th Feb2012 at CUSAT,Cochin
- “International Workshop on Functional and Material” between 25th -26th Dec 2011 at NIST, Berhampur collaborating with Drexel University
- Fiber Optics, Communication, System and Design" at NITTAR, Chandigarh from 16th March-20th March-2009.
- 26th Convention of Orissa Physical Society and Annual Conference on "Role and Relevance of Physics in Engineering Education" from 14th-15th February-2009, at NIST, Berhampur, Orissa.
- "Free Electron Lasers and Applications" at Devi Ahilya Vishwavidyalaya, School of Physics, Indore from 21st-23rd February, 2008.
- A.I.C.T.E. F.D.P. on Organic Electronics, held at NIST, Berhampur, 23rd June-4th July, 2008. Topic: Organic versus Inorganic optical devices.
- "Fiber Optics: Technology, Components &Applications" at IIT, Guwahati from 3rd-7th December, 2007.
- A.I.C.T.E. F.D.P. on Modeling and Simulation Techniques in Science and Engineering, held at NIST Berhampur, July 6th - July16th, 2007. Topic: Study of optical Bistability in a PCF using Finite Difference Method.
- D.S.T. sponsored 10 day workshop on Sensors for Mining and Mineral Industry, held at NIST, Berhampur, Nov-18 - Nov-30, 2007.
- A.I.C.T.E. F.D.P. on Nanotechnology, held at NIST from 27th March-April8, 2006. Topic: Quantum Dots. Ph.D Students Guided
- Refresher Course in Physics, three weeks, June 7 -26 1999 organized by Institute of Physics Bhubaneswar and Department of Physics Berhampur University.

### **Membership of Professional bodies**

- Patron Member : Odisha Physical Society
- Life Member: Optical Society of India
- Life Member: Photonics Society of India
- Member: IEEE Photonic Society ,MTT
- Life Member: ISTE

### **Reviewer of**

IEEE Photonics Journal, Journal of Applied Physics (AIP),Journal of Modern Physics(Taylor Francis),Chinese Optics Letter(Taylor Francis),Optical Fiber Technology(Elsevier)

## **Administration Responsibilities**

- Dean, Faculty of Science and Technology ,Berhampur University-2020 onwards
- Member, Executive Council, Odisha Bigyan Academy, 2019 onwards
- Governing Council Member, IoP. Bhubaneswar, 2017 onwards
- Academic Council Member, IoP, Bhubaneswar, 2019 onwards
- Council Member , Higher Secondary Education , Govt. of Odisha. Odisha. 2020 onwards
  
- Academic Council Member, Phulbani Govt Auto College, Phulbani. 2020
- Academic Council Member, Science College Hinjilicut, 2019- till date
- Academic Council Member, Rayagada College, Rayagada, , 2019- till date
- Vice President Orissa Physical Society, 2017-18
- Chairman BOS, Physics Berhampur University, 2016 -till date
  
- Member Board of Studies , Materials Science, Berhampur University, 2016 till date
- Member Board of Studies , College of Millitary Science, Golabandha, Berhampur University, 2016-2019
- OSD. Recruitment (Faculty), Berhampur University, 2017-2020
- Steering committee member for NAAC committee visit, Berhampur University, 2017
- Deputy Warden PG Hostels Berhampur University, 2016-2018
  
- Batch Coordinator third year, 2007-2013 at NIST, Berhampur
- Hostel Superintendent , Girls Hostel , 2006-2012 at NIST Berhampur
- Coordinator, Scientific Research and Industrial Consultancy (SRIC) at NIST Berhampur

## **Research Publications:**

1. Sachindra Nath Sarangi, Bhaskar Chandra Behera, Naba Kishore Sahoo , Sukanta Kumar Tripathy ,Schottky junction devices by using bio-molecule DNA template-based one dimensional CdS-nanostructures, **Biosensors and Bioelectronics**,190,113402,2021.
2. B. C. Behera, S. N. Sarangi, N. K. Sahoo, S. P. Dash, and S. K. Tripathy, “Magnetic Nanoparticles based Novel Sensors for Select Biomedical/ Biological Science Applications” “*Biomaterials- Based Sensors – Principles, Design and Applications: Springer Nature*, (2021), Accepted for Publication.
3. A K Tripathy, **S K Tripathy** , S R Pattanaik and S K Das “A New Algorithm For Reconstruction of A Computer-Generated Hologram (CGH)”, **Computer and Communications Networks and Systems The Computer Journal**, The British Computer Society ,2020. doi: 10.1093/comjnl/bxaa151
4. Tripathy, A.K., **Tripathy, S.K.** & Das, S.K. Multifunctional holographic gratings for simultaneous coupling and beam splitting applications in photonic integrated circuits. *Int. j. inf. tecnol. Springer* (2020). <https://doi.org/10.1007/s41870-020-00548-z>
5. Sangita K. Swain, G. Phaomei , Anupam Sahoo, Sukanta K. Swain, S. K. Tripathy Synthesis of a novel  $\beta$ -Cyclodextrin functionalized Fe<sub>3</sub>O<sub>4</sub>/BaMoO<sub>4</sub>: Dy<sup>3+</sup> magnetic luminescent nanoparticleand its application as a drug carrier, **Dalton Transactions,ACS**, 2020,**49**, 14605-14612
6. B. C. Behera, S. N. Sarangi\*, D. Samal, and S. K. Tripathy\*, “A comparative study on the magnetic properties of undoped and Li-doped Cu(O.H.)<sub>2</sub>-CuO”, **J. Magn. Magn. Materials** , 513, 167263 (2020).
7. Sangita K. Swain , G. Phaomei , Sukanta K. Swain , N.K. Sahoo , **S.K. Tripathy**, “ A new configuration of fiber optic sensor based on evanescent fieldabsorption utilizing the emission properties of Fe<sub>3</sub>O<sub>4</sub>@BaMoO<sub>4</sub>: Eu nanocomposite probe”, **Optics Communication** .471 (2020) 125842.
8. .M. Sundaraya,, A.K. Tripathy, **S.K Tripathy** “A new algorithm based on particle swarm optimization for application in holographic coupler”, **Optik - International Journal for Light and Electron Optics** 208 (2020) 164551.
9. K.P.Swain,AnandNayyar,G.Palai,**S.K.Tripathy**, “Disseminating of Bio-info with respect to different photonic crystal structure through AWS ”,**Optik,Volume 202**, February 2020, 163590.
10. S.P.Dash,S.K.Patanaik,**S.K.Tripathy**,Investigation of a low cost tapered plastic fiber optic biosensor based on manipulation of colloidal gold nano particles,**Optics communication**,437,388-391,2019
11. S.N.Sarangi,B.C.Behera,M.Hota and **S.K.Tripathy**,”DNA Assisted Synthesis of CdSNanowires:A Nanobioelectronic Device”,**AIP Conference Proceedings** - 2005,07006(2018),doi:10.1063/1.5050763

12. M.Sunderay,**S.K.Tripathy**,C.Das, “FDTD Analysis of Diffraction Efficiency in a Hologram for Applications in Optical Fiber Communication” **Optik** 154(2018) 325-330
13. C.S Mishra,G.Palai,**S.K.Tripathy**”Analysis of HLB Pass Filter using Silicon Photonics Structure”,**Optik**,144(2017)522-527.
14. Sumanta Kumar Patnaik,**Sukanta Kumar Tripathy**,and Surendra Nath “Synthesis and Characterization of Small Size Fluorescence LEEH Caped Blue Emission ZnTe Quantum Dots” ,**Materials Science Poland**,35(1),2017,pp1-5
15. Madhulita Sundaray, Chapala Das, **Sukanta Kumar Tripathy**, “Sensing Application of an Optical Fiber Dip Coated With L-Cystein Ethyl Ester Hydrochloride Capped ZnTe Quantum Dots”, **Materials Science Poland**,34(3)2016,pp 665-668
16. G.Palai,**S.K.Tripathy**,D.Prakash ,K.DVerma “High efficiency polymer grating SOI structures for optical interconnects: An application of organic photonics”, **Optik** 127(2016),10948-10952
17. Deepanjali Mishra and **Sukanta K. Tripathy**, Spin polarization of electrons in a magnetic impurity doped semiconductor quantum dot – The effect of electron–phonon interaction, **PRAMANA**,Journ of Physics Volume 86 Issue 3 March 2016 pp 661-667
18. Hota, Mihir; **Tripathy, Sukanta Ku** Photonic Crystal Structures for Sensing Application,Journal of Bionanoscience, Volume 10, Number 5, October 2016, pp. 331-340(10),
19. N.Muuli,G.Palei,**S.K.Tripathy**, “Analysis of nonlinear PCF for birefringence applications using FDTD Method”,(2014), *Optik - International Journal for Light and Electron Optik* Vol 125 No14 pp 3499-3502.
20. N.Muduli,**S.K.Tripathy**, “Modelling a Sensitive pressure and temperature sensor using rectangular PCF by 2D FDTD technique”(2014)*Optik Optik - International Journal for Light and Electron ,Vol .125,4363-4366*
21. G. Palai, **S.K. Tripathy**, “ Measurement of glycerol concentration in B–H–G solution using 3D photonic crystal structure”, (2014), *Optik - International Journal for Light and Electron Optik* Vol 125,issue1 pp 349-352.
22. G. Palai, **S.K.Tripathy**, T.Sahu “A novel technique to measure the sucrose concentration in hydrogel sucrose solution using two dimensional photonic crystal structures” *Optik - International Journal for Light and Electron Optik* (2014)125, 349– 352
23. J.Verma,S.P.Dash and **S.K.Tripathy** “Design of a concentration sensor based on photonic crystal fiber placed between two single mode fiber, *Soft Nanoscience Letter*,2013,3,36-38
24. S. P. Dash ,**S.K.Tripathy**, “Y-shaped Design in Two Dimensional Photonic Crystal Structure for Applications in Integrated Photonic Circuits”*Optik Int.J,Light Electron.(2013)*,Vol 124, issue17, pp 3649-3650.
25. Gopinath Palai, Nilambar Mudului, Santosh K. Sahoo, **Sukanta K. Tripathy** “Realization of Potassium Chloride Sensor Using Photonic Crystal Fiber” *Soft Nanoscience Letter*,2013,3,16-19
26. S.K.Tripathy, D.Misra, “Spin Polarization in GaAs LED , The Effect of Phonon interaction”, *Optik Int.J,Light Electron opt.(2013)*,124,issue17,pp2709-2712
27. G.Palai ,**S.K.Tripathy**, “Efficient Silicon Grating for SOI applications”,*Optik Int.J,Light Electron opt.(2013)*, 124,issue17,pp2645-2649.

28. **S.K.Tripathy**, Smaranika Swain, "Optical Bistable Switching in Semiconductor Heterostructure Containing a Quantum Dot layer & The effect of Phonons, " *Optik Int.J,Light Electron opt.*(2013), 124, issue17, pp2723-2726.
29. **Sukanta K.Tripathy**,Gopinath Palai, "A novel method for measurement of concentration using two dimensional photonic crystal structure", *Optics Communication*, vol 285,issue10-11(2012),pp2765-2768
30. **S.K.Tripathy**,Chinmaya Mohapatro,Subikash, S.P.Dash, "Implementation of optical logic gates using closed packed crystal structure", *Optics Communication*, vol.285,issue13-14(2012), pp3234-3237
31. L.Sahu,J.S.N. Achary, **S.K.Tripathy**,"Optimization of Diffraction Efficiency and Polarization Dependence loss in Photopolymer grating for use in multichip module",*Journal of Modern physics*, vol3(2012),pp1009-1012.
32. N.Muduli,G.Palai, **S.K.Tripathy**,"Realisation of Beam splitter using photonic crystal fiber(PCF) with and without Nonlinearity", *IJERA*,Vol.2,issue5,pp2034-2037,2012.
33. **S.K.Tripathy**, Amit Suryavansi, Priyanka, "Optical Interconnects For Multichip Module Using Polymer Embedded Waveguide Gratings", *International Journal of Material Science*, Vol 5,No 5,715-722 ,2010
34. **S.K.Tripathy** and Lingaraj Sahu " Efficiency Improvement in Vertical Interconnection using Phase Grating in Wave Guide", *International Journal Of Physics*,Vol.3,No.1.pp.33-39,January-June,2010
35. **S.K.Tripathy**, Mihir Hota, T. Panigrahy "A Model for Optical Bistability in a Hybrid Semiconductor Photonic Crystal Structure", *IEEE Photonic Technology Letters*, Vol.21, No.12, June 15, 2009
36. Mihir.Hota and **S.K.Tripathy** "Analysis of diffraction efficiency of a Holographic Coupler with respect to angular divergence", *Indian Journal of Physics* 83(4) 1-8(2009)
37. Mihir.Hota, **S.K.Tripathy**, R.K.Dash and A.K.Panda, "Free Space Based Optical Communications Systems" *GITAM Journal of Information Communication Technology*, Vol-2, pp-11-15, Jan-Jul 2009
38. **S.K.Tripathy** and S.Anand Rao, "Optical Bistability in a magnetic semiconductor", *Journal of Optics*, Vol 32, No.2-2003 pp-59-67.
39. **S.K.Tripathy** and S.Anada Rao, "Expression for third-order aberration theory for holographic images" *PRAMANA*-Vol.60, No.1 2003, pp 151-157.
40. S.Anand Rao and **S.K.Tripathy**, "A unified comprehensive theory for holographic simulation of various types of mirrors",*Journal of Optics*-2000,vol-29,no-4,pp-161-166.
41. S. Mohapatro, S.K.Tripathy and J.N.Mohanty, "Optical bistability in an electron hole system, the effect of photons", *J.phys.cond.Matter*.5, 1993-7633-7642,
42. G.Palei,**S.K.Tripathy**,N.Muduli,S.K.Patanaik , "Optimization of efficiency in a 1D Grating Structure at 1310nm wavelength for application in Optical Interconnect" ,*Asian Journal of Physics*" Vol-21,No2 pp 145-152,2012
43. N.Muduli,G.Palai and **S.K.Tripathy**,An Optimized Configuration of Photonic Crystal Fiber (PCF),for High Birefringence and Low Loss Application Using FDTD Method" *Trends in OptoElectro &Optical Communication* Vol3,issue 3,pp1-8 2013
44. S. Rath,S.P.Dash,M.Hota and **S.K.Tripathy**, "Realization of Optical XOR and OR Gates Using Asymmetric Y Structure in a Two Dimensional Photonic Crystal", *AIP conference Proceedings in International Workshop on Functional Materials*, pp371-375(2012)



45. G.palai,**S.K.Tripathy**,.Mudali,D.Patanaik and S.K.Patanaik, “A Novel Method to Measure the Strength of Cygel Using Two Dimensional Photonic Crystal Structures”, *AIP conference Proceedings in International Workshop on Functional Materials*, pp383-386(2012).

