# LIST OF PUBLICATIONS

## Dr. UMAKANTA TRIPATHY

**Journal Articles:**

1. Rajat Kumar, Nitesh Kumar Pathak, Jayanta Kumar Sarkar, ***Umakanta Tripathy***, Prasanta Kumar Datta, "Vibrational spectra of serotonin by terahertz time domain spectroscopy and DFT simulations," **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy,** 329, 125541 (**2025**).
2. Smita Manjari Panda, Nandeshwar, and ***Umakanta Tripathy***, "In silico screening and identifying phytoconstituents of Withania somnifera as potent inhibitors of BRCA1 mutants: A therapeutic against breast cancer," **International Journal of Biological Macromolecules**, 282, 136977 (**2024**).
3. Debasish Paul, Priyadarshi Sahoo, Arunava Sengupta, ***Umakanta Tripathy***, and Soumit Chatterjee, "Revealing the Role of Electronic Effect to Modulate the Photophysics and Z-Scan Responses of *o*-Locked GFP Chromophores," **Journal of Physical Chemistry B**, 129(2), 692-711 (**2024**).
4. Jyotsna Patra, Poulami Das, Subhankar Nanda, Manika Dandapat, ***Umakanta Tripathy***, and Amitava Adak, "Nonclassical plasmonic response of laser-plasma-engineered ultrasmall nearly-monodispersed clean copper nanoparticles," **Optics & Laser Technology**, 180, 111444 (**2025**).
5. Kavyashree Nagappa Kummur, Smita Manjari Panda, Mahantesh Basangouda Patil, ***Umakanta Tripathy***, Ashok H Sidarai, "Revealing the interaction mechanism between bovine serum albumin (BSA) and a fluorescent coumarin derivative: A multispectroscopic and in silico approach," **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy,** 318, 124466 (**2024**).
6. Kanchan Negi, Nitesh Kumar Pathak, ***Umakanta Tripathy***, Sourav Kumar Dey, and Sumanta Kumar Sahu, "Two-photon NIR-responsive carbon dots incorporated into NMOFs for targeted photodynamic therapy," **Colloids and Surfaces A: Physicochemical and Engineering Aspects**, 694, 134163 (**2024**).
7. Indrajit Pal, Nitesh Kumar Pathak, Santanu Majumdar, Gerald Lepcha, Amiya Dey, Suresh Kumar Yatirajula, ***Umakanta Tripathy***, and Biswajit Dey, "Comparative Vision of Nonlinear Thermo-Optical Features and Third-Order Susceptibility of Mechanically Flexible Metallosupramolecular Self-Repairing Networks with Isomeric Organic Acids," **Inorganic Chemistry**, 63(26), 12003-12016 (**2024**).
8. Nitesh Kumar Pathak, Priyadarshi Sahoo, and ***Umakanta Tripathy***, "Nonlinear study of indolamines: A hidden property that might have possible implications in neurodegeneration," **Talanta**, 272, 125808 (**2024**).

9. Priyadarshi Sahoo, Nitesh Kumar Pathak, D. Scott Bohle, Erin L. Dodd, and ***Umakanta Tripathy***, "Hematin anhydride (β-hematin): An analogue to malaria pigment hemozoin possesses nonlinearity," **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy,** 310, 123902 (**2024**).

10. Nandeshwar, Janmejaya Rout, Smita Manjari Panda, and ***Umakanta Tripathy***, "Phytoconstituents of Ashwagandha as potential inhibitors of human islet amyloid polypeptide (hIAPP): An in-silico investigation", **Journal of Biomolecular Structure and Dynamics,** 42, 11020-11036, (**2024**).

11. Indrajit Pal, Nitesh Kumar Pathak, Santanu Majumdar, Gerald Lepcha, Amiya Dey, Suresh Kumar Yatirajula, ***Umakanta Tripathy***, and Biswajit Dey, "Solvent-driven variations of third-order nonlinear thermo-optical features of glutaric acid-directed self-healing supramolecular Ni(II)-metallogels", **Langmuir**, 39, 16584-16595 (**2023**).

12. Nitesh Kumar Pathak, Sunil Kumar Verma, and ***Umakanta Tripathy***, "Effect of hemoglobin in the nonlinearity of O+ blood group", **Asian Journal of Physics**, 31(1), 123-128 (**2022**).

13. Nitesh Kumar Pathak, Lata Sharma, Sakshi, Bijayalaxmi Panda, and ***Umakanta Tripathy***, "Synthesis, characterization, and investigation of nonlinear property of fly ash-red mud-Ag: A low-cost sustainable nanocomposite", **Optical Materials**, 126, 112230 (**2022**).

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15. Bikash Chandra Swain, Janmejaya Rout, and ***Umakanta Tripathy***, "Interaction of vitamin B12 with β-lactoglobulin: A computational study", **Journal of Biomolecular Structure and Dynamics,** 40(5), 2146-2155 **(2022).**

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18. Janmejaya Rout, Bikash Chandra Swain, Suchismita Subadini, Padmaja Prasad Mishra, Harekrushna Sahoo, and ***Umakanta Tripathy***, "Conformational dynamics of myoglobin in the presence of vitamin B12: A spectroscopic and in silico investigation," **International Journal of Biological Macromolecules**, 192, 564-573 **(2021)**.

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28. Sakshi, Bikash Chandra Swain, Anand Kant Das and ***Umakanta Tripathy***, "Probing third-order nonlinearity in serotonin: A Z-scan study", **Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy**, 223, 117319 (**2019**).
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31. Bikash Chandra Swain, Padmaja P. Mishra, Hirdyesh Mishra, and ***Umakanta Tripathy***, "Monitoring the binding of Serotonin to Silver nanoparticles: A Fluorescence Spectroscopic investigation", **Journal of Photochemistry and Photobiology A: Chemistry**, 367, 219-225 (**2018**).
32. ***Umakanta Tripathy***, S. Rallabandi, P. B. Bisht, "Switching the sign of nonlinear refraction in N, N′–Bis (2, 5,-di-tert-butylphenyl)-3, 4, 9, 10-perylenedicarboximide (DBPI)," **Optics & Laser Technology**, 99, 411-414 (**2018**).
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37. Amir K. Miri, Hossein K. Heris, ***Umakanta Tripathy***, Paul W. Wiseman, and Luc Mongeau, "Microstructural characterization of vocal folds toward a strain energy-model of collagen remodeling," ***Acta Biomaterialia***, 9(8), 7957-7967 **(2013)**.
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1. Smita M. Panda, Hossein Goodarzi Hosseinabadi, Hoda Fattel, **Umakanta Tripathy**, Amir K. Miri, "Ink Formulation and Selection for Biological Applications of Two-Photon Polymerization", **ACS Applied Optical Materials**, 1 (9), 501-512 **(2023)**.
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3. ***Umakanta Tripathy*** and Ronald P. Steer, "The photophysics of metalloporphyrins excited in their Soret and higher energy uv absorption bands," ***Journal of Porphyrins and Phthalocyanines***, 11(3-4), 228-243 **(2007)**.

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1. Bikash Chandra Swain, Anand Kant Das, Janmejaya Rout, Shrutidhara Biswas, and ***Umakanta Tripathy***, (**2022**) "Fluorescence Correlation Spectroscopy: A Highly Sensitive Tool for Probing Intracellular Molecular Dynamics and Disease Diagnosis." In: Sahoo H. (eds) Optical Spectroscopic and Microscopic Techniques. Springer, Singapore. https://doi.org/10.1007/978-981-16-4550-1_8.
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1. Sakshi and ***Umakanta Tripathy***, "Nonlinear property of neurotransmitter dopamine probed by Z-scan technique", **Proc. SPIE** 11205, Seventh International Conference on Optical and Photonic Engineering (icOPEN 2019), 112052L (16 October 2019); https://doi.org/10.1117/12.2542163.
2. Bikash Chandra Swain, Padmaja P. Mishra and ***Umakanta Tripathy***, "Binding interaction Study of Lysozyme with 6-Mercaptopurine by Spectroscopic Tools", **Proceedings of**

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2. Mohd Mehkoom, Amit K. Pradhan, S. M. Afzal, Prasanta K. Datta**,** ***Umakanta Tripathy***, "Third-order optical Nonlinearities of A Novel Schiff Base System With Thermal And Electronic Responses For Photonic Applications", 1st International Conference on Emerging

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4. Nandeshwar and ***Umakanta Tripathy***, "Molecular Dynamics Simulations Reveal Inhibitory Effects On α-Synuclein Aggregation", Optics Within Life Sciences (OWLS-17), Indian Institute of Technology Bombay Powai, Victor Menezes Convention Centre (VMCC), 18-21 November, **2024**, PC-78.
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10. Smita Manjari Panda, and ***Umakanta Tripathy***, "Phytoconstituents of Withania Somnifera as multi-target inhibitors for the cancer-associated receptors: An in-silico investigation", *International Conference On Advances In Spectroscopic Techniques And Materials (ASTM 2024)*, IIT (ISM), Dhanbad, 18-20 January 2024, PP-50.

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26. Bikash Chandra Swain, Padmaja P. Mishra and ***Umakanta Tripathy***, "Binding interaction Study of Lysozyme with 6-Mercaptopurine by Spectroscopic Tools", *International Conference on Fiber Optics and Photonics,* IIT, Delhi, 12 - 15 December, **2018**, SP007.

27. Sakshi and ***Umakanta Tripathy***, "Nonlinear Study of Serotonin by a Single Closed Aperture Z-Scan Technique", *International Conference on Fiber Optics and Photonics*, IIT, Delhi, 12 - 15 December, **2018**, TP022.

28. Janmejaya Rout, Bikash Chandra Swain, Padmaja P. Mishra and ***Umakanta Tripathy***, "Spectroscopic Investigation of Interaction between Dopamine and Gold nanoparticles", *International Conference on Fiber Optics and Photonics*, IIT, Delhi, 12 - 15 December, **2018**, Session- G, TG1.

29. Janmejaya Rout and ***Umakanta Tripathy***, "Study of Stuructural and Optical properties of Epinephrine by using Density Functional Theory", *National workshop on fluorescence and Raman Spectroscopy (FCS-2018),* JNU and IIT, Delhi, 12 - 17 November, **2018**, P-42.

30. Bikash Chandra Swain, Padmaja P. Mishra and ***Umakanta Tripathy***, "Interaction of β-Lactoglobulin with Vitamin B12: A Biophysical Study", *National workshop on fluorescence and Raman Spectroscopy (FCS-2018),* JNU and IIT, Delhi, 12 - 17 November, **2018**, P-25.

31. Janmejaya Rout and ***Umakanta Tripathy***, "Structural and Optical properties of a monoamine Neurotransmitter: A DFT Study", *Evolution of Electronic Structure Theory and Experimental Realisation (EESTER),* SRM Institute of Science and Technology and IIT, Madras, 11 - 15 September, **2018**, P-093.
32. Sakshi and ***Umakanta Tripathy***, "Nonlinearity study of Curcumin by Z-scan technique", *26th DAE-BRNS National Laser Symposium (NLS-26),* BARC, Mumbai, 20 - 23 December, **2017**, CP-04-43, P-57.
33. Bikash Chandra Swain and ***Umakanta Tripathy***, "Interaction of fluorescent carbon dots with Bovine Serum Albumin (BSA)", *FCS 2017, National workshop on fluorescence and Raman techniques*, IIT Guwahati, 17 - 21 December, **2017**, P023, P-66.
34. Bikash Chandra Swain and ***Umakanta Tripathy***, "Interaction study of Serotonin with Silver nanoparticles by using Fluorescence Spectroscopy", *4th International conference on Nanoscience and nanotechnology (ICONN-2017),* SRM University, Kattankulathur, Chennai, 9 - 11 August, **2017**, P-204-205.
35. Bikash Chandra Swain and ***Umakanta Tripathy***, "Study of Biophysical Parameters Under Physiological Conditions", *National conference on liquid crystals (NCLC),* IIT(ISM) Dhanbad, 7 - 9 December, **2016**, P-58.
36. Sakshi Choudhary and ***Umakanta Tripathy***, "Estimation of Effective Pixel Size in Image Correlation Spectroscopy", *National conference on liquid crystals (NCLC),* IIT(ISM) Dhanbad, 7 - 9 December, **2016**, P-60.
37. Sakshi Choudhary and ***Umakanta Tripathy***, "Aggregation state study by Image Correlation Spectroscopy", *IONS, International OSA Network of Students*, IIT(ISM) Dhanbad, 7 - 10 September, **2016**, IONS-DHN/2K16/122.
38. Bikash Chandra Swain and ***Umakanta Tripathy***, "Fluorescence Correlation Spectroscopy: An innovative tool for single molecule study", *IONS, International OSA Network of Students*, IIT(ISM) Dhanbad, 7 - 10 September, **2016**, IONS-DHN/2K16/104.
39. ***Umakanta Tripathy***, Parul Sood, Sandhya Koushika, and Sudipta Maiti, "Label-free imaging of Serotonin in live C. elegans", *Optics Within Life Sciences (OWLS) 2016*, Tata Institute of Fundamental Research (TIFR) & Indian Institute of Technology (IIT) Bombay, Mumbai, March 16 – 19, IL91 (BIC) **2016**.
40. Rucha Pandit, Anand Kant Das, ***Umakanta Tripathy,*** and Sudipta Maiti, "Measuring intra-vesicular serotonin concentration changes by ratiometric intrinsic fluorescence imaging", *FCS 2014, National workshop on fluorescence and Raman techniques*, IISER, Pune, Maharashtra, India, December 15 - 19, **2014**, P-13.
41. Bidyut Sarkar, Arkarup Banerjee, Anand Kant Das, Suman Nag, Sanjeev Kumar Kaushalya, ***Umakanta Tripathy***, Mohammed Shameem, Shubha Shukla, and Sudipta Maiti, "Label-free dopamine imaging using two-photon ultraviolet microscopy", *6$^{th}$ Special Conference of the*

*International Society of Neurochemistry (INS)*, Tokyo, Japan, September 20 - 22, **2014**, PS5-06.

42. ***Umakanta Tripathy***, Ananya Rakshit, Rucha Pandit, Anand Kant Das, Bidyut Sarkar, Parul Sood, Sandhya Kaushika, and Sudipta Maiti, "Label free imaging of neurotransmitters *in vivo*", *Biophysics Paschim 2014*, Indian Institute of Science Education and Research (IISER) Pune, Maharashtra, India, March 1, **2014**.

43. Ananya Rakshit, Anand Kant Das, ***Umakanta Tripathy***, and Sudipta Maiti, "In vivo monoamine imaging in live Zebrafish", *FCS 2013, National fluorescence workshop, Fluorescence methods in single molecule spectroscopy*, Indian Institute of Science and Jawaharlal Nehru Centre for Advanced Scientific Research, Bangalore, India, November 24 - 28, **2013**, P-67.

44. ***Umakanta Tripathy***, Amir K. Miri, Luc Mongeau, and Paul W. Wiseman, "Nonlinear imaging of human and porcine vocal fold tissues", *Neurophysics Annual Meeting 2012*, La Forêt Montmorency, Quebec, Canada, June 14 - 15, **2012**.

45. Nageswara R. Ghattamaneni, ***Umakanta Tripathy***, Jean-Francois Desjardins, Sonia Ines Edaye, Elias Georges, and Paul W. Wiseman, "Microfluidic and Nonlinear Optical device for Malaria Detection", *Photonics North 2012*, Hilton Montreal Bonaventure, Montreal, Canada, June 6 - 8, **2012**, 87, BIO-MED-6-P-4. [**Received best poster award**]

46. Amir K. Miri, ***Umakanta Tripathy***, Hossein K. Heris, Luc Mongeau and Paul W. Wiseman, "Structural Characterization of Porcine Vocal Folds using Multi-photon Microscopy", *4$^{th}$ International Conference on the Mechanics of Biomaterials and Tissues 2011*, Marriott Waikoloa Beach Resort and Spa, Hawaii, USA, December 11 - 15, **2011**.

47. Amir K. Miri, ***Umakanta Tripathy***, Luc Mongeau and Paul W. Wiseman, "Structural characterization of vocal fold tissues using multi-photon microscopy", *9$^{th}$ Pan European Voice Conference 2011*, Marceille, France, August 31 - September 3, **2011**.

48. ***Umakanta Tripathy***, Stacey L. Meadley, Richard L. Leask, and Paul W. Wiseman, "THG, SHG and TP imaging of biological samples by Nonlinear laser scanning Microscopy", *Neurophysics Annual Meeting 2011*, La Forêt Montmorency, Quebec, Canada, June 16 - 17, **2011**.

49. Jędrzej Szmytkowski, Sophie M.K. Brunet, ***Umakanta Tripathy***, Jaclyn A. O'Brien, Matthew F. Paige and Ronald P. Steer, "Influence of Halides on the fluorescence Quenching in $ZnTPPS^{4-}$ aqueous solution", *Proceedings of CSC, 94$^{th}$ Canadian Chemistry Conference and Exhibition 2011*, Montreal, QC, Canada, June 5 - 9, **2011**, 2067, PTpos.

50. ***Umakanta Tripathy***, and Paul W. Wiseman, "Third harmonic generation (THG) imaging of hemozoins: Effect of wavelength, power and polarization", *Neurophysics Annual Meeting 2010*, La Forêt Montmorency, Quebec, Canada, June 3 - 4, **2010**.

51. Stacey L. Meadley, ***Umakanta Tripathy***, Paul W. Wiseman and Richard L. Leask, "Multiphoton microscopy of healthy and aneurismal human ascending aorta", *Proceedings of*

*ASME Summer Bioengineering Conference 2009*, Resort at Squaw Creek, Lake Tahoe, CA, USA, June 17 - 21, **2009**, 29, MS37. Paper No. SBC2009-206152, pp. 803-804. [**Secured 3rd place in the student paper competition award**].

52. Ronald P. Steer, Xia Liu, Sunish K. Sugunan, ***Umakanta Tripathy***, Matthew F. Paige, "Fast upper singlet state relaxation in metalloporphyrins: implications for NIR solar energy harvesting", *Proceedings of CSC, 92nd Canadian Chemistry Conference and Exhibition 2009,* Hamilton, ON, Canada, May 30 - June 3, **2009**, 745, PT13.
53. Ronald P. Steer, Xia Liu, ***Umakanta Tripathy*** and Dorota Kowalska, " Upper Singlet State Dynamics of Metalloporphyrins", *Proceedings of CSC, 91st Canadian Chemistry Conference and Exhibition 2008*, Edmonton, AB, Canada, May 24 - 28, **2008**, 1121, PT7.
54. ***Umakanta Tripathy***, Xia Liu and Ronald P. Steer, "Photophysics of Soret-Excited Corroles in Solution", *Proceedings of CSC, 91st Canadian Chemistry Conference and Exhibition 2008,* Edmonton, AB, Canada, May 24 - 28, **2008**, 1137, PTP.
55. Sunish K. Sugunan, ***Umakanta Tripathy***, Matthew F. Paige and Ronald P. Steer, "Low Power Fluorescence Upconversion in a Zinc metalloporphyrin via triplet- triplet annihilation", *Proceedings of CSC, 91st Canadian Chemistry Conference and Exhibition 2008,* Edmonton, AB, Canada, May 24 - 28, **2008**, 1139, PTP.
56. Xia Liu, ***Umakanta Tripathy*** and Ronald P. Steer, "Effect of substitutions on the photophysics of Soret-excited states of Metalloporphyrins", *Proceedings of CSC, 91st Canadian Chemistry Conference and Exhibition 2008,* Edmonton, AB, Canada, May 24 - 28, **2008**, 1141, PTP. [**Winner of student poster competition**].
57. Ronald P. Steer, Dorota Kowalska, Xia Liu, ***Umakanta Tripathy*** and Suresh Velate, "Photophysics of Soret-Excited Metalloporphyrins", *Proceedings of CSC, 90th Canadian Chemistry Conference and Exhibition 2007,* Winnipeg Convention Centre, Manitoba, Canada, May 26 - 30, **2007**, 488, IN4.
58. ***Umakanta Tripathy*** and Prem B. Bisht, "Study of nonlinear optical parameters by solvent induced changes in the optical density", *Proceedings of PHOTONICS* 2004, CUSAT, Cochin, Dec. 9 - 11, **2004**, nlo3.7.
59. ***Umakanta Tripathy*** and Prem B. Bisht, "Separation of contributions of optical and thermal nonlinearity by ps and cw Z-scan measurements", *Proceedings of 59th International Symposium on Molecular Spectroscopy,* Ohio State University Columbus, Ohio, USA, June 21 - 25, **2004**, pp. 229 (RG02).
60. ***Umakanta Tripathy*** and Prem B. Bisht, "Experimental and theoretical simulations on Z-scan profile under ps time scale", *Proceedings of International Conference on Optoelectronics and Technology,* North Maharashtra University Jalgaon, Jan. 12 - 14, **2004**, pp. 30-35. [**Received best paper award**].

61. ***Umakanta Tripathy*** and Prem B. Bisht, "Energy transfer efficiency of dipole-dipole interaction in a dye pair in polymer medium", *Proceedings of Trombay Symposium on Radiation and Photochemistry*, BARC Mumbai, Jan. 8 - 12, **2004**, pp. 149-150. [**Received best poster award**].

62. ***Umakanta Tripathy*** and Prem B. Bisht, "Evaluation of excited singlet state absorption cross sections by ps pulse transmission technique", *Proceedings of National Laser Symposium,* IIT Kharagpur, Dec. 22 - 23, **2003**, pp. 441-442.

63. ***Umakanta Tripathy***, Prem B. Bisht and A. Subrahmanyam, "Energy and wavelength dependence of pico second laser pumped Z-scan profiles'', *National Symposium on Mathematical Methods and Applications,* IIT Madras, Dec. 21, **2002**, pp. 30-31.

64. ***Umakanta Tripathy*** and Prem B. Bisht, "Simultaneous calculation of nonlinear absorption and refraction parameters by using a single closed-aperture Z-scan technique", *Proceedings of PHOTONICS* 2002, TIFR Mumbai, Dec. 16 - 18, **2002**, NLOP28.

65. ***Umakanta Tripathy***, R. Justin Rajesh, Prem B. Bisht and A. Subrahmanyam, "Optical nonlinearity of organic dyes as studied by Z-scan and transient grating techniques", *Proceedings of Third Asian Photochemistry Conference (APC-3)*, BARC Mumbai, Jan. 6 - 11, **2002**, pp. 157.

66. ***Umakanta Tripathy***, Prem B. Bisht and A. Subrahmanyam, "Calculations on excited state absorption cross section of laser dyes'', *National Symposium on Mathematical Methods and Applications,* IIT Madras, Dec. 22, **2001**, pp. 14-15.

## INVITED TALKS

1. ***Umakanta Tripathy***, "Sensing biomolecules for disease diagnosis through a novel optical device", 1st International Conference on Emerging Trends in Optical Technologies (ETOT-I), SRM University, Amaravati, Andhra Pradesh, $2^{nd}$ – $4^{th}$ January **2025**.

2. ***Umakanta Tripathy***, "Introducing a novel optical device to study protein aggregation in real-time", International Conference on Optics Within Life Sciences (OWLS-2024), Indian Institute of Technology Bombay (IITB), Mumbai, Maharashtra, $18^{th}$ – $21^{th}$ November **2024**.

3. ***Umakanta Tripathy***, "Presenting A Nonlinear Switch To Identify The Toxic Species In Parkinson's Disease", International Conference on Smart Materials for Sustainable Technology (SMST-2024) Institute of Nano Science and Technology (INST), Mohali, Punjab, $24^{th}$ – $27^{th}$ October **2024**.

4. ***Umakanta Tripathy***, "Nonlinear Magic in Soft Matter Physics", Refresher Course on Advanced Concepts in Biophysics and Soft Matter: Foundations and Frontiers, IIT (ISM) Dhanbad, Jharkhand, $18^{th}$ – $29^{th}$ October **2024**.

5. ***Umakanta Tripathy***, "Phytoconstituents of Ashwagandha as potent inhibitors of BRCA1 Mutants: A Therapeutic against Breast Cancer", Refresher Course on Advanced Concepts in

Biophysics and Soft Matter: Foundations and Frontiers, IIT (ISM) Dhanbad, Jharkhand, 18th – 29th October **2024**.

6. ***Umakanta Tripathy***, "A Potential Therapeutic Against Breast Cancer From Natural Resources", International Conference on Recent Developments in Functional Materials for Sustainable Applications (RDFMSA-2024), GIET University, Gunupur, Odisha, 20th – 21st April **2024**.
7. ***Umakanta Tripathy***, "A Novel Approach For Disease Diagnosis Through Nonlinear Magic", National Conference on Recent Trends in Chemical Sciences (RETICS-2024), Sambalpur University, Sambalpur, Odisha, 1st – 3rd March **2024**.
8. ***Umakanta Tripathy***, "Applications of Nonlinear Optics in Biophysics", Dept. of Physics, Mahila Maha Vidyalaya (MMV), BHU, Varanasi, Uttar Pradesh, 3rd February **2024**.
9. ***Umakanta Tripathy***, "Withania somnifera as a potent inhibitor of mutant BRCA1: A therapeutic against breast cancer", International Conference on Translational Materials for Sustainable Research (TransMat 2k24), Dept. of Physics, IIT(BHU) Varanasi, Uttar Pradesh, 1st – 4th February **2024**.
10. ***Umakanta Tripathy***, "Applications of the Z-scan Technique in Soft Condensed Matter Physics", One Week Training Programme on Synthesis and Characterization of Nanomaterials for Energy, Lighting & Bio-imaging Applications under STUTI, IIT(ISM) Dhanbad, Jharkhand, 7th – 13th November **2022**.
11. ***Umakanta Tripathy***, "Z-scan Technique: A Novel Tool for Biomedical Applications", National Workshop on Lasers and Z-scan Experiments, Bharathidasan University, Tiruchirappalli, Tamilnadu, 26th – 27th August **2022**.
12. ***Umakanta Tripathy***, "Interaction Between Spice Molecules and SARS-Cov-2 Proteins: A Computational Study", 38th Annual Convention of Odisha Physical Society and National seminar on Physics in sustainable development, GIET University, Gunupur, Odisha, 4th -5th June **2022**.
13. ***Umakanta Tripathy***, "Spice molecules: Potential inhibitors of SARS-CoV-2", One Day Seminar, Baghmara College, Baghmara, Jharkhand, 26th March **2022**.
14. ***Umakanta Tripathy***, "Parkinson's disease Pathology: Introducing a novel optical device for diagnostics", National Science Day, GIET University, Gunupur, Odisha, 28th February **2022**.
15. ***Umakanta Tripathy***, "A novel drug for covid19: an In Silico Investigation", A Physics Refresher Course with special focus on Material Science and Biophysics under TEQIP-III, IIT(ISM) Dhanbad, 8 - 20 February **2021**.

16. ***Umakanta Tripathy***, "A novel tool to study the aggregation kinetics of Alpha-Synuclein Protein", One day national E-conference on Recent Progress in Physical Sciences, Department of Physics, Tarakeswar Degree College, West Bengal, 31 August **2020**.

17. ***Umakanta Tripathy***, "A novel tool to help gain deeper insight into Parkinson's disease", Webinar by Society of Physics, Department of Physics, IIT(ISM) Dhanbad, 09 July **2020**.

18. ***Umakanta Tripathy***, "An Overview of Nonlinear Optical Tools in Neurodegenerative Diseases", Science Seminar, NAC Nayagarh, 12 – 13 February **2020**.

19. ***Umakanta Tripathy***, "Nonlinear Magic with Monoamine Neurotransmitters", National Symposium on light-matter interactions, IIT Madras, 26 December **2019**.

20. ***Umakanta Tripathy***, "Pros and Cons in Power Point Presentation", Induction Training / Orientation Programme for teachers, IIT(ISM) Dhanbad, 15 November – 12 December **2019**.

21. ***Umakanta Tripathy***, "Nonlinear Techniques in Biomaterials", Faculty development programme on design and development of materials for technological applications, VSSUT Burla, 21 - 26 October **2019**.

22. ***Umakanta Tripathy***, "Fundamentals and Applications of Spectroscopic Tools", Faculty development programme on design and development of materials for technological applications, VSSUT Burla, 21 - 26 October **2019**.

23. ***Umakanta Tripathy***, "Nonlinear Techniques in Biophotonics", Refresher programme in Physics (Biophotonics) for teachers, IIT(ISM) Dhanbad, 29 May – 18 June **2018**.

24. ***Umakanta Tripathy***, "Art of Slide Presentation", National Training programme on Research Methodology for research scholars, IIT(ISM) Dhanbad, 18 – 23 December **2017**.

25. ***Umakanta Tripathy***, "Sensitive detection of malaria infection by using nonlinear imaging", 22nd Biennial Indian Photobiology Society (IPS) Conference on Biomolecular Dynamics-Experimental and Theoretical Perspectives (BDETP-2017), NIT Rourkela, 18 - 20 December **2017**, IL2, P-19.

26. ***Umakanta Tripathy***, "Nonlinear Laser Scanning Microscopy (NLSM) for Bio-imaging", Refresher programme in Physics (Nano-Biotechnology) for teachers, IIT(ISM) Dhanbad, 25 May – 14 June **2017**.

27. ***Umakanta Tripathy***, "Origin of Maxwell's equations and its magic in linear media", Refresher programme in recent trends on microwave components and Antennas for teachers, IIT(ISM) Dhanbad, 26 December **2016** – 15 January **2017**.

28. ***Umakanta Tripathy***, "An Innovative Tool For Disease Diagnosis", Orientation Programme for teachers, IIT(ISM) Dhanbad, 9 – 29 February **2016**.