

DR. EBENEZAR JEYASINGH

Assistant Professor (Senior scale)

Google Scholar (as on dated 05th Apr. 2023): Citations: 152; h-index: 6; i10-index: 4;

ORCID ID: 0000-0001-7391-5429



Department of Physics
Jamal Mohamed College (Autonomous)
Tiruchirappalli – 620 020.
Tamil Nadu, INDIA.



ebey_ebenazar@yahoo.com
ebenezarjeyasingh@gmail.com

**91-9865007640****POSITIONS HELD**

- ◆ Placement coordinator (1st June 2022–17th September 2022)
- ◆ Fine arts Coordinator (2018–2020)
- ◆ Admission Committee member (2018–2019)

EDUCATION**Ph. D – 2003**

Department of Medical Physics, Anna University, Chennai.

M. Phil – 1996

Department of Medical Physics, Anna University, Chennai.

M. Sc. – 1994

Department of Physics, Jamal Mohammed College (Autonomous), Tiruchirappalli.

PUBLICATIONS, RESEARCH AND TEACHING EXPERIENCE

Research Publications	Number of Articles / Books Published	Research Experience	Teaching Experience (UG & PG)
Peer-Reviewed International Journal	15		
International Conferences	11		
National Conferences	10	22 years	15 years
Editor of the Book (Springer Publishers)	01		
Book Chapter	01		

DETAILS OF EMPLOYMENT

- ◆ **Assistant Professor**
Department of Physics, Jamal Mohamed College, Trichy. **16.08.2006 – Present**
- ◆ **Senior Scientist**
Centre for Laser spectroscopy, Manipal University, Manipal. **02.05.2006 – 14.08.2006**
- ◆ **Post-Doctoral Fellow**
Laser Division, King Saud University, Riyadh, Saudi Arabia. **25.6.2005 – 28.12.2005**
- ◆ **Junior Research Fellow**
Department of Medical Physics, Anna University, Chennai. **20.05.1999 – 30.4.2002**

PROFESSIONAL RESEARCH EXPERIENCE

Name of the Institution	Position	Area of Research	Period of Training	
			From	To
Institute for Ultrafast Spectroscopy and Lasers (IUSL), The City College of New York, New York, USA.	Visiting Fellow	Stokes Shift Spectroscopy of Alzheimer's diseased brain Tissues.	05-02-2018	23-02-2018
Institute for Ultrafast Spectroscopy and Lasers (IUSL), The City College of New York, New York, USA.	Visiting Fellow	Two Photon Mapping of Chromophores in Human Breast Tissues.	10-02-2014	27-02-2014
Institute for Ultrafast Spectroscopy and Lasers (IUSL), The City College of New York, New York, USA.	Visiting Fellow	Stokes Shift Spectroscopy of Prostate Tissues	01-02-2010	11-02-2010

AREA OF RESEARCH

Biophotonics, Nano and Biomaterials, Molecular Docking and Dynamics, Crystal Growth, Medical Physics.

CONFERENCE ORGANIZED

International Conference on "Recent Trends in Materials Science and Applications". - 29th February 2016

EDITOR OF THE BOOK

Book Title Recent Trends in Materials Science and Applications
Book Name Springer Proceedings in Physics, Volume 189
Publisher Springer, Switzerland
Website Link <http://www.springer.com/in/book/9783319448893>.

RESEARCH GUIDENCE

Degree	Completed	Pursuing
M.Sc.	39	02
M.Phil.	39	--
Ph.D.	--	04

JOURNAL REVIEWER

- ◆ Journal of Biomedical Optics
- ◆ Journal of Biophotonics
- ◆ PLOS One
- ◆ Oral Oncology
- ◆ Technology in Cancer Research and Treatment

MEMBERSHIP IN SCIENTIFIC SOCIETIES

- ◆ Life Member, Indian Laser Association (ILA).
- ◆ Member, International Society for Optical Engineering (SPIE), USA

RECENT ABROAD VISIT

- ◆ Delivered the lecture and attended the 19th Annual International Workshop on **FLIM and FRET Microscopy** at **W.M. Keck Center for Cellular Imaging**, University of Virginia, Charlottesville, USA, during **March 09th to 13th, 2020**.
- ◆ Presented a research paper in **Optical Biopsy XVI, SPIE, San Francisco, USA, during Jan' 2018**.
- ◆ Presented a research paper in **Optical Biopsy XII, SPIE, San Francisco, USA, during Feb' 2014**.
- ◆ Presented a research paper in **Optical Biopsy VIII, SPIE, San Francisco, USA, during Jan' 2010**

INVITED TALK IN THE INTERNATIONAL WORKSHOP

- ◆ Delivered invited talk, entitled, "*Estimation of Redox states and early detection of Epithelial cancers in DMBA induced mouse skin carcinogenesis using Synchronous fluorescence spectroscopy*" in 19th Annual International Workshop on **FLIM and FRET Microscopy** at **W.M. Keck Center for Cellular Imaging, University of Virginia, Charlottesville, USA**, during March 09th to 13th, 2020.

RESEARCH ACTIVITIES

BIOPHOTONICS & NANO BIOMATERIALS

My primary area of interest is in physics principles with basic and translational research. Specifically, my research emphasizes the design, prototyping, and clinical testing of optical biopsy (OB) system to detect, diagnose, treat and monitor the molecular signatures of cancers of oral, breast, brain, cervix, and skin cancers. This includes: new OB and imaging instrumentation and molecular-specific optical contrast agents. The fundamental basis of our work lies in the fact that optical signals arising from tissue are altered during disease progression, as the source of these signals originates in tissue microstructure and biochemical makeup. At Present, I am working on the synthesis of biocompatible nanoparticles to be used in biomedical imaging, targeted drug delivery, and cell labelling especially for combined diagnosis and therapy of cancers.

MOLECULAR DOCKING & DYNAMICS

Molecular Docking & Dynamics helps us in identifying potential lead-like compound and reduces the time and expense of the drug discovery pipeline by not probing irrelevant compounds. Tumor suppressor Genes (TSG) regulate the cell cycle and ensure genome stability via DNA repair, inhibit cell growth or induce apoptosis, and any mutation in it inactivates TSG's function, resulting in cancer formation. The primary objective of our research is to identify small compounds with excellent drug-likeness and pharmacokinetic qualities, capable of binding with TSG and restoring the native conformation in mutants using an *in-silico* approach and further expand the interest in preclinical and clinical trials.

CRYSTAL GROWTH

Functional crystals are vital in modern communication devices, optical fibers, laser devices, optical memory storage devices, and the medical field. Particularly organic and semi-organic crystals contribute more in the fields mentioned above. The work focuses primarily on the synthesis, growth and characterization of organic dye-doped amino acid derivative crystals for optical and nonlinear optical (NLO) applications. The planned objective is to infuse some of the organic dyes into the organic and semi-organic amino acid derivative crystals to enhance NLO properties, such as second harmonic generation (SHG) and third harmonic generation (THG). Thereby studying the change in the crystal lattice, optical parameters, dielectric properties, NLO activity, thermal and mechanical properties of the amino acid derivative crystals.

HONOURS & AWARDS

- ◆ **Marie Sklodowska Curie award**, awarded by Halifa Haroon Al Rashid Benevolence Foundation, Melbourne, Australia, 2020.
- ◆ **Visiting Fellow**, IUSL, City University of Newyork, Newyork, USA, 2018, 2014, and 2010.
- ◆ **International Travel Grant**, awarded by Department of Science and Technology (DST), Govt. of India, 2014, and 2010.
- ◆ **Junior Research Fellow**, Division of Medical Physics, Anna University, Chennai, 1999–2002.

LIST OF PUBLICATION IN INTERNATION JOURNALS

1. D. Sougoumarane, **J. Ebenezar**, and R. Karthick. "Validation of esophageal cancer treatment methods from 3D-CRT, IMRT, and Rapid Arc plans using custom Python software to compare radiobiological plans to normal tissue integral dosage." **Reports of Practical Oncology and Radiotherapy**, 2023.
2. D. Sougoumarane, **J. Ebenezar**, V.P. Pandey, R. Karthick, S. S. Kotur, and D. P. Sahoo. "Dosimetric validation of physical and biological indexes from the dose-volume histogram for evaluation of 3D-CRT and IMRT with VMAT treatment plan techniques in cervical tumors from in-house developed software" **Iranian Journal of Medical Physics**, 2023.
3. D. Sougoumarane, R. Karthick, **J. Ebenezar**, V.P. Pandey, K. Nachimuthu, I. Ahmed, and P. Venkatraman. "Comparison of Dose Statistics of Intensity-Modulated Radiation Therapy Plan from Varian Eclipse Treatment Planning System with Novel Python-Based Indigenously Developed Software" **Progress in Medical Physics**, 33(3), 25-35, 2022.
4. **J. Ebenezar**, C.K. Adaikalam, T. Pandiyarajan, C. Karthikeyan and V.M. Ramalinga, "Effect of Mn doping on the structural, optical, magnetic properties, and antibacterial activity of ZnO nanospheres," **Journal of Sol-Gel Science and Technology**, 102, 357-371, 2022. (Impact Factor: 2.606)

5. **J. Ebenezar**, P. Aruna and S. Ganesan, "Synchronous fluorescence spectral intensity ratio mapping for early discrimination of epithelial cancers," **Asian Journal of Physics**, 29, 519-527, 2020.
6. **J. Ebenezar**, S. Ganesan, P. Aruna, " Native fluorescence Spectroscopic Characterization of DMBA Induced Carcinogenesis in Mice Skin for the early detection of tissue transformation," **Analyst**, 140, 4170-4181, 2015. **(Impact Factor: 3.885)**
7. **J. Ebenezar**, S. Ganesan, P. Aruna, R. Muralinaidu, K. Renganathan, and T.R. Saraswathy, "Noninvasive Fluorescence Excitation Spectroscopy for the Diagnosis of Oral Neoplasia in vivo," **Journal of Biomedical Optics**, 17 (9), 097007(1-8), 2012. **(Impact Factor: 2.530)**
8. **J. Ebenezar**, Y. Pu, C.H. Liu, W.B. Wang, and R.R. Alfano, "Stokes shift spectroscopy pilot study for cancerous and normal prostate tissues," **Applied Optics**, 51(16), 3642-3649, 2012. **(Impact Factor: 1.650)**
9. **J. Ebenezar**, Y. Pu, C.H. Liu, W.B. Wang, and R. R. Alfano, "Diagnostic potential of Stokes Shift Spectroscopy of Breast and Prostate tissues – A preliminary pilot study," **Technology in Cancer Research and Treatment**, 10(2), 153-161, 2011. **(Impact Factor: 2.204)**
10. V.K. Unnikrishnan, R. Nayak, R. Bernard, K.J. Priya, A. Patil, **J. Ebenezar**, K.M. Pai, S.D. George, V.B. Kartha, and C. Santhosh, "Parameter optimization of a laser-induced fluorescence system for in vivo screening of oral cancer," **Journal of Laser Applications**, 23(3), 032004-1 -7, 2011. **(Impact Factor: 1.492)**
11. **J. Ebenezar**, P. Aruna, and S. Ganesan, "Synchronous Fluorescence Spectroscopy for Detection and characterization of Cervical cancer in vitro," **Photochemistry and Photobiology**, 86, 77-86, 2010. **(Impact Factor: 2.121)**
12. **J. Ebenezar**, N. Radhakrishnan, and A. John Peter, "Polaronic excitons in an unstrained GaAs/AlGaAs quantum wire," **Physica B**, 405, 3350–3354, 2010. **(Impact Factor: 1.386)**
13. **J. Ebenezar**, N. Radhakrishnan, and A. John Peter, "Acceptor binding energies in a GaMnAs Quantum well," **Journal Computational and Theoretical Nanoscience**, 7, 1-5, 2010. **(Impact Factor: 1.343)**
14. A. John Peter and **J. Ebenezar**, "Diamagnetic Susceptibility of a Confined Donor in a Quantum Dot with Different Confinements," **Journal of Scientific Research**, 1(2), 200-208, 2009. **(Impact Factor: 0.46)**
15. A.I. Al-Diab, V. Masilamani, R. Kalaivani, K. Sivaji, M. Al-Salhi, F. Habib, A. Al-Sagheir, **J. Ebenezar**, O. Al-Daghri, H. Raja, S.E. Sivanandam, and L. Anand, "Detection of cancer of pancreas by native fluorescence of blood components – A preliminary report," **Emirates Medical Journal**, 25(1), 29-38, 2007. **(Impact Factor: 0.07)**

RESEARCH PAPERS PRESENTED IN INTERNATIONAL CONFERENCES

1. S. Vivek, SV Baageshri, S. Alfred Cecil Raj, **J. Ebenezar**, "*Investigation of growth, structural, linear and nonlinear optical properties of Sodium 2, 4 – Dinitrobenzenesulfonate monohydrate single crystals*", International conference on current research and advancements in materials science and spectroscopy (ICCAMS 2023), held at St. Joseph's College, Trichy, during February 10-11, 2023.
2. **J. Ebenezar**, P. Hendry Moses, M. Sasikumar, M. Preethi Rajathi and C. Karthikeyan, "*Study of Antibacterial Properties of Sn doped ZnO Nanoparticles by Simple Co-Precipitation Route*", International Conference on Nanoscience and Photonics for Medical Applications, held at Manipal Academy of Higher Education (MAHE), Manipal, during December 28-30, 2022.
3. D. Sougoumarane, R. Karthick, **J. Ebenezar**, "Validation and Standardization of the Best Radiation Therapy Plan for the Left Breast using Dosimetric and Radiobiological Parameters for Different Planning Techniques", International Conference on Nanoscience and Photonics for Medical Applications, held at Manipal Academy of Higher Education (MAHE), Manipal, during December 28-30, 2022.
4. **J. Ebenezar**, "*Monitoring redox states using stokes Shift Spectroscopy in-vivo for early detection of Epithelial Precancer*", 2nd Annual International Scientific Conference & Hybrid Expo on Laser, Optics, Photonics, Sensors & Ultrafast Nonlinear Optics (Virtual conference), during June 10-12, 2022.
5. **J. Ebenezar**, S. Ganesan, and P. Aruna, "*Stokes shift spectroscopy for the early diagnosis of epithelial precancers in DMBA treated mouse skin carcinogenesis*," **Proc. SPIE**, 10489, 140-146, 2021
6. **J. Ebenezar**, S. Ganesan, P. Aruna, and R. Muralinaidu, " *Noninvasive Diagnosis of Oral Cancer by Stokes Shift Spectroscopy*," **Proc. SPIE**, 8940, 89400L-1- 89400L-7, 2014.
7. **J. Ebenezar**, Y. Pu, W.B. Wang, G.C. Tang, C.H. Liu, and R.R. Alfano, "*Prostate precancer detection by Stokes shift spectroscopy*," **Proc. SPIE**, 7895, 78950H-1-78950H-8, 2011.
8. **J. Ebenezar**, P. Aruna, and S. Ganesan, "*Stoke Shift Spectroscopy for Breast cancer Diagnosis*," **Proc. SPIE**, 7561, 75610B-1- 75610B-10, 2010.
9. P. Aruna, **J. Ebenezar**, and S. Ganesan, "*In-vivo characterization of Endogenous porphyrin fluorescence from DMBA treated Swiss albino mice skin carcinogenesis for measuring tissue transformation*," **Proc. SPIE**, 4613, 118-124, 2002.

10. P. Aruna, S. Hemamalini, **J. Ebenezar**, and S. Ganesan, "*Ultra-violet emission and excitation fluorescence spectroscopic characterization of DMBA treated Swiss albino mice skin carcinogenesis for measuring tissue transformation*," **Proc. SPIE**, 4613, 1-7, 2002.
11. N. Vengadesan, T. Anbupalam, S. Hemamalini, **J. Ebenezar**, K. Muthuvelu, D. Koteeswaran, P. Aruna and S. Ganesan, "*Characterization of cervical normal and abnormal tissues by synchronous luminescence spectroscopy*," **Proc. SPIE**, 4613, 13-17, 2002.

RESEARCH PAPERS PRESENTED IN NATIONAL CONFERENCES

1. P. Hendry Moses and **J. Ebenezar**, "Traditional medicinal plant bioactives and their derivatives as therapeutics for Breast Cancer: Computational Investigation", National Conference on Recent Innovations in Biomolecules and Spectroscopy (NCRIBS), held at Kandaswami Kandar's College, Velur, on November 4th, 2022.
2. **J. Ebenezar**, S. Ganesan, P. Aruna, and R. Muralinaidu, "*Stokes Shift Spectral Discrimination of Normal and Cancerous Cervical Tissues*," National Laser Symposium, held at S.V. University, Tirupati, during December 3-6, 2014.
3. **J. Ebenezar**, S. Ganesan, P. Aruna, and R. Muralinaidu, "*Fluorescence excitation spectroscopy for the diagnosis of oral Cancer*," held at National Laser Symposium, CAT, Indore, during January 8-11, 2014.
4. **J. Ebenezar**, P. Aruna, and S. Ganesan, "*Synchronous fluorescence spectroscopic characterization of DMBA induced epithelial precancer in mice*," National Laser Symposium, held at CAT, Indore. during, December 5-8, 2006.
5. **J. Ebenezar**, and P. Aruna, "*Optical biopsy of cancer using native fluorescence spectroscopy*," Ph.D Thesis Presentation, National Laser Symposium, held at IIT, Kharagpur, during Dec. 22-24, 2003.
6. **J. Ebenezar**, P. Aruna, T. Anbupalam, R. Muralinaidu, T.R. Saraswathy, and S. Ganesan, "*In situ native fluorescence spectroscopic characterization of Normal, High-risk smokers and Malignant*," National Laser Symposium, held at IIT, Kharagpur, during December 22-24, 2003.
7. **J. Ebenezar**, S. Ganesan, T. Anbupalam, S. Snekalatha, and P. Aruna, "*Optical Characterization of breast tissues by synchronous luminescence spectroscopy using multivariate statistical analysis*," National Laser Symposium, held at Chitra Tirunal Institute for Medical Sciences and Technology, Thiruvananthapuram, during November 14-16, 2002.
8. **J. Ebenezar**, S. Hemamalini, P. Aruna, K. Muthuvelu, and S. Ganesan, "*Characterization of Normal and Cancerous Cervical tissues by FT-IR Spectroscopy*," held at National Laser Symposium, CAT, Indore, during December 19-21, 2001.

9. **J. Ebenezar**, G. Deva Shantha Kumari, P. Aruna, and S. Ganesan, "*Photodynamic activity on Human Erythrocytes by Xanthene Derivatives: Role of Scavengers*," National Laser Symposium, held at LASTEC, Metcalfe House, New Delhi, during on December 13-15, 2000.
10. **J. Ebenezar**, P. Aruna, Simi Pushpan, A. Srinivasan, M. Ravi Kumar, T.K. Chandrasekar, and S. Ganesan, "*Photohemolysis of Human Erythrocytes by S2TPPS*," National Laser Symposium, held at University of Hyderabad, during on December 15-17, 1999.

BOOK CHAPTER

1. E. Gunasundari, K. Senthilnathan, P. Ramesh Babu, **J. Ebenezar** and K. Nakkeeran, "*Supercontinuum Generation in a Silicon Nanowire Embedded Photonic Crystal Fiber for Optical Coherence Tomography Applications*," **Springer Proceedings in Physics**, 189, 71-88, 2017. [**Springer Publishers**]