


Faculty Profile

Name of Faculty	Dr. DEEPA H.R.	
Department	Physics	
Qualification	M.Sc., M.Phil., Ph.D.	
Designation	Associate Professor	
Area of specialization	Nuclear Physics, Molecular Spectroscopy	
Date of Joining BNMIT	24.08.2003	
Nature of Association (Regular/Contractual/Adjunct)	Regular	
e-mail	deepahr@bnmit.in , deepa_rshankar@yahoo.com	
No. of years of Experience	Teaching:19 years	

Academic Qualifications

- **Ph.D.** (2014), Department of Physics, VTU, Belagavi, India.
- **M.Phil.** (2009), MKU, Madhurai, India.
- **M.Sc.** (1998), Nuclear Physics, Department of Physics, Kuvempu University, Shimoga, India (**I Rank**).
- **B.Sc.** (1996), Govt., First Grade College, Hosadurga, India (I Class).

Working Experience Details

- Assoc. Professor, Dept. of Physics, BNMIT, Bangalore, India, (2014 – Till date).
- Assoc. Professor, Dept. of Physics, BNMIT, Bangalore, India, (Sep 2010 to Dec 2012).
- Sr. Lecturer, Dept. of Physics, BNMIT, Bangalore, India (Jan 2008 to Aug 2010).
- Lecturer, Dept. of Physics, BNMIT, Bangalore, India, (August 2003 to Jan 2008).
- Lecturer, Dept. of Physics, RVCE, Bangalore, India, (Mar 2003 to June 2003).
- Lecturer, Dept. of Physics, P U College, Bangalore, India, (June 1999 to Mar 2003).

Subject taught

Topics Taught: Modern Physics, Quantum Mechanics, Dielectric and Magnetic properties of Materials, Electrical conductivity of materials, Superconductivity, Ultrasonics and their applications, Fundamentals of Nanotechnology, Lasers and their applications, Optical fibers and their applications.

Research Experience Details:

Photophysical properties namely absorption, fluorescence, quantum yield, fluorescence lifetime, fluorescence quenching by external quenchers in different environments, fluorescence resonance transfer and interaction with silver nanoparticles have been studied for organic molecules using UV absorption spectroscopy, Fluorescence spectroscopy and Single photon counting techniques.

I have studied effect of solvents on organic molecules using solvatochromic methods. Using the solvatochromic data, I have estimated ground and excited state dipole moments of these molecules. The

fluorescence quenching mechanisms of these molecules were studied by series amines as external quenchers in different solvents and in binary mixtures. Also, I have studied energy transfer mechanism of these organic molecules with Rhodamine 6G as acceptor in binary dye solution mixtures. Further, I have investigated influence of silver nanoparticles on photophysical properties of these organic molecules.

I have experience in handling instruments like UV-Vis Spectrophotometer, Fluorescence Spectrophotometer, Edinburgh's single photon counting fluorescence spectrometer to measure excited state life time of the molecule. Also have experience in chemical synthesis of silver and gold nano particles.

Research Projects (Co-Investigator)

Completed

Title: Effect of Silver nanoparticles on photophysical properties of Ketocyanine Dye series

Funding Agency: VTU, Belgaum, Karnataka, INDIA

Amount: 8.9 Lakhs

Duration: 03 years (July 2012 – July 2015)

Academic Positions and other Responsibilities :

1. **Time Table Co-Ordinator** for first year B.E.
2. **Exam Co-Ordiantor** at BNMIT for the conduction of B.E. examination of VTU, Belgaum.
3. **Test Co-Ordiantor** at BNMIT for the conduction of internal examinations.
4. **Member of the** Organizing Committee for One Day Symposium on '**Current Trends in Photonics and its Applications**' at BNM Institute of Technology, Bangalore on 20th March 2010.
5. **Member of the** Organizing Committee for five days **FDP on Modern Materials & their Applications** at BNMIT, Bangalore. at BNM Institute of Technology, Bangalore on 16th to 20th Jan 2018.
6. **External Deputy Chief Superintendent** for the conduction of B.E. examination of VTU, Belgaum.

Experimental/ Computational/ Any other Skills:

- Synthesis of silver nanoparticles of different sizes by chemical reduction method.
- **Optical Absorption studies using Absorption UV-VIS Spectrophotometer.**
- Fluorescence emission studies using Spectrofluorometer.
- **Fluorescence lifetime studies using single photon counting fluorescence spectrometer**
- Measurement of dielectric constant of liquids by Forbes Tinsley (FT) 6421 LCR Data Bridge.

Awards/ Achievements/Memberships:

- **First Rank** in M.Sc.
- **GOLD MEDAL** in M.Sc. for securing highest marks among the successful candidates.
- **Dr. Sanjeevaih Gold Medal** for scoring highest marks in Nuclear Physics.
- Life Member, Indian Society for Technical Education.
- Life Member, Indian Association of Physics Teacher.

Workshops /Seminars Organized:

1. **Organising member** for **Five Day Faculty Development Program on “Modern Materials & their Applications”** held at BNM Institute of Technology, Bengaluru during 16-20, January 2018.
2. **Organizing member** for the conduction of **One Day Symposium on Current Trends in Photonics and its Applications** on 20th March 2010 at BNMIT.

Research Publications:

I. In National & International Journals

1. Modification of spectral behavior of ketocyanine dye by silver nano particles of different sizes, J. Thipperudrappa, U.P.Raghavendra, **H.R.Deepa**, Mahantesha Basanagouda, **International Journal of Nanoscience**, Vol. 17, No. 3 (2018) 1850022 (1-10 pages).
2. Effect of Solvents, Solvent Mixture and Silver Nanoparticles on Photophysical Properties of a Ketocyanine Dye, J. Thipperudrappa, **H.R. Deepa**, U.P. Raghavendra, S.M. Hanagodimath and R.M. Melavanki, **Luminescence: The Journal of Biological and Chemical Luminescence**, 32 (1), Feb. 2017, 51–61.
3. Study of Role of Silver Nanoparticles on Spectroscopic Properties of a Ketocyanine Dye. J Thipperudrappa, U P Raghavendra, **H R Deepa** and M Basanagowda, **Mapana J Sci**, 15, 1 (2016), 1-16 ISSN 0975-3303|doi:10.12723/mjs.36.1.
4. A study on fluorescence quenching of a laser dye by aromatic amines in alcohols, **H. R. Deepa**, J. Thipperudrappa & H. M. Suresh Kumar, **Canadian Journal of Physics**, **2015**, 93(4): 469-474, 10.1139/cjp-2014-0190.
5. Resonance Energy Transfer study of Laser Dyes LD 489 and LD 473 with Rhodamine 6G, **H. R. Deepa**, J. Thipperudrappa and H. M. Suresh Kumar, **Canadian Journal of Physics**, 2014, 92(4): 302-306, 10.1139/cjp-2013-0445.
6. Influence of silver nanoparticles on photophysical properties of laser dyes, **H. R. Deepa**, H. M. Suresh Kumar and J. Thipperudrappa, **Canadian Journal of Physics**, **2014**, 92(2): 163-167, 10.1139/cjp-2013-0133.
7. Solvatochromic shift studies in LD-425 and LD-423: Estimation of ground and excited state dipole moments, **H. R. Deepa**, J. Thipperudrappa, R.H. Fattepur and H. M. Suresh Kumar, **Journal of Molecular Liquids**, May 2013, 181, 82-88.
8. Effect of Solvents on the Spectroscopic Properties of LD-489 & LD-473: Estimation of Ground and Excited State Dipole Moments by Solvatochromic Shift Method, **H. R. Deepa**, J. Thipperudrappa and H. M. Suresh Kumar, **Spectrochimica Acta Part A: Molecular and Bimolecular spectroscopy**, 2013, 108, 288-294.
9. Fluorescence quenching studies of 6,7,8,9-tetrahydro- 6,8,9-trimethyl-4 (trifluoromethyl)- 2H pyrano[2,3- b][1,8]naphthyridin-2-one by aromatic amines in alcohols, **H. R. Deepa**, J. Thipperudrappa & H. M. Suresh Kumar, **International Journal of Physics and its Applications**, 2012, 4(2), 157-168. IISN 0974-3103.

10. A study on fluorescence quenching of LD-425 by aromatic amines in 1,4-dioxane acetonitrile mixtures, **H. R. Deepa**, J. Thipperudrappa & H. M. Suresh Kumar, **Journal of Luminescence**, June 2012, 132, 1382-1388.

II. In National/International Conference Proceedings

1. Energy Transfer studies between a Laser Dye and Aromatic Amines in Alcohols

H. R. Deepa, J. Thipperudrappa and H. M. Sureshkumar

Proceedings of Trombay *Symposium on Radiation and Photochemistry* (TSRP-2014) held from 6-9th January, 2014 at BARC, Mumbai. Pp. 155. ISBN:81-88513-61-X

2. Solvents effect on the spectroscopic properties of laser dyes LD-473 and LD-489: Estimation of ground and excited state dipole moments

H. R. Deepa, J. Thipperudrappa and H. M. Sureshkumar

Proceedings of Trombay *Symposium on Radiation and Photochemistry* (TSRP-2012) held from 4-7th January, 2014 at BARC, Mumbai. Vol. II, pp. 331-332, ISBN: 81-88513-47-4.

Papers presented in International/National Conferences

1. **Participated and Presented** a paper "Effect of TiO₂ Nanoparticles on photophysical properties of Laser dyes", in International conference on 'Green Methods for Separation, Purification and Nanomaterial Synthesis', during **24th - 25th April 2018 at Jain University, Banagalore.**
2. **Participated and Presented** a paper "Effect of temperature on fluorescence and fluorescence quenching of laser dye LD-425" in UGC sponsored "National conference on Atomic Physics, Molecular Physics and X-Ray Crystallography" held on **8th - 10th January 2015 at Vijaya College, Bangalore.**
3. **Participated and Presented** a paper "Energy Transfer Studies Between A Laser Dye And Aromatic Amines in Alcohols" in DAE-BRNS 12th Biennial Trombay Symposium on Radiation & Photochemistry (TSRP-2014) held during **6 - 9th January 2014 at BARC, Mumbai.**
4. **Participated and Presented** a paper "Effect of Silver Nanoparticles on Photophysical Properties of Laser Dyes" in National Conference on Luminescence and its Applications (NCLA 2013) held during **8th - 10th January 2013 at PES Institute of Technology, Bangalore.**
5. **Participated and Presented** a paper "Study of Fluorescence Resonance Energy Transfer Between Laser Dyes and Rhodamine 6G" in National Conference on Luminescence and its Applications (NCLA 2013) held during **8th - 10th January 2013 at Department of Physics, PES Institute of Technology, Bangalore.**
6. **Participated and Presented** a paper "A Study on Fluorescence Quenching of 1,2,3,8-tetrahydro-1,2,3,3,8-pentamethyl-5-(trifluoromethyl)-7H-pyrrolo[3,2-g]quinolin-7-one (LD-473) by Aromatic Amines in Polar Solvents" in 23rd International Conference on Raman Spectroscopy (ICORS) held during **12th - 17th August 2012 at Department of Organic Chemistry, IISc, Bangalore.**

7. **Participated and Presented** a paper “Solvent Effects on the Spectroscopic Properties of Laser “Dyes LD-425 and LD-489: Estimation of Ground and Excited State Dipole Moments” in DAE-BRNS 11th Biennial Trombay Symposium on Radiation & Photochemistry (**TSRP-2012**) held during **4th – 7th January 2012 at BARC, Mumbai.**
8. **Participated and Presented** a paper “Solvents Effect on the Photo-physical Properties of Laser Dyes LD-473 and LD-423: Estimation of Ground and Excited State Dipole Moments” in National Conference on **Recent Advances in Material Science held during 12th – 14th December 2011** at Department of Physics, **MSRIT, Bangalore.**
9. **Participated and Presented** a paper “Fluorescence Quenching of LD-425 by Series of Aromatic Amines In 1,4 Dioxane – Acetonitrile Mixtures” in **2nd DAE-BRNS Symposium on Atomic, Molecular and Optical Physics** held on **22nd – 25th February 2011** at Department of Physics, **Karnatak University, Dharwad.**
10. **Participated and Presented** a paper “Estimation of excited state dipole moment of 2-chloro-3-formly quinoline by solvatochromic method” in National Conference On Recent Trends In Chemical Research (**NCRTCR 2010**) held during **8th – 10th March 2010** at Department of Chemistry, **NITK Suratkal.**

Participation in Training courses/Seminars/Workshops

1. Participated and Organizing member for **Five Day Faculty Development Program** on ‘**Modern Materials and their Applications**’ at Department of Physics, B N M Institute of Technology, Bangalore from 16th – 20th January 2018.
2. Participated in “**One Day Conference on “Laser Physics and Non-linear Optics”** on 30th October 2017 held at Department of Physics, Bangalore Institute of Technology, Bangalore.
3. Participated in the **Faculty Development Program** on “Conducting Polymer Composites, Synthesis and Characterization” organized at Department of Physics, BMSCE, Bangalore on 6th to 10th June 2016.
4. Participated in the **Faculty Development Program** on “Principles of Photonics and Applications” organized at Department of Physics, MSRIT, Bangalore on 20th to 24th July 2015.
5. Participated in the Symposium on “**Recent Trends in Advanced Materials and Nanotechnology**” organized by the Department of Physics, **CMRIT, Bangalore** on 23rd January 2015.
6. Participated in the **Faculty Development Program** on “**Innovative Teaching and Effective Communication**” organized by **BNMIT, Bangalore** held during 18 – 20th July 2012.
7. Participated in the **Staff Development Program** on “**Material Science: a fundamental approach**” held at **PESIT, Bangalore** during 28th June – 2nd July 2010.
8. Participated as a delegate at the **23rd IAPT convention** held at Indian Academy of Degree college, **Bangalore** during 17 – 19th October 2008.

9. Participated in the Two Day **National Seminar** on “**Current Trends In Physics**” organized by the Department of Physics, **RVCE**, Bangalore during 29 – 30th April 2008.
10. Participated in the **Short Term Training Program** on “**Processing and Applications of Nano-Structured Materials**” Sponsored by AICTE, New Delhi, Organized by Department of Physics, **IIT, Madras** during 9 – 14th July 2007.

Personal Details:

- **Date of Birth:** 20 - 04 –1975
- **Religion:** Hindu
- **Marital status :** Married

20th April 2019

DEEPA H.R.