

Curriculum Vitae

Dr. Richa Gahlaut

Assistant Professor –Physics

R.H.Government P.G. College, Kashipur

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CAREER OBJECTIVE

I would like to use my knowledge, sense of responsibility and innovative thinking for future challenges and the duties which will be assigned to me.

ACADEMIC QUALIFICATIONS

- Ph.D.** Awarded doctorate degree on the thesis entitled “**Excited State Relaxation Studies of Some Naphthalene Derivatives**” in May 2013.
Supervisor: Prof. Sanjay Pant, Professor,
Department of Physics, D.S.B. Campus,
Kumaun University, Nainital
Uttarakhand, India.
- M.Sc.** Physics in 2006 with 63 % from D.S.B. Campus Nainital (Kumaun University, Nainital), Uttarakhand.
- B.Sc.** Physics, Chemistry, Mathematics in 2004 with 68% from RHGPG College, Kashipur (Kumaun University, Nainital), Uttarakhand.
- 12th** Physics, Chemistry, Mathematics, English, Hindi in 2001 with 75 % from NGIC, Mahuvadabra (U. P. Board), U. S. Nagar, Uttarakhand.
- 10th** Mathematics, Science, Biology, Social Science, English, Hindi in 1999 with 75 % from GGIC, Jaspur (U. P. Board), U. S. Nagar, Uttarakhand.

PROFESSIONAL EXPERIENCE

- **Junior Research Fellow (JRF)**, (November 16th, 2007 – November 15th, 2010) and **Senior Research Fellow (SRF)**, (November 16th, 2010 – March 31st, 2012) in RFSMS (Research fellowship in sciences for the meritorious students) scheme of University Grants Commission (UGC), India at Photophysics Laboratory, Department of Physics, Kumaun University, Nainital, India.

- Worked as **Research Associate** on the **CSIR, New Delhi**, project “ultrafast optical interactions in metal and semiconductor nanostructures” under supervision of Dr. Parinda Vasa at Department of Physics, Indian Institute of Technology, Bombay.
- Worked as **D.S. Kothari Post-Doctoral Fellow, UGC, New Delhi**, on the project “optical behavior of nanocrystals and nano hetero-structures” with Prof. Shailaja Mahamuni, Department of Physics, S.P. Pune University.
- Currently working as **Assistant Professor-Physics**, in Government Degree College, Chandrabadni, Tehri Garhwal, Uttarakhand.

COMPUTER PROFICIENCY

- Knowledge of Windows 2007, Windows NT, Windows XP, Microsoft Office

PROFESSIONAL SKILLS (TEACHING / RESEARCH EXPERIENCE)

- Three years research experience in synthesis and handling of inverted optical microscope for studying the photophysics of semiconductor single quantum dots at Pune University.
- Handling of low temperature experimental setup up to 10 K (liquid helium temperature) and up to 77 K (liquid nitrogen temperature).
- Prepared the Set up of non-linear optics experiment (Z-Scan) for the B. Tech. (EP) / M.Sc. (Physics) students and worked as Technical Assistant (TA) for the same experiment at Department of Physics, IIT Bombay, Powai.
- Three year (2008-09, 2009-10 & 2010-11) experience in teaching (theory and practical both) of under-graduate (B.Sc.) and post-graduate (M.Sc.) level at Department of Physics, D. S. B. Campus, Kumaun University, Nainital, 263002, Uttarakhand, India.
- Studied various photophysical and photochemical processes in molecular systems.
- Experience of operation of various types of fluorescence spectroscopic instruments viz. Spectrophotometer (JASCO V-550), Spectrofluorometer (JASCO-FP-777), Time domain spectrophotometer (EI 199) with nano-second range pulse through flash lamp, (H₂ gas discharge lamp).
- Preparation of plastic films (viz. protic, aprotic) by cast method.
- Preparation of thin film by spin coating method or by drop caste method.

- Data acquisition and analysis of Steady state and time domain results through related software for fluorescence, Origin 8.5, Chem Draw/ Chem Sketch and absorption data analysis as well as important Word Processing & Mathematical data analysis.

AREAS OF RESEARCH INTEREST

- Steady state and time resolved (transient) fluorescence spectroscopy.
- Applications of fluorescence techniques to develop optical sensors.
- Investigation of interaction of metal nanoparticles with semiconductor quantum dots.
- Synthesis and photophysics of semiconductor nanocrystals at ensemble and single particle level.

LIST OF PUBLICATIONS (ALL IN INTERNATIONAL JOURNAL)

1. Determination of ground and excited state dipole moments of some naphthols using solvatochromic shift method.

R. Gahlaut, J.P. Bridhkoti, N. Tewari, N.K. Joshi, H.C. Joshi, S. Pant, J. Molecular Liquids, 163 (2011) 141.

2. Luminescence characteristics and room temperature phosphorescence of naphthoic acids in polymers.

Richa Gahlaut, Hem C. Joshi, Neeraj K. Joshi, Neetu Pandey, Priyanka Arora, Ranjana Rautela, Kanchan Suyal, Sanjay Pant, J. Luminescence, 138 (2013) 122.

3. Photochemistry and excited state prototropic behaviour of 8-amino 2-naphthol.

Richa Gahlaut, Hem C. Joshi, Neeraj K. Joshi, Neetu Pandey, Sanjay Pant, Spectrochim. Acta Part A: Molecular and Biomolecular Spectroscopy, 109 (2013) 164.

4. Solvatochromic study of 2- On the ground and excited state dipole moments of dansylamide from solvatochromic shifts of absorption and fluorescence spectra.

N. Tewari, N.K. Joshi, R. Rautela, **R. Gahlaut**, H.C. Joshi and S. Pant, J. Molecular Liquids, 160 (2011) 150.

5. Effect of positional substitution of amino group on excited state dipole moments of quinolone.

J.P. Bridhkoti, **R. Gahlaut**, H.C. Joshi, S. Pant, J. Luminescence, 131 (2011) 1869.

6. Steady state and time resolved fluorescence study of isoquinoline: Re-investigation of excited state proton transfer

Neeraj Kumar Joshi, Hem Chandra Joshi, **Richa Gahlaut**, Neeraj Tewari, Ranjana Rautela, Sanjay Pant, J. Physical Chemistry A 116 (2012) 7272.

7. Study of dipole moments of some coumarin derivatives.

N.Pandey, **R.Gahlaut**, P.Arora, N.K. Joshi, H.C. Joshi, S.Pant, J. Molecular Structure 1061 (2014) 175.

8. Low temperature photoluminescence study of Mn-doped ZnSe nanocrystals.

M.A. Haque, C. Phadnis, K. Sonawane, **R. Gahlaut**, Shailaja Mahamuni, J. Luminescence, 92 (2017) 1010.

9. Low-Temperature Photoluminescence Studies of CsPbBr₃ Quantum Dots.

Aparna Shinde, **Richa Gahlaut**, Shailaja Mahamuni, J. Phys. Chem. C, 121(2017)14872.

10. Enhanced Photoluminescence and Stimulated Emission in CsPbCl₃ Nanocrystals at Low Temperature.

Lohar A.A., Shinde A., **Gahlaut R.**, Sagdeo A. and Mahamuni S., J. Phys. Chem. C, 122(2018) 25014.

11. Co-Doped SnO₂ Nanocrystals: XPS, Raman, and Magnetic Studies.

S. Malvankar, S. Doke, **R. Gahlaut**, E.M. Teran, A.A. El-Gendy, U. Deshpande & S. Mahamuni, Journal of Electronic Materials, 49 (2020) 1872.

12. Implications of the size variation on the local structure and polarized emission of CsPbBr₃ quantum dots.

Aparna Shinde, **Richa Gahlaut**, N. Abharana, Dibyendu Bhattacharyya & Shailaja Mahamuni, Journal of Materials Science, 56 (2021) 6977.

13. The effect of surface treatment and polymer matrix on photoluminescence intermittency of strong confined CsPbBr₃ quantum dots

Mohammed Abdul Haque, Amruta Lohar, Richa Gahlaut, Imran Shaikh, Shrikrishna Sartale, Shailaja Mahamuni, 34 (2023)1642.

PARTICIPATION IN SEMINARS / SYMPOSIA / CONFERENCES

1. Presented poster in **Trombay Symposium on Radiation and Photochemistry (TSRP-2012)**, Bhabha Atomic Research Centre (BARC), Mumbai, India (January 4-7, 2012).
2. Participated and presented a poster in **National Fluorescence Workshop : Spectroscopy and Microscopy in Biology and Chemistry (FCS 2011) in Delhi**, organized by ICGEB, New Delhi, JNU, New Delhi, IIT, Delhi and TIFR, Mumbai, India (November 14-18, 2011).
3. Presented poster in **International Conference on Multifunctional Materials (ICMM-2010)**, Department of Physics, Banaras Hindu University, Varanasi, India (December 7-9, 2010).
4. Participated in **National Laser Symposium (NLS-09)**, Bhabha Atomic Research Centre (BARC), Mumbai, India (January 3-5, 2010).
5. Presented paper in **National Symposium on Radiation and Photochemistry (NSRP 2009)** organized by ISRAPs, Mumbai & Department of Physics, Kumaun University, Nainital. (March 12-14, 2009).
6. Participated in **Workshop on Radiation & Photochemistry**, Bhabha Atomic Research Centre (BARC), Mumbai. (January 3 -5, 2008).
7. Participated in **Raman Memorial Conferences (2016-2019)** organized by Department of Physics, S.P.P.U., Pune.

SERC SCHOOL / SHORT COURSE

Participated in SERC school on **“Nano Optics”**, held in NIT, Hamirpur, Himachal Pradesh, organized by Department of Physics, IIT, Mumbai. (September 13th – October 1st 2010).

PERSONALITY TRAITS

- Good interpersonal and team work skill.
- Sound ability to work well under time and work pressure.
- Ability to work in varied environment and learn new things.

REFEREES

NAME AND DEGINATION	ADDERESS	CONTACT
Dr. Sanjay Pant Professor	Photophysics Laboratory Deptt. of Physics, D.S.B. Campus, Kumaun University, Nainital 263002, Uttarakhand, India	e-mail: sanjaypent@yahoo.com Mob: +91 9411198359
Dr. H. C. Joshi Scientist 'F'	Laser Diagnostics Division Institute for Plasma Research, Bhat, Gandhinagar-382428, India	e-mail: hem_sup@yahoo.co.uk Mob: +91 7923962077
Dr. Parinda Vasa Associate Professor	Department of Physics, IIT Bombay, Powai- 400076, India	e-mail: parinda@iitb.ac.in Mob: +918879155056
Dr. Shailaja Mahamuni Professor	Department of Physics, Savitribai Phule Pune University, Pune – 411007, India	e-mail: shailaja@physicsunipune.ac.in Tel: 020 25692678-322

I solemnly declare that the statements furnished above are true and correct to the best of my knowledge and belief.

(DR. RICHA GAHLAUT)