CURRICULUM VITAE

Dr. PARTHA ROY

Assisstant Professor

Department of Chemistry

School of Chemical Science and Phermacy

Central University of Rajasthan

NH-8 Bandarsindri, Kishangarh-305817, Rajasthan

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Research Interest:

Develop and explore the different type of metal and non-metal nanostructures and utilizing these structures in fundamental and Application based research.

Understand the fundamentals of electron and energy transfer process in Organic-Inorganic Nano hybrid systems.

Research Specialization:

Magnetic field effect on spin dynamics in solution phase.

Organic-Inorganic interfacial chemistry.

Growing various nanoanatomies with different metals and non-metals.

Nanocatalysis

Professional Experience:

- **May 2017 – till date** **Assistant Professor**
  Department of Chemistry
  School of Chemical Science and Pharmacy
  Central University of Rajasthan, Rajasthan, India

- **July 2016 – February 2017** **Postdoctoral Fellow**

  Department of Computer and Electrical Engineering

  University of Alberta, Alberta, Canada.

  Research Area:

  "*Growing TiO_2 Nanotubes and Nanowires Array and Exploiting this Micro/Nano Structures, the Superhydrophobic Surface was Engineered by Functionalized the Surface with different Organic Molecules.*"

  Advisor: Dr. Karthik Shankar

- **October 2013 – April 2016** – **Postdoctoral Fellow**

  Department of Chemical Science

  Weizmann Institute of Science, Rehovot, Israel

  Research Area:

  "Temperature Dependent Electron and Energy Transfer Study on Inorganic-Organic Nano-hybrid Systems and Probing the Chiral Induced Spin Selectivity (CISS) effect using Photo-luminescence Measurement"

  Advisor: Prof. Ron Naaman

Teaching Experience:

At Central University of Rajasthan:

Theory:

M.Sc. Chemistry (2Y), Integrated M.Sc. Chemistry (5Y) Integrated M.Sc. B.Ed. (3Y)

- CHM-201 (Physical Chemistry-I)
- CHM-303 (Physical Chemistry-II)
- CHM-617 (Electro Chemistry and Kinetics)
- CHM-407 (Thermodynamics)

- CHM-503 (Solid State, Surface and Material Chemistry) ***(Act as a Subject Matter Expert (SME) of the same course in MOOCs (December to May, 2018-19)***
- CHM-404 (Group theory and spectroscopy)
- BCHT-403 Seminar (Elective)

Ph.D. Chemistry (Course)

- CHM-702 (Topic in Chemistry) Physical Chemistry

Practical:

- CHM-210 Basic Physical Chemistry Laboratory-I
- CHM-330 Basic Physical Chemistry Laboratory-II
- CHM-450 Physical Chemistry Laboratory-I
- CHM-480 Physical Chemistry Laboratory-II
- CHM-550 Physical Chemistry Laboratory-III

Ph.D. Students Enrolled:

Sl.No.	Name of the Ph.D. Students	Date of Registration	Title of the thesis	Status
1.	Suneel Gangada (as a joint supervisor) (2014PHDCH003)	27/10/2014	Cost Effective Metal and Metal-Free Dyes for Solar Energy Harvesting	Completed (10-12-2020)
2.	Sunil Kumar (2020PHDCH006)	25/12/2020	Palladium Complexes and Nanostructures: Design, Synthesis and Applications in Catalysis of Organic Reactions	Ongoing
3.	Neha Mathur (2021PHDCH005)	13/09/2021	Synthesis and Characterization of Metal, Metal oxides and Metal chalcogenide Nanocomposite	Ongoing

Funding:

Sl.No.	Project Title	Duration	Funding Agency	Status	Amount (in lakhs)
1.	Development of the various One-Dimensional TiO_2 nanostructure	2018-20	UGC Start-up	Completed	10
2.	Probing the Charge Transfer Mechanism in Exciplex System using Lifetime Measurement	2019-2022	DST-SERB (EEQ)	Completed	19.08
3.	Engineering of Resilient Superhydrophobic Coating using TiO2 Nanostructured in combination with Ultrathin Conformal Layer of Organic Molecules	2019-2022	DST-SERB (ECR)	Completed	49.97

M.Sc. Project Supervised:

Sl. No.	Academic Session	No. Students
1.	2017-18	2
2.	2018-19	4
3.	2019-20	4
4.	2020-21	3
5.	2021-22	5
6.	2022-23	5
7.	2023-24	5

Education:

- ✓ **Ph.D. (2006 - 2013)** – Department of Physical Chemistry

  Indian Association for the Cultivation of Science (IACS), Jadavpure, Kolkata, India

Research Area:

"*Monitoring the Spin Dynamics under the Influence of Small*

Magnetic Field Strength in Liquid Phase"

Title of the Thesis:

Studies of Pyrene Fluorescence and Magnetic Field Effect on Pyrene-N,N-Dimethylaniline Exciplex Emission in Various Solvents

Thesis Supervisor: Prof. Deb Narayan Nath

- ✓ **M.Sc. (2004-2006)** - University of Calcutta, India Specialization in *"Physical Chemistry"*

- ✓ **B.Sc. (2001-2004)** – Presidency College (Now, Presidency University) Kolkata Under University of Calcutta, India

List of Publication:

21. *Magnetic Nickel Nanoparticles Supported on Oxidized Charcoal as a Recoverable Catalyst for N-Alkylation of Amines with Alcohols*

Neha Mathur, Suman Mahala, Abhinav Kumar Khorwal, Yugandhar Bitla, Bhupendra Goswami, **Partha Roy,*** and Hemant Joshi*

ACS Appl. Nano Mater. (2024) 7, 11159-11169. **(IF-5.9)**

20. *Macrocyclic Sulfur Ligand Stabilized Trans-Palladium Dichloride Complex: Syntheses, Structure, Chlorine Rotation, and Application in α-Olefination of Nitriles by Primary Alcohols*

Sunil Kumar, Ashutosh Sharma, Suman Mahala, K. Gaatha, S. Rajagopala Reddy, Tanmay Rom, Avijit Kumar Paul, Partha Roy, Hemant Joshi
Chem Asian J. 2024, 19, e202300935 (1 of 10) **(IF-4.1)**

19. *Transition-metal-free synthesis of 2-arylphenol via S_NAr reaction of dibenzothiophene dioxide with KOH*

Mamta Yadav, Ram Singh Jat, Sonu Kumari, Penke Vijaya Babu**, Partha Roy,** M. Bhanuchandra
Tetrahedron Lett. (2023) 119, 154430-154433. **(IF-2.415)**

18. *A palladium complex of a macrocyclic selenium ligand: catalyst for the dehydroxymethylation of dihydroxy compounds*

Sunil Kumar, Sohan Singh, Suman Mahala, Prachi Janjani, S. Rajagopala Reddy, Tanmay Rom, Avijit Kumar Paul **Partha Roy** and Hemant Joshi

Dalton Trans., (2023) ***52***, *5110-5118* **(IF-4.569)**

17. *Titania Nanorod-Supported Mercaptoundecanoic Acid-Grafted Palladium Nanoparticles as a Highly Reusable Heterogeneous Catalyst for Substrate-Dependent Ullmann Coupling and Debromination of Aryl Bromides*
Sunil Kumar, Sohan Singh, Neha Mathur, **Partha Roy***, and Hemant Joshi*
Inorg. Chem. (2023) 62, 3993–4002. **(IF-5.08)**

16. *Oxidized Charcoal-Supported Thiol-Protected Palladium Nanoparticles for Cross Dehydrogenative Coupling of Heteroarenes*
Sunil Kumar, Sonu Kumari, Sohan Singh, Palash Jyoti Boruah, Amit Kumar Paul, **Partha Roy***, and Hemant Joshi*
ACS Appl. Nano Mater. (2022) 5, 2644–2654. **(IF-6.241)**

15. *Excitation-Wavelength-Dependent Light-Induced Electron Transfer and Twisted Intramolecular Charge Transfer in N,N-Bis(4′-tertbutylbiphenyl-4-yl)aniline Functionalized Borondipyrromethenes.*
Suneel Gangada, Ramya Athira Ramnagar, Akanksha Ashok Sangolkar, Ravinder Pawar, Jagadeesh Babu Nanubolu, **Partha Roy**, Lingamallu Giribabu, and Raghu Chitta.
J. Phys. Chem. A. (2020), 124, 9738−9750. **(IF-2.41)**

14. *Spin Selectivity in Photoinduced Charge-Transfer Mediated by Chiral Molecules*
John M. Abendroth, Dominik M. Stemer, Brian P. Bloom, **Partha Roy**, Ron Naaman, David H. Waldeck, Paul S. Weiss and Prakash Chandra Mondal
ACS Nano, (2019), 13, 4928-4946 **(IF-18.143)**

13. *"Resistance of Superhydrophobic Surface-Functionalized to Corrosion and Intense Cavitation"*
Weidi Hua, Piyush Kar, **Partha Roy**, Lintong Bu, Lian C. T. Shoute, Pawan Kumar, Karthik Shankar
Nanomaterials (2018), 783, 1-15 **(IF-5.086)**

12. *"Dark and photo-induced charge transport across molecular spacers"*
Nirit Kantor-Uriel, **Partha Roy,** Keti Lerman, Chaim N. Sukenik and Hagai Cohen
J. Vac. Sci. Technol. B (2018), 36, 04H104-(1-8) **(IF-1.564)**

11. *"All-solution processed, Scalable Superhydrophobic Coating on Stainless Steel Surfaced based on functionalized titania Nanotubes"*
Partha Roy, Ryan Kisslinger, Samira Farsinezhad, Najia Mahdi, Advaita Bhatnagar, Arezoo Hosseini, Lintong Bu, Weidi Hua, Benjamin D. Wiltshire, Andrew Eisenhawer, Piyush Kar, Karthik Shankar
Chem. Eng. J. (2018) 351, 482–489 **(IF-16.164)**

10. *"Nanoscale Defolding Influence of Polypeptide in the Charge-Transfer Process through Inorganic-Organic Nanohybrid System"*
Partha Roy*, Nirit Kantor-Uriel and Anurag Prakash Sunda*
Nanoscale, (2018) 10, 11143 – 11149 **(IF-8.425)**

9. *"Photospintronics: Magnetic Field-Controlled Photoemission and Light-Controlled Spin Transport in Hybrid Chiral Oligopeptide-Nanoparticle Structures"*
Prakash Chandra Mondal, **Partha Roy,** Dokyun Kim, Eric E. Fullerton, Hagai Cohen, Ron Naaman*
Nano Lett., (2016) 16 (4), 2806-2811. **(IF-12.425)**

8. *"Spin controlled photoluminescence in hybrid nanoparticle-purpule membrane system"*
Partha Roy, Nirit Kantor, Debabrata Mishra, Sansa Dutta, Noga Friedman, Mordechai Sheves, Ron Naaman*

ACS Nano, (2016) 10 (4) 4525-4531 **(IF-18.143)**

7. *"Establishment of the concept of relaxed and unrelaxed exciplexes: Magnetic field effect in pyrene-N,N-dimethylaniline system in benzene-acetonitrile binary solvents"*
Amit Kumar Jana, **Partha Roy**, Subrata Das and Deb Narayan Nath*

*J. Phys. Chem. Biophys.*5(2015) 1000194(1-5) **(IF-2.143)**

6. "*Evidence for enhanced electron transfer by multiple contacts between self-assembled organic monolayers and semiconductor nanoparticles"*
Nirit Kantor-Uriel, **Partha Roy,** Sergio Saris, Vankayala Kiran, David H. Waldeck, Ron Naaman*

(The two first authors contribute equally)

J. Phys. Chem. C 119 (2015) 15839−15845 **(IF-4.834)**

5. "*Role of Viscosity in the Magnetic Field Effect on Pyrene-DMA Exciplex Emission at Different Permittivity"*
Amit Kumar Jana, **Partha Roy** and Deb Narayan Nath*

*Chem. Phys. Letts.*593 (2014) 145 – 149. **(IF-2.143)**

4. *"Studies on $B_{1/2}$ value on Pyrene-N,N-Dimethylaniline radical pair system in single and binary solvents"*
Partha Roy, Amit Kumar Jana, Ghanavi M.B. and Deb Narayan Nath*

Chem. Phys. Letts. 554 (2012) 82 – 85. **(IF-2.143)**

3. *"Evidence of dual channel electron transfer induced negative magnetic field effect on pyrene-DMA exciplex emission at very high permittivity of medium"*
Amit Kumar Jana, **Partha Roy** and Deb Narayan Nath*

Chem. Phys. Letts. 535 (2012) 63 – 68. **(IF-2.143)**

2. "*Evidence for bi-exponential decay of pyrene in condensed phase: Possibility of complex formation with solvent molecules"*
Partha Roy, Amit Kumar Jana, Subrata Das, Deb Narayan Nath*

*Chem. Phys. Letts.*516 (2011) 182–185. **(IF-2.143)**

1. "*Study of magnetic field effect on Py-DMA exciplexluminescence in THF–DMF binary solvents: Evidence of multiple exciplex formation at higher bulk dielectric constant"*
Partha Roy, Amit Kumar Jana, Doyel Das, Deb Narayan Nath*

Chem. Phys. Letts., 474 (2009) 297–301. **(IF-2.143)**

Book published:

"Studies of exciplex system in condensed phase:Magnetic field effect"

Deb Narayan Nath , **Partha Roy** and Amit Kumar Jana

LAMBERT Academic Publishing: ***ISBN: 978-3-659-64777-2,*** January-2015

Presentations, Symposiums and Workshops attended:

 Titania Nanorod-Supported Mercaptoundecanoic Acid-Grafted Palladium Nanoparticles as a Highly Reusable Heterogeneous Catalyst for Substrate-Dependent Ullmann Coupling and Debromination of Aryl Bromides:
34th AGM of MRSI and 5th Indian material Conclave, **December 12-15, 2023 at IIT-BHU (Contribution: Poster Presentation).**

 "Nanoscale defolding influence of polypeptides in the charge-transfer process through an organic–inorganic nanohybrid system" : **Partha Roy**
Spin in Molecular Systems: Experiment, Theory and Applications" Dec 2-4, 2019 at IISc Bangalore, India (Contribution: Poster Presentation) (Awarded: Best Poster)

 "Spin Controlled Photolumiscence in Hybrid CdSe Nanoparticles and Purple Membrane System" : **Partha Roy**
Recent Advance in Material and Sustainable Energy (RAMSE), March 3-5, 2018, IIT-ISM Dhanbad, India (Contribution: Oral Presentation)

 "Evidence for Enhanced Electron Transfer by Multiple Contacts between Self-assembled Organic Monolayers and Semiconductor Nanoparticles": **Partha Roy**
Photochemistry Gordon Research Conference July 19-24, 2015 Stonehill College Easton, MA, USA (Contribution: Poster Presentation)

 "*Studies on $B_{1/2}$ value of pyrene–dimethylaniline radical pair system in single and binary solvents"* : **Partha Roy**
13th International Symposium on Spin and Magnetic Field Effects in Chemistry and Related Phenomena (SCM2013), April 22 - 26, 2013, Bad Hofgastein, Austria (Contribution: Poster Presentation).

 "Evidence for bi-exponential decay of pyrene in condensed phase: Possibility of complex formation with solvent molecules" : **Partha Roy**
International Symposium on Chemistry and Complexity, December 6 – 8, 2011,

Kolkata, India (Contribution: Poster Presentation).

 "*Study of magnetic field effect on Py-DMA exciplex luminescence in THF–DMF binary solvents: Evidence of multiple exciplex formation at higher bulk dielectric constant*" : **Partha Roy**
3rd Asia Pacific Symposium on Radiation Chemistry and DAE-BRNS 10th Biennial Trombay symposium on Radiation & Photochemistry, September14-17, 2010, Lonavala, India (Contribution: Poster Presentation).

 National Symposium on Quantum Chemistry, Soft Computation & Optimization, April 04-05, 2008, IACS, Kolkata, India.

 Workshop on Radiation & Photochemistry, Indian Society for Radiation & Photochemical Science (ISRAPS), January 3 – 5,2008 BARC, Mumbai, India.

Asian Spectroscopy conference & Asian Biospectroscopy Conference (ASC-07), 29th January – 2nd February,2007, IISC, Bangalore, India

New Perspectives In Physical Chemistry Curriculum, February 08, 2006 Department of Chemistry University of Calcutta

Administrative position/Responsibilities:

- Member, Purchase committee, School of Chemical Science and Pharmacy, Central University of Rajasthan since, 2017
- Member, Library Committee, School of Chemical Science and Pharmacy, Central University of Rajasthan since, 2017
- Member, syllabus committee School of Chemical Science and Pharmacy, Central University of Rajasthan, 2018-19

- President, Football Club, Central University of Rajasthan since 2018
- Vice-president, Handball Club, Central University of Rajasthan, 2017-18
- Member, Cultural committee, Central University of Rajasthan, 2017-18
- Member, Departmental Budget Monitoring, Central University of Rajasthan since 2018
- Member, Departmental Internal Quality Assurance Cell (IQAC), Central University of Rajasthan since 2018
- Faculty Coordinator, M.Sc. (2Y) program, Central University of Rajasthan, 2017-18