Dr. RAJDIP DEY

M.Sc., Ph.D., FICS, MRSC

PERSONAL DETAILS:

Permanent Address : P-340, Basunagar (Gate No. 3), Madhyamgram.Kolkata -700129 West Bengal, India

Current Position : **Head of the Department & Associate Professor**
Sister Nivedita University
Kolkata, West Bengal, India

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Homepage **www.rajdipdey.wordpress.com**

EXPERIENCES: 14 Y 09 M

Teaching: 06 Y 05 M **Research: 06 Y 11 M** (*Post PhD*) **Industry: 01 Y 05 M**

	Designation	Organization	Tenure	
Teaching	Associate Professor	Sister Nivedita University, Kolkata	August, 2023 to till date	*Additional Responsibilities*: **HoD, PhD Cell Member**
	Assistant Professor	Sister Nivedita University, Kolkata	May, 2022 to July, 2023	*Additional Responsibilities*: **HoD, PhD Cell Member**
	Assistant Professor	Shri Ramswaroop Memorial University, (SRMU) Lucknow	February, 2019 to April, 2022	*Additional Responsibilities*: **NAAC Core committee member** (*University*)
	Assistant Professor	Techno India Salt Lake, Kolkata	March, 2017 to January, 2019	*Courses Taught:* **B.Sc., B.Tech.**
Research	Coordinator/ Researcher	Babasaheb Bhimrao Ambedkar University, Lucknow (Central University)	March, 2019 to till date	**Synthesis of nanoprobes and their characterizations**
Post-Doctoral Research	URC-ARG Post-doctoral fellow	University of Cape Town (UCT), South Africa	August 2015 to December 2016	*Mentor:* **Prof. Susan A Bourne**
	Dr. D. S. Kothari Post-doctoral fellow (UGC, Govt. of India)	Indian Institute of Science (IISc), Bangalore	April, 2014 to May, 2015	*Mentor:* **Prof. Partha Sarathi Mukherjee**
Industry	Research Chemist	TCG Lifesciences - Chembiotek, Kolkata	September, 2007 to January 2009	GLP trained in Q.C

RECOGNITIONS:

- Received **Fellow of Indian Chemical Society (FICS)**
- **Member of Royal Society of Chemistry (UK)**
- **Peer Reviewer** of **PLOS ONE** Journal (Impact Factor: 3.752).

EDUCATIONAL QUALIFICATIONS:

PhD. (2009-2014)
Mentor: Dr. Debajyoti Ghoshal.
Topic: ″Designed synthesis and exploration of molecular properties of some metal organic hybrids″
Jadavpur University, Kolkata,WB

M.Sc. (2005-2007)
Chemistry
C.S.J.M University (*Formerly Kanpur University*), Kanpur, U.P

B.Sc. (2002-2005)
Chemistry (Hons.)
St. Xavier's College *under* University of Calcutta, Kolkata, W.B

MASTERS′ PROJECT:

Mentor: Professor (Dr.) Sabyasachi Sarkar
Topic: ″Functionalisation of Porphyrins in the Peripheral Position″
Indian Institute of Technology (IIT), Kanpur, U.P

Mentor: Dr. S.P. Rath
Topic: *"Synthesis and Characterization of Ethane Bridge Bis-Porphyrin and It's Bis-Zinc Complex"*
Indian Institute of Technology (IIT), Kanpur, U.P

CURRENT TEACHING: *Various topics of* ***Inorganic****,* ***Organic*** *and* ***Physical Chemistry****, both in undergraduate as well as in postgraduate level*. Mostly covered areas are: Periodic properties, Chemical bonding, Inorganic Polymers, Chemistry of Group 13 and Group 17 elements, Thermal methods of analysis Basic and advance level course of Supramolecular chemistry, Atomic & Molecular Structure. Also the Organic Nomenclature, Hybridization, Shapes of molecules, Stereochemistry, Organic reactions and synthesis of a drug molecule, Spectroscopic techniques and applications *etc*. and Intermolecular forces and potential energy surfaces, Use of free energy in chemical equilibria of Physical chemistry. Also have sound experience of teaching in **Analytical Chemistry** and **Environmental Chemistry**.

CURRENT RESEARCH: CNT, carbon dots, carbon nano onions, graphene, GO, graphene quantum dots and their water soluble versions with easy and novel synthesis and related chemistry has been developed. Their use in biochemical/biomedical applications *like* life cycle imaging of living laboratory animals, drug carrier and drug delivery were pursued. Development of composite materials with nano stuff has been made for catalytic functions. Side by side several organic / inorganic syntheses of metal-organic hybrid materials and the kinetics of selective dehydrogenation over the catalyst have been studied.
Recently, flexible electronics have seen widespread demand in biomedical applications. The mechanical flexibility offered by organic circuits has been investigated to develop novel biomedical devices *such as* large-area sensitive catheters. Subsequently, started work on organic bioelectronic tools *like* flexible organic transistors for biomedical applications along with nano stuff fabrication.

COURSES TAUGHT:

L:	10	T:	3	P:	7	Total Load / Week :	20

- 3 Years B.Sc. Chemistry courses
- 2 Years M.Sc. Chemistry courses
- M.Sc. Analytical Chemistry courses
- 1st Year B.Tech Chemistry courses
- B.Sc. & M.Sc. Chemistry Laboratory courses
- 1st Year B.Tech. Chemistry Laboratory courses

PROFESSIONAL TRAINING / FDP / QIP:

- Completed "**Induction Training - Phase 1**" conducted by **National Institute of Technical Teachers' Training and Research (NITTTR), Kolkata** (*established by the MHRD, Govt. of India*).
- Completed an **AICTE** approved certified FDP **(FDP101x): Foundation Program in ICT for Education** conducted by **IIT, Bombay** with **98% marks**.
- Completed an **AICTE** approved certified FDP **(FDP201x): Pedagogy for Online and Blended Teaching-Learning Process** conducted by **IIT, Bombay**.
- Completed a certified FDP**: Outcome Based Education & Accreditation** jointly conducted by **NIT, Patna, NITTTR, Kolkata** and **Techno India Salt Lake.**
- Completed a certified **QIP** on **"Engineering Applications of Modern Inorganic Chemistry"** from **IIT- Kanpur**.
- Completed a certified FDP**: Recent Trends in Material Frontiers: Chemical and Biological Aspects** conducted by **AMITY University, Kolkata**.

ADMINISTRATIVE / INSTITUTE SUPPORT WORKS:

- The privilege of serving institute as an **Academic Coordinator** of 1st year **B.Tech** in **Food Technology** [*Session: 2017-2018*], **Civil Engineering** [*Session: 2018-2019*], **B.Sc (H)** 2nd year **Chemistry** [*Session: 2019-2020*] and **B.Tech** [*Session: 2020-2022*].
- As a **Lab In-charge:** Additional responsibility of all Chemistry **Under Graduate** and **Post Graduate** experimental laboratory [*Session: 2019-2022*].
- Involved in **NBA of AICTE**, as a core committee member from the Basic Science department [*Session: 2017-2018*].
- Works as a committee member to complete the self-study report (SSR), evaluative report of the Chemical Science department and extended profile of the University for **NAAC accreditation**.

PROFESSIONAL RECOGNITIONS:

- **External Paper setter**:

  (a) **St. Xavier's College (Autonomous), Kolkata.**

  (b) **Maulana Abul Kalam Azad University of Technology (MAKAUT)**, West Bengal (*Formerly known as West Bengal University of Technology* – WBUT).

- **External PhD Selection Committee Member**: Department of Chemistry, **Jadavpur University, Kolkata**

SEMINAR/ CONFERENCE / WORKSHOP ATTENDED:

- Given a seminar on **"**The Ozone Hole—A Scientific Journey**"** during the second year of Master of Science in 2007.
- **Chemical Research Society of India (Kolkata Chapter)** - 7th Symposium on Current Trends of Chemical Research, August 8, 2009; held at Ramakrishna Mission Residential College, Narendrapur, Kolkata, India.
- **Chemical Research Society of India (Kolkata Chapter)** - 8th Symposium on Advances in Chemical Research, August 6, 2010; held at IIEST, Shibpur, India.
- Presented a **Poster** in International Symposium on Frontiers in Inorganic Chemistry (**FIC-2010**), December 11, 2010; held at Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India.
- Celebration of International Year of Chemistry 2011; March 25, 2011; held at Jadavpur University, Kolkata, India.
- **National Seminar on Chemistry-2011 and the Celebration of 150th Birth Anniversary of Acharya P.C. Ray**, July 8, 2011; held at Jadavpur University, Kolkata India.
- Presented a **Poster** in Modern Trends in Inorganic Chemistry (**MTIC XIV**), December 10, 2011; held at School of Chemistry, University of Hyderabad, Hyderabad, India.
- Events entitled¨**ACS on Campus**˝, October 12, 2012; held at Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India.
- 100th Indian Science Congress, January 3, 2013; held at University of Calcutta, India.
- Events entitled¨**RSC-INDIA Road Show**˝, February 5, 2013; held at Indian Association for the Cultivation of Science, Jadavpur, Kolkata, India.
- Presented a **Poster** in International Symposium on Molecular Organisation and Complexity: A Chemical Perspective (**ISMOC**), February 6, 2013; held at Saha Institute of Nuclear Physics (University of Calcutta), Kolkata India.
- Presented a **Poster** in **Humboldt Kolleg** on *"Education and Development"* on January 23, 2014; organized by the association of **Alexander von Humboldt Fellows;** held at National Institute of Technology (NIT) Agartala, Tripura.
- Participated in one week long ´***Author Workshop***´ organized by **Springer** and **IISc, Bangalore** on December, 2014; held at Indian Institute of Science, Bangalore.
- Participated in one week long ´***Workshop on NMR and TEM***´ organized by **JEOL** on December, 2014; held at Indian Institute of Science, Bangalore.
- Presented a **Poster** in **30th European Crystallography Meeting (ECM-30),** August 28, 2016; held at **Basel, Switzerland**.
- **Honorary invitation** in **Humboldt Kolleg** on *"Energy Sustainability: A Roadmap for the Future"* on February 2, 2018; organized by the association of **Alexander von Humboldt Fellows;** held at Vedic Village, Kolkata.

WORKSHOP / SEMINAR ORGANIZED:

- Organizing committee member of one week long Workshop on ″**Important Techniques for Characterization of Molecules**″ held at Shri Ramswaroop Memorial University, Lucknow in March, 2019.
- Organizing committee member of National level MHRD workshop on ″**Commission for Scientific and Technical Terminology**″ held at Shri Ramswaroop Memorial University, Lucknow in October, 2019.
- Organized a National Seminar as **Co-convener** on ″**Innovation for Nation: Innovate for new India**″ held at Shri Ramswaroop Memorial University, Lucknow in March, 2020.

- Organized a National Webinar as **Host** on ″**An understanding about the Coronavirus; COVID -2019 disease**″ held at Shri Ramswaroop Memorial University, Lucknow in June, 2020.
- Organized a Seminar as **convener** on ″ **Nano scale molecular layers for multi-functional applications** ″ held at Sister Nivedita University, Kolkata in July, 2022.
- Organizing committee member of 3 days long Workshop on ″**Hands-On Training and Workshop on Chromatography Techniques** ″ jointly organized by I3T and Sister Nivedita University, Kolkata in February, 2023.

INVITED TALKS:

- **International Conference** on ″Advances in Applied Physics & Earth Sciences″ (CONIAPS XXVI), December 18, 2020; held at Manipal University Jaipur, Rajasthan.
- **Vigyan Sera Pratibha** Programme on December 4, 2022; held at CCSCOY, Kolkata
- **108th Indian Science Congress**, January 3, 2023**;** held at RTM Nagpur University, Nagpur.

PUBLICATIONS:

Patent

1. A 1-(2-(5-(4-Chlorophenyl)-3-Phenyl-4,5-Dihydropyrazol-1-Yl)-2-Methyl-4-Oxo-Tetrahydrothiophen-3-Ylamino)-4-Methylbenzo[H]Quinolin- 2(1H)-One composition and its synthesizing process
Dr. Krishna Srivastava, Dr. Bajranj Bali Lal Srivastava, **Dr. Rajdip Dey**, Mr. Siddharth Shukla, Dr. Anshu Gautam and Ms.Asha Shabani Ripanda
*Application No.***202311040153**; *Publication Date* : **06/10/2023**, *Journal No.* **40/2023**

Book Chapter - Elsevier

1. Carbon-Based Metal-Free Catalysts – *Submitted*

Scientific Journals

1. Three-dimensional robust porous coordination polymer with Schiff base site on the pore wall: synthesis, single-crystal-to-single-crystal reversibility, and selective CO_2 adsorption
Rajdip Dey, Ritesh Haldar, Tapas Kumar Maji and Debajyoti Ghoshal
Cryst. Growth & Des., 11 (2011) 3905-3911

2. Syntheses and characterization of two supramolecular self-assembled Mn(II) compounds using *trans* 4,4′- azobispyridine as a bridging ligand: Effect of π-π interactions in the formation of a solid-state structure
Rajdip Dey and Debajyoti Ghoshal
Polyhedron, 34 (2012) 24-30

3. Syntheses, characterizations and biophysical studies of Cu(II) diphenyl phosphate complexes: Effect of co-ligands on their biological properties
Rajdip Dey, Debalina Bhattacharya, Parimal Karmakar and Debajyoti Ghoshal
Polyhedron, 48 (2012) 157-166

4. Fabrication of metal-organic hybrid architectures using bridging diphenyl phosphate: syntheses, characterization, magnetic properties and the effect of weak interactions on their crystal packing
Rajdip Dey, Biswajit Bhattacharya, Enrique Colacio and Debajyoti Ghoshal
Dalton Transactions, 42 (2013) 2094-2106

5. Four 3D Cd(II)-based Metal Organic Hybrids with Different N,N′-Donor Spacers: Syntheses, Characterizations and Selective Gas Adsorption Properties
Biswajit Bhattacharya, **Rajdip Dey**, Pradip Pachfule, Rahul Banerjee and Debajyoti Ghoshal
Cryst. Growth & Des., 13 (2013) 731-739

6. A novel approach for highly regio- and stereoselective synthesis of (Z)-3-methyleneisoindoline-1-ones in aqueous micellar medium
Swarbhanu Sarkar, Samrat Dutta, **Rajdip Dey** and Subhendu Naskar
Tetrahedron Letters, 53 (2012) 6789-6792

7. Synthesis, crystal structure and photo luminescent property of a 3D metal-organic hybrid of Cd(II) constructed by two different bridging carboxylate
Biswajit Bhattacharya, **Rajdip Dey** and Debajyoti Ghoshal
Journal of Chemical Sciences, 125 (2013) 661-666

8. Formation of three new metal organic hybrids of Cd(II) with N, N′ donor spacer: An insitu perchlorate to chloride transformation
Biswajit Bhattacharya, **Rajdip Dey**, Dilip Kumar Maity and Debajyoti Ghoshal
CrystEngComm. 15 (2013) 9457-9464

9. Porous coordination polymers based on functionalized Schiff base linkers: Enhanced CO_2 uptake by pore surface modification
Biswajit Bhattacharya, Ritesh Haldar, **Rajdip Dey**, Tapas Kumar Maji and Debajyoti Ghoshal
Dalton Transactions. 43 (2014) 2272-2282

10. Flexible dicarboxylate based pillar-layer metal organic frameworks: Differences in structure and porosity by tuning the pyridyl based N, N′ linkers
Rajdip Dey, Biswajit Bhattacharya, Pradip Pachfule, Rahul Banerjee and Debajyoti Ghoshal
CrystEngComm. 16 (2014) 2305-2316

11. Syntheses, X-ray structures, gas adsorption and luminescent properties of three coordination polymers of Zn(II) dicarboxylates mixed with a linear, neutral, and rigid N,N′-donor ligand
Biswajit Bhattacharya, Dilip Kumar Maity, **Rajdip Dey** and Debajyoti Ghoshal.
CrystEngComm 17 (2015) 4783-4795

12. Fabrication of two supramolecular self-assemblies of Mn(II)-dicarboxylates with *trans*-4,4′-azobispyridine: Analysis of H-bonding interactions with Hirshfeld surfaces and DFT calculations
Rajdip Dey, Biswajit Bhattacharya, Pallab Mondal, Rajarshi Mondal and Debajyoti Ghoshal
Journal of Molecular Structure 1067 (2014) 64 -73

13. X-ray crystal structure of a Cu(II) complex with the antiparasitic drug tinidazole, interaction with calf thymus DNA and evidence for antibacterial activity
Ramesh Chandra Santra, Kushal Sengupta, **Rajdip Dey**, Tahsina Shireen, Piyal Das, Partha Sarathi Guin, Kasturi Mukhopadhyay and Saurabh Das
Journal of Coordination Chemistry 67 (2014) 265-285

14. Reversible phase transformation in three dynamic mixed ligand metal–organic frameworks: Synthesis, structure and sorption Study
Arijit Halder, Biswajit Bhattacharya, **Rajdip Dey**, Dilip Kumar Maity and Debajyoti Ghoshal
Cryst. Growth & Des., 16 (2016) 4783-4792

15. Fabrication of New MOFs *via* Rational Design of the Organic Building Block
Rajdip Dey and Susan A. Bourne
***Acta Cryst A.* A72 (2016) s375**

A number of manuscripts has also been communicated or under preparation

MEMBERSHIPS:

Life Member
- Indian Science Congress Association (ISCA) (*Membership no. L39060)*
- St. Xavier's College Alumni Association (SXCAA) (Kolkata Chapter) (*Membership no. 2969*)

Member :
- American Association for the Advancement of Science (AAAS)
- University of Cape Town (UCT) Alumni association
- Member - Royal Society of Chemistry (UK)*(Membership no.721315)*

LITERARY WORKS

A passionate columnist in various magazines, newspapers *like* ABP, Times group etc.

RESEARCH INSTRUMENTAL SKILLS:

- Design and synthesis of ligands and its characterization by solution ^{1}H and ^{13}C NMR spectroscopy.
- Synthesis of the transition metal complexes using different processes like layer tube reactions, solvothermal techniques *etc*.
- Structural characterization by single crystal X-ray diffraction data (using SHELXS and SHELXL)
- Characterization of bulk sample using X-ray powder diffraction technique.
- Spectroscopic characterization of the synthesized product by UV-Visible, Infrared, EPR spectroscopy as well as mass spectrometry.
- Luminescent Spectroscopy.
- Isolation and separation of organic and inorganic compounds by TLC and column chromatography.
- Thermogravimetric analyses and Studies on low temperature magnetic data

COMPUTER AND SOFTWARE SKILLS:

- **Technical Skills**:
  I have an experience to operate the HPLC Systems *like* Agilent, Waters; and successfully handled NMR, IR, UV, Mass Spectroscopy, EPR Spectroscopy, Fluorescence Spectroscopy, LCMS, UPLC, PXRD, Single Crystal X-ray etc.

- **Learning Management Systems (LMS) :**
  Google Classroom, My Guruji, Moodle, TCS ion.

- **Software Skills:**
  Operating System: Windows (*All versions*). **Packages**: MS Office.
  Scientific data searching using databases: SciFinder, Scopus, Google Scholar, Web of Science.
  Drawing and analysis softwares: Corel Draw, Photoshop, Origin, Chem draw, ISIS draw, Topspin, Apex-II, WinGX, SHELX, Diamond, TOPOS etc.

RESEARCH COLLABORATORS:

Professor (Dr.) Anjani Kumar Tiwari
Department of Chemistry
Babasaheb Bhimrao Ambedkar University
(A Central University), Lucknow -226025,
Uttar Pradesh, India
Asst. Director, USIC.

Dr. Prakash Chandra Mondal
Department of Chemistry,
Indian Institute of Technology, Kanpur
(IIT-Kanpur), Kanpur-208016,
Uttar Pradesh, India

REFERENCES:

1. **Prof. Dr. Partha Sarathi Mukherjee, FRSC.**
   Associate Editor - Inorganic Chemistry
   Department of Inorganic and Physical Chemistry
   Indian Institute of Science (IISc.)
   Bangalore-560012
   E-mail: **psm@iisc.ac.in**

2. **Professor (Dr.) Sabyasachi Sarkar, FRSC.**
   Honorary Emeritus Professor & Ramanna Fellow,
   Indian Institute of Engineering Science and Technology (IIEST) - Shibpur, India
   Former Senior Professor & Head, Dept. of Chemistry, IIT- Kanpur, India
   Email: **abya@iitk.ac.in**

3. **Professor (Dr.) Susan A. Bourne**
   Associate Editor – Crystal Engg. Comm.
   Professor & Head; Department of Chemistry
   Centre for Supramolecular Chemistry Research
   University of Cape Town
   7700 Rondebosch
   South Africa
   Email: **susan.bourne@uct.ac.za**

4. **Professor (Dr.) Rahul Banerjee, FRSC.**
   Associate Editor – JACS
   Department of Chemical Sciences
   Indian Institute of Science Education and Research (IISER) Kolkata
   Mohanpur Campus, Mohanpur 741246
   India
   Email: **r.banerjee@iiserkol.ac.in**

DECLARATION:

I hereby declare that the information furnished above is true to best of my knowledge.

Place: Kolkata
Date:

Dr. Rajdip Dey