CURRICULUM VITAE

Dr. Sutapa Mondal Roy

E-mail: **smr@ptscience.ac.in ; sutapamroy@gmail.com** ; Mobile: **+91 9737952043**

Home Address: B-603, New Faculty Staff Quarters, SVNIT Campus, SVNIT, Ichchhanath, Dumas Road, Surat 395 007, Gujarat

Office Address: Department of Chemistry, Sir P. T. Sarvajanik College of Science, [affiliation: V. N. South Gujarat University], Surat, Gujarat

- Adhyapak Sahayak (Assistant Professor) (July, 2022 – Till Date) at Department of Chemistry, Sir P. T. Sarvajanik College of Science, [affiliation: V. N. South Gujarat University], Surat, Gujarat.
- Fellow (May, 2022 – July, 2022) of Hanse-WissenschaftsKolleg, Germany.
- Guest Scientist (Nov, 2019 – Sep, 2020) in University of Bremen, Germany.
- Assistant Professor in Chemistry (Mar, 2017 – Apr, 2022) at Uka Tarsadia University, Maliba Campus, Bardoli, Gujarat, India.
- CSIR-Research Associate (Post Doc, Govt. of India Fellowship) (Apr, 2013 – Mar, 2016) in S. V. National Institute of Technology, Surat, India.
- Ph. D. (Nov, 2012) in 'Bio-Physical Chemistry' from Jadavpur University (Host Inst: Saha Institute of Nuclear Physics under Govt. of India, Kolkata)
- 10 years of research, and 6 years of teaching experience at the UG & PG level in Chemistry.
- Researcher ID: S-7057-2017 ; Orchid ID : 0000-0002-2871-6532 ; h-index = 11
- Delivered more than 15 expert research/training talks in India and abroad.
- Supervised 25 master's (M. Sc. Pharmaceutical/Analytical/Organic Chemistry) thesis.
- News Article published in Nature India.
- Recipient of 5 National level Govt. of India sponsored academic and research fellowships.

RESEARCH AREAS/ HIGHLIGHTS

- Metal and metal oxide nanoparticles: synthesis, characterization, application (antipathogenic activity, bioactivity).
- Density Functional Theory calculations on nanoparticles, drugs, nanoparticle-drug interactions, organic ligand-cation/anion interactions etc.
- QSTR and QSAR study of some generic drugs and drug coated nanoparticles.
- Synthesis, characterization of different Schiff base derivative of generic drugs and their application as antibiotics with better efficacy.
- Host-guest complexation, fluoremetric sensing of ions using organic ligands

RESEARCH SKILLS

- **Spectroscopy:**
  - UV-VIS absorption and reflectance spectroscopy
  - Fluorescence Spectroscopy
  - FTIR Spectroscopy
  - RAMAN Spectroscopy
  - Time Correlated Single Photon Counting (TCSPC) and Frequency domain lifetime
- ***X*-Ray Diffraction (PXRD)**
- **Transmission Electron Microscopy (TEM)**
- **Dynamic Light Scattering (DLS)**
- **Isothermal Titration Calorimetry (ITC)**
- **Differential Scanning Calorimetry (DSC)**
- **GAUSSIAN09, Quantum Espresso, VASP Programs**

TEACHING COURSES TAUGHT (UG & PG, M. Sc. in Chemistry)

- **M. Sc. (PG) level:**
  1. Thermodynamics
  2. Magneto-Chemistry
  3. Biophysical Chemistry
  4. Co-ordination Chemistry
  5. Metal Cluster
  6. Electrochemistry
  7. Components of Analytical Instruments

- **B. Sc. (UG) level**
  1. Gaseous State
  2. Colligative Properties
  3. Phase Equilibrium
  4. Conductance
  5. Electrodics and Electrochemistry
  6. IR & Microwave Spectroscopy
  7. Acid-Base Chemistry

ACADEMIC QUALIFICATIONS

1. **Doctor of Philosophy (Ph. D.) - 2012**
   Research Area: Biophysical Chemistry, Spectroscopy
   Jadavpur University, Kolkata -700032, India (Host: SINP, Kolkata, India)
   Supervisor: Prof. Dr. Munna Sarkar

2. **Post M. Sc. in Biophysical Sciences - 2007**
   Saha Institute of Nuclear Physics (SINP), Kolkata-700064, India
   Marks: **78.70%,** 1st Class

3. **Master of Science (M. Sc.) in Chemistry - 2006**
   Special: Inorganic Chemistry
   Jadavpur University, Kolkata - 700032, India
   Marks: **76.25%,** 1st Class

4. **Bachelor of Science (B.Sc.), Chemistry (Major) - 2004**
   Jadavpur University, Kolkata - 700032, India
   Subjects: Chemistry (Major), Physics and Mathematics
   Marks: **64.25%,** 1st Class with **Distinction** in Subsidiary subjects

PROFESSIONAL EXPERIENCES

25th July, 2022	**Adhyapak Sahayak (Assistant Professor)** • Department of Chemistry, Sir P. T. Sarvajanik College of Science, Surat, Gujarat.
1st May, 2022 to 31st July, 2022	**Fellow (Sr.)** ***Hanse WissenschaftsKolleg, Germany*** Purpose: • Research on Synthesis, Characterization (RAMAN Spectroscopy and PXRD Spectroscopy) of Oxide-Nanoparticles
27th November, 2019 to 15th September, 2020	**Guest Scientist** ***Institute of Inorganic Chemistry and Crystallography /FB02 University of Bremen, Germany*** Purpose: • Research on Synthesis, Characterization and Theoretical Modeling of Oxide Nanoparticles
23rd March, 2017 to 30th April, 2022	**Assistant Professor**, Department of Chemistry ***Uka Tarsadia University, Maliba Capus, Bardoli, India*** Purpose: • Teaching UG and PG level Chemistry (Inorganic Chemistry and Physical Chemistry) • Research on QSTR and QSAR study of the some generic drugs and drug coated nanoparticles and Density Functional Theory calculations on nanoparticles, drugs, nanoparticle-drug interactions, organic ligand-cation/anion interactions.
1st April, 2013 to 31st March, 2016	**CSIR-Research Associate**, Department of Applied Chemistry ***S. V. National Institute of Technology, Surat, India*** *(An Institute of National Importance, MHRD, Govt. of India)* Purpose: • Research on Host-guest complexation and fluoremetric &

	colorimetric sensing of ions using some generic drugs and drug coated nanoparticles

M. Sc. DISSERTATIONS SUPERVISION: 25 (AS PRINCIPAL INVESTIGATOR)

5 Best Representative Dissertations:

Name of the students	Title(s) of the thesis	Year
Ms. Jayshree R. Padvi M. Sc. Organic Chemistry	Ampicillin based Schiff Base with Isatin and Their Fe^{3+} complexes for the treatment of Drug-Resistant Bacteria	2018-2019
Ms. Maitri S. Gohil M. Sc. Pharmaceutical Chemistry	Chemical and Herbal Sunscreens: A Comparative Study on Their Composition and Reaction	2018-2019
Mr. Parimal R. Patel M. Sc. Pharmaceutical Chemistry	Transition Metal Complexes of Moxifloxacin-Imine Derivatives and Their in vitro Antibacterial Effect for the Treatment of Drug-Resistant Bacteria	2018-2019
Ms. Nikita B. Patel M. Sc. Organic Chemistry	Ofloxacin stabilized silver Nanoparticles and their Antibacterial activity	2017-2018
Ms. Priyanka R. Kashyap M. Sc. Organic Chemistry	Synthesis of Amoxicillin stabilized silver nanoparticles and their Application as Drug Delivery Agent	2017-2018

ACADEMIC & ADMINISTRATIVE RESPONSIBILITIES

1. Contributed as "Chairman" of Departmental Women Cell (Uka Tarsadia University) from 02/07/2017 to 22/10/2019
2. Contributed as "Chairman" of Departmental Committee against Sexual Harassment (Uka Tarsadia University) from 02/07/2017 to 22/10/2019
3. Served as "Chairman" of Departmental Committee against Sexual Harassment (Uka Tarsadia University) from 25/06/2018 22/06/2019

CONFERENCE ORGANIZED:

1. Chemical Science Frontiers: The Virtual International Conference
   Date: 29/05/2020 to 30/05/2020
   Organized by: Department of Chemistry, Uka Tarsadia University
   Role: Moderator

2. Royal Society of Chemistry India West Chapter Symposium and Research Scholar Meet-2019.
   Date: 22/02/2019 to 23/02/2019
   Organized by: Department of Chemistry, Uka Tarsadia University
   Role: Scientific Coordinator

3. 54th Annual Convention of Chemists 2017
   Date: 23/12/2017 to 25/12/2017
   Organized by: Department of Chemistry, Uka Tarsadia University
   Role: Scientific Coordinator

4. Faculty Development Program (FDP) on Outcome Based Education (OBE)
   Date: 11/03/2024 to 15/03/2024
   Organized by: Knowledge Consortium of Gujarat (KCG), Ahmedabad and Sir P. T. Sarvajanik College of Science, Surat
   Role: Coordinator

EXPERT LECTURE/INVITED TALK DELIVERED (SELECTED)

Title of the Presentation	Name of the Event	Organizer/Place	Date
Biological activity of some thiazolyl Thiadiazines as BACE1 inhibitors for Alzheimer's disease in the light of DFT based quantum descriptors: Development of novel therapeutics	4th Euro-Global summit on Future of Biologics and Biosimilars (BioL-BioS 2023)	Pears-Alley Media, Paris, France	06/11/2023 to 07/11/2023
Inclusion Complex Materials of beta-Cyclodextrin-oxicam NSAIDs: Combined Theoretical and Experimental Studies on Molecular Basis Behind Reduced Gastro-Intestinal Toxicity	International Symposium on Materials of the Millennium: Emerging Trends and Future Prospects (MMETFP 2021)	Pandit Deendayal Energy University, Gandhinagar, Gujarat	19/11/2021 To 21/11/2021
Use of OriginPro® for Different Chemical Analysis	Online workshop series on software in chemical science	Department of Chemistry, Uka Tarsadia University, Bardoli, Gujarat	18/12/2020 To 20/12/2020
Antibacterial drugs stabilized noble metal nanomaterials: A joint spectroscopic and DFT investigation for the manifestation of novel biological insights.	Conference on a FAIR Data Infrastructure for Materials Genomics	FAIR-DI e.V. Berlin, Germany	03/06/2020 to 05/06/2020

Biological Activity of Some ACAT Inhibitors in the Light of DFT based Quantum Descriptors	Royal Society of Chemistry India West Chapter Symposium and Research Scholar Meet-2019	Department of Chemistry, Uka Tarsadia University, Bardoli, Gujarat	22/02/2019 To 23/02/2019
Antibiotic Drug Levofloxacin Mediated Nano-Bio Sensor for Highly Selective Detection of Bioactive Cations	6th International Conference on Natural Polymers	Center for Nanoscience and Nanotechnology, Mahatma Gandhi University, Kottayam, Kerala	07/12/2018 To 09/12/2018
Toxicity of Aminosulfonyl Ureas in the Light of Nucleic Acid Bases and DNA Base Pair Interaction	9th International Symposium on Computational Methods in Toxicology and Pharmacology Integrating Internet Resources	Global Institute of Pharmaceutical Education & Research (GIPER), Kashipur, Uttarakhand	27/10/2017 To 30/10/2017
Green Synthesis (Using Environment Friendly Bacteria) of Silver Nanoparticles and Their Application as Drug Delivery Agents	17th International Conference on Applied Biomaterials and Biomechanics	World Academy of Science, Engineering and Technology, Bangkok, Thailand	17/12/2015 To 18/12/2015
Bio-Degradable Materials and Their Application as Drug Delivery Agent: Scope and Future Possibilities	World Bank Sponsored Short Term Training Program in Chemistry	S. V. National Institute of Technology, Surat, Gujarat	04/09/2013

LIST OF PUBLICATIONS

Total Citations: ~425 ; h-index: 11 ; i10-index: 11 (Source: Google Scholar)

Journal Publications:

1. **Membrane fusion: A new function of nonsteroidal anti-inflammatory drugs**
   Authors: H. Chakraborty*, **Sutapa Mondal*** and M. Sarkar [*contributed equally]
   Biophys. Chem. 2008, *137,* 28-34; **ISSN No.:** 0301-4622
   doi: https://doi.org/10.1016/j.bpc.2008.06.007

2. **Non-Steroidal Anti-Inflammatory Drug Induced Membrane Fusion: Concentration and Temperature Effects**
   Authors: **Sutapa Mondal** and M. Sarkar
   J. Phys. Chem. B 2009, *113,* 16323-16331; **ISSN No.:** 1520-5207
   doi: https://doi.org/10.1021/jp9069527

3. **Effect of Increase in Orientational Order of Lipid Chains and Head Group Spacing on Non Steroidal Anti-Inflammatory Drug Induced Membrane Fusion**
   Authors: **Sutapa Mondal Roy,** A. S. Bansode and M. Sarkar
   Langmuir 2010, *26,* 18967-18975; **ISSN No.:** 1520-5827
   doi: https://doi.org/10.1021/la103802d

4. **Effect of Lipid Molecule Head Group Mismatch on Non Steroidal Anti-Inflammatory Drugs Induced Membrane Fusion**
   Authors: **Sutapa Mondal Roy** and M. Sarkar
   Langmuir 2011, *27,* 15054-15064; **ISSN No.:** 1520-5827
   doi: https://doi.org/10.1021/la2030186

5. **Membrane Fusion Induced by Small Molecules and Ions**
   Authors: **Sutapa Mondal Roy** and M. Sarkar
   Journal of Lipids 2011, *2011,* 1-14*;* **[Open access (invited)]**
   doi: https://doi.org/10.1155/2011/528784

6. **Anion selective chromogenic and fluorogenic chemosensor and its application in breast cancer live cell imaging**
   Authors: D. Sharma, A. Moirangthem, S. K. Sahoo, A. Basu, **Sutapa Mondal Roy**, R. K. Pati, A. Kumar SK, J. P. Nandre and U. D. Patil
   RSC Advances 2014, *4,* 41446-41452; **ISSN No.:** 2046-2069
   doi: https://doi.org/10.1039/C4RA04453C

7. **Anion recognition ability of a novel azo dye derived from 4-Hydroxy coumarin**
   Authors: M. Chandel, **Sutapa Mondal Roy,** D. Sharma, S. K. Sahoo, A. Patel, P. Kumari, R. S. Dhale, A. Kumar SK, J. P. Nandre and U. D. Patil
   J. Luminescence 2014, *154,* 515–519; **ISSN No.:** 0022-2313
   doi: https://doi.org/10.1016/j.jlumin.2014.05.041

8. **Toxicity Prediction of PHDDs and Phenols in the Light of Nucleic Acid Bases and DNA Base Pair Interaction**
   Authors: **Sutapa Mondal Roy*,** D. R. Roy and S. K. Sahoo
   J. Mol. Graph. Model. 2015, *62,* 128–137; **ISSN No.:**1093-3263
   doi: https://doi.org/10.1016/j.jmgm.2015.09.004

9. **Bio imaging application of a novel anion selective chemosensor derived from vitamin B6 cofactor**
   Authors: D. Sharma, A. Moirangthem, **Sutapa Mondal Roy,** A. Kumar SK, J. P. Nandre, U. D Patil, A. Basu and S. K. Sahoo
   J. Photochem. Photobiol. B 2015, *148,* 37-42; **ISSN No.:** 1011-1344
   Doi: https://doi.org/10.1016/j.jphotobiol.2015.03.021

10. **Pyridoxal derived chemosensor: Its application in anion sensing and molecular logic gate building**
    Author: S. K. Sahoo, D. Sharma, S. Bothra, **Sutapa Mondal Roy,** R. Kumar, A. Kumar SK, J. P Nandre, U. D Patil and J. F Callan
    Ind. J. Chemistry 2016, *55A,* 44-50; **ISSN No.:** 0376-4710
    Link: http://nopr.niscair.res.in/handle/123456789/33691

11. **Levofloxacin Capped Ag-Nanoparicles: A New Highly Selective Sensor for Cations under Joint Experimental and DFT Investigation**
    Authors: **Sutapa Mondal Roy*** and D. R. Roy
    Spectrochim. Acta A 2017, *179,* 178-187**; ISSN No.:** 1386-1425
    doi: https://doi.org/10.1016/j.saa.2017.02.030

12. **Optical Activity of Co-Porphyrin in the Light of IR and Raman Spectroscopy: A Critical DFT Investigation**
    Authors: D. R. Roy, E. V. Shah and **Sutapa Mondal Roy***
    Spectrochim. Acta A 2018, *190*, 121-128. **ISSN No.:** 1386-1425
    doi: https://doi.org/10.1016/j.saa.2017.08.069

13. **Bio-activity of Aminosulfonyl Ureas in the Light of Nucleic Acid Bases and DNA Base Pair Interaction**
    Authors: **Sutapa Mondal Roy***
    Comp. Biol. Chem. 2018, *75*, 91-100. **ISSN:** 1476-9271
    doi: https://doi.org/10.1016/j.compbiolchem.2018.04.015

14. **Biological Activity of Some ACAT Inhibitors in the Light of DFT-based Quantum Descriptors**
    Authors: **Sutapa Mondal Roy*,** B. K. Sharma and D. R. Roy
    Structural Chem. 2019, *30*, 2379-2387. **ISSN:** 1572-9001
    doi: https://doi.org/10.1007/s11224-019-01348-3

15. **Synthesis of Ciprofloxacin Drug Capped Silver Nanoparticles and Their Antimicrobial Activity: A Joint Spectrophotometric and Density Functional Investigation**
    Authors**: Sutapa Mondal Roy***, B. K. Sharma and D. R. Roy
    Journal of Cluster Science 2021, *32*, 1575–1584, ISSN: 1040-7278
    DOI: https://doi.org/10.1007/s10876-020-01914-4

16. **Green synthesis of triangular ZnO nanoparticles using *Azadirachta indica* leaf extract and its shape dependency for significant antimicrobial activity: Joint experimental and theoretical investigation**
    Authors**:** B. K. Sharma, B. R. Mehta, E. V. Shah, V. P. Chaudhari, D. R. Roy and **Sutapa Mondal Roy***
    Journal of Cluster Science 2022, *33*, 2517–2530, ISSN: 1040-7278
    DOI: https://doi.org/10.1007/s10876-021-02145-x

17. **Green Synthesis of Dense Rock MgO Nanoparticles Using Carica Papaya Leaf Extract and its Shape Dependent Antimicrobial Activity: Joint Experimental and DFT Investigation**
    Authors**:** B. K. Sharma, B. R. Mehta, V. P. Chaudhari, E. V. Shah, **Sutapa Mondal Roy*** and D. R. Roy
    Journal of Cluster Science 2022, *33*, 1667-1675. ISSN: 1040-7278
    DOI: https://doi.org/10.1007/s10876-021-02090-9

18. **Experimental and first-principles investigation on the structural, electronic and antimicrobial properties of nickel hydroxide nanoparticles**
    Authors**:** V. P. Chaudhari, K. Rajput, **S. Mondal Roy**, T. K. Chaudhuri and D. R. Roy
    Journal of Physics and Chemistry of Solids 2022, *160*, 110367, ISSN: 0022-3697
    DOI: https://doi.org/10.1016/j.jpcs.2021.110367

19. **Synthesis, characterization and significant antimicrobial properties of CZTS nanoparticles against pathogenic strains**
    Authors: V. P. Chaudhari, **Sutapa Mondal Roy**, T. K. Chaudhuri and D. R. Roy
    Journal of the Indian Chemical Society 2022, *99*, 100351. ISSN: 0019-4522
    DOI: https://doi.org/10.1016/j.jics.2022.100351

20. **Biological activity of some thiazolyl-thiadiazines as BACE-1 inhibitors for Alzheimer's disease in the light of density functional theory based quantum descriptors.**
    Authors: **Sutapa Mondal Roy**, B. R. Mehta, S. Trivedi, B. K. Sharma, D. R. Roy
    Journal of Physical Organic Chemistry 2023, *36(12)*, e4444. ISSN:1099-1395
    DOI: https://doi.org/10.1002/poc.4444

21. **$(ZnO)_{42}$ nanocluster: a novel visibly active magic quantum dot under first principle investigation.**
    Authors: Bijal R. Mehta, Esha V. Shah, **Sutapa Mondal Roy,** Debesh R. Roy; **Theoretical Chemistry Accounts,** 2023, 142, 19; ISSN: 1432-2234
    DOI: https://doi.org/10.1007/s00214-023-02958-1

Book:

1. Title: **Modeling of Bio-Activity and Toxicity in Light of NA Bases Interaction**
   Author: **Sutapa Mondal Roy** and D. R. Roy
   Publisher: **Scholars' Press**, Latvia: European Union, 2019.
   ISBN: 978-613-8-91027-5

Book Chapters:

1. **Polymers as Biomaterials for Controlled Drug Delivery** in 'Encyclopedia of Biomedical Polymers and Polymeric Biomaterials'
   Authors: **Sutapa Mondal Roy** and S. K. Sahoo
   Editors: Munmaya Mishra
   Taylor and Francis: New York, **2016**, pp. 2135-2146; **ISBN:** 9781439898796

2. **Application of Fluorescence Spectroscopy in Characterization of Membrane Fusion**
   Authors: **Sutapa Mondal Roy** and M. Sarkar
   In "Proceedings of the UGC sponsored National seminar" on **Modern Trends in Spectroscopy: Its application in Chemistry and Biology**, Eds: Bhattacharyya, S. and Guria, D. C. **2011,** pp. 77– 88. **ISBN:** 13-978-81-928246-1-1

FELLOWSHIPS, AWARDS AND RECOGNITIONS

1. **National Scholarship Award** for the result in Secondary & Higher Secondary examination, 1999 & 2001, Ministry of Higher Education, Govt. of West Bengal.
2. Qualified in **CSIR-National Eligibility Test (NET)**–2006 (December), Govt. of India for Junior Research Fellowship (JRF)in Ph.D. and Lecturership n colleges & universities.
3. **Best Poster Award** in the 'International Symposium on Recent Trends in Surface and Colloid Science (ISSCS-2007)', ISI, Kolkata, November15-16, 2007.
4. Award of **CSIR-Research Associate (Post-Doc.) Fellowship,** 2013, Govt. of India.
5. **Article in News**: *Biophysical Chemistry* 2008, *137(1),* 28-34.
   Title: Pain killers find new use
   Nature India: doi:10.1038/nindia.2008.265; Published online28 August 2008
6. **Article in News**: *J. Phys. Chem. B* 2009, *113,* 16323-16331in Vertical News under Physical Chemistry section on 31.01.2010 and in NewsRX: Biotech Law Weekly under section Anti-inflammatory on 12.03.2010.
7. **Article in News**: *Langmuir* 2010, *26,* 18967 18975 in Goliath: Business Knowledge on Demand under Biotech Week section on 12.01.2011.
8. **Young Researcher Award** for research; by Institute of Scholars (InSc) on 20.12.2022.

Membership of Professional Organizations

1. **Life Member (no. 796)** of **Indian Biophysical Society** since **2009.**

2. **Life Member (no. 202211YRA205) of Institute of Scholars since 2022.**

Reviewer of various Journals

- Arabian Journal of Chemistry (Elsevier BV),
- Molecular Graphics and Modelling (Elsevier BV),
- Spectrochimica Acta A (Elsevier BV)
- Current Signal Transduction Therapy (Bentham Science Publishers, UAE)
- Inorganic and Nano-Metal Chemistry (Taylor and Francis)
- Current Bioinformatics (Bentham Science)
- Medicinal Chemistry (Bentham Science)