MANIPAL UNIVERSITY
JAIPUR

CHEMISTRY CHRONICLES

DEPARTMENT OF CHEMISTRY
OCTOBER-DECEMBER 2025
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CONTENTS

Faculty Editor

Dr. Mainak Ganguly

Chemistry is the bridge between the mysteries of the universe and the marvels of modern technology, transforming the ordinary into the extraordinary.

VISION

Promote academic excellence and research proficiency to foster leadership and global competence.

MISSION

To cultivate practical, technology-driven expertise through application, research, and innovation.

To educate students on optimal practices within the field of chemistry and integrate them with current industry requirements.

To empower students to cultivate essential skills for professional performance and ethical engagement with a global perspective

At the Department of Chemistry, we explore and try to understand various aspect of atoms, molecules, and materials, working side by side with graduate and undergraduate students through an active research program along with quality education. The faculty members in the department work to develop novel nanomaterials, catalysts, drugs, solar sensitize dyes, and organic synthesis through advance experiments and computational molecular modelling with an aim to train exceptionally good chemists and material scientist and to work for the betterment of the society.

The internal machinery of life, the chemistry of the parts, is something beautiful. And it turns out that all life is interconnected with all other life.

Dean- Research, International Affairs and Academic Administration (RIAAA)

Welcome to the School of Biological and Physical sciences, Manipal University Jaipur (MUJ).

All measures of success are increasing enrollment and accomplishments at the undergraduate level, research and graduate studies, faculty success in obtaining sponsored research, and national recognition through awards given to our faculty and students. The training our students require to compete and succeed in the workforce is our top priority, as is preparing the next generation of scientists to solve global challenges.

In my capacity as MUJ Dean, RIAAA (FOS), I actively help students develop into the greatest scholars, researchers, and policymakers. I give my coworkers a diversified and welcoming work atmosphere and, when needed, I assist them to help the school obtain the best possible funding from national and international organizations. There will be a focus on a cooperative and integrated approach to research, learning, and teaching. I have a great belief that the MUJ faculty will overcome the obstacles in their way to accomplish their aims and provide society with the best scientific services.

~

Prof. Lalita Ledwani

HoD's Message

Welcome to the Department of Chemistry at Manipal University Jaipur. The chemistry department provides a vibrant research and teaching environment, state-of-the-art laboratories, and excellent career development guidance. For both our undergraduate and graduate programs, our department seeks to entice the best academics from India. Our department presents itself as the ideal location for bright young minds pursuing further study in Chemistry. We prioritize curiosity-driven research and have multiple research clusters devoted to solving burning issues facing both industry and society. Students who have graduated from this institution have gone on to hold prominent positions in both academia and industry, thanks to the dedicated teaching and research efforts of our distinguished faculty members. With state-of-the-art research facilities and effective administration, our faculty members collaborate successfully on an international level with top experts in their fields. Numerous organizations, including DST, CSIR, SERB, to mention a few, have acknowledged the commitment of our department and its faculty members to research and teaching. In addition, our academic staff participates in outreach programs that assist young people with a strong interest in science. Our supportive technical and administrative staff members contribute significantly to our endeavors.

~

Dr. Praveen Kumar Surolia

Industry Visit

EVENTS

An industrial visit to **RS India** was organized by the Department of Chemistry, in collaboration with HR, MUJ, with the aim of providing students, lab assistants and lab attendants, with first-hand exposure to industrial practices, manufacturing processes, quality control measures, and workplace safety standards. The visit served as a bridge between theoretical concepts taught in classrooms and their real-world industrial applications.

Objectives

- To familiarize students, lab assistants and lab attendants with industrial operations, instrumentation, and safety protocols.
- To understand the role of chemistry in large-scale industrial production and quality assurance.
- To enhance industry–academia interaction and career awareness among students.

SDG Mapping

- **SDG 4 – Quality Education:** Enhancing practical knowledge and experiential learning.
- **SDG 9 – Industry, Innovation and Infrastructure:** Promoting understanding of sustainable industrial practices.

Beneficiaries of the Event

- Undergraduate, postgraduate and Ph.D students of the Department of Chemistry.
- Faculty members accompanying the students.

Brief Description of the event

The visit commenced with an introductory session by RS India officials, highlighting the company's profile, product range, and industrial significance. Students were taken on a guided tour of the facility where they observed various stages of production, quality testing laboratories, and safety management systems. Interactive discussions allowed students to clarify doubts related to industrial chemistry, career pathways, and skill requirements. The visit concluded with a feedback session and a vote of thanks.

Schedule of the Event

This visit was conducted on November 18, 2025, time 11:00 am to 3:00 pm.

Awareness Workshop

"Gram-Asha" Club of the Department of Chemistry, School of Basic Sciences, in collaboration with the Directorate of Student Welfare (DSW), organized an awareness workshop on "Women Empowerment and Legal Frameworks" on 7th November 2025 at the Dr. TMA Pai Auditorium, Manipal University Jaipur. A total of 82 participants, including a significant number of non-teaching staff, attended the session. The event was honoured by the presence of the chief guests – Dr. Murari Gupta (Deputy Director) and Shri Sanjay Kumar (Assistant Director) from the Directorate of Women Empowerment, Government of Rajasthan, who graced the occasion and shared their expertise. The workshop aimed to enhance awareness on women's rights, workplace safety, and legal frameworks designed to protect and empower women.

Objectives of the Event

The main objectives of the event were:

- To spread awareness about women's rights and workplace safety under the PoSH Act 2013.
- To introduce state-level women empowerment initiatives such as the Mukhya Mantri Nari Udhyam Protsahan Yojana.
- To enhance understanding of legal rights, promote leadership, inclusivity, and economic empowerment for women.

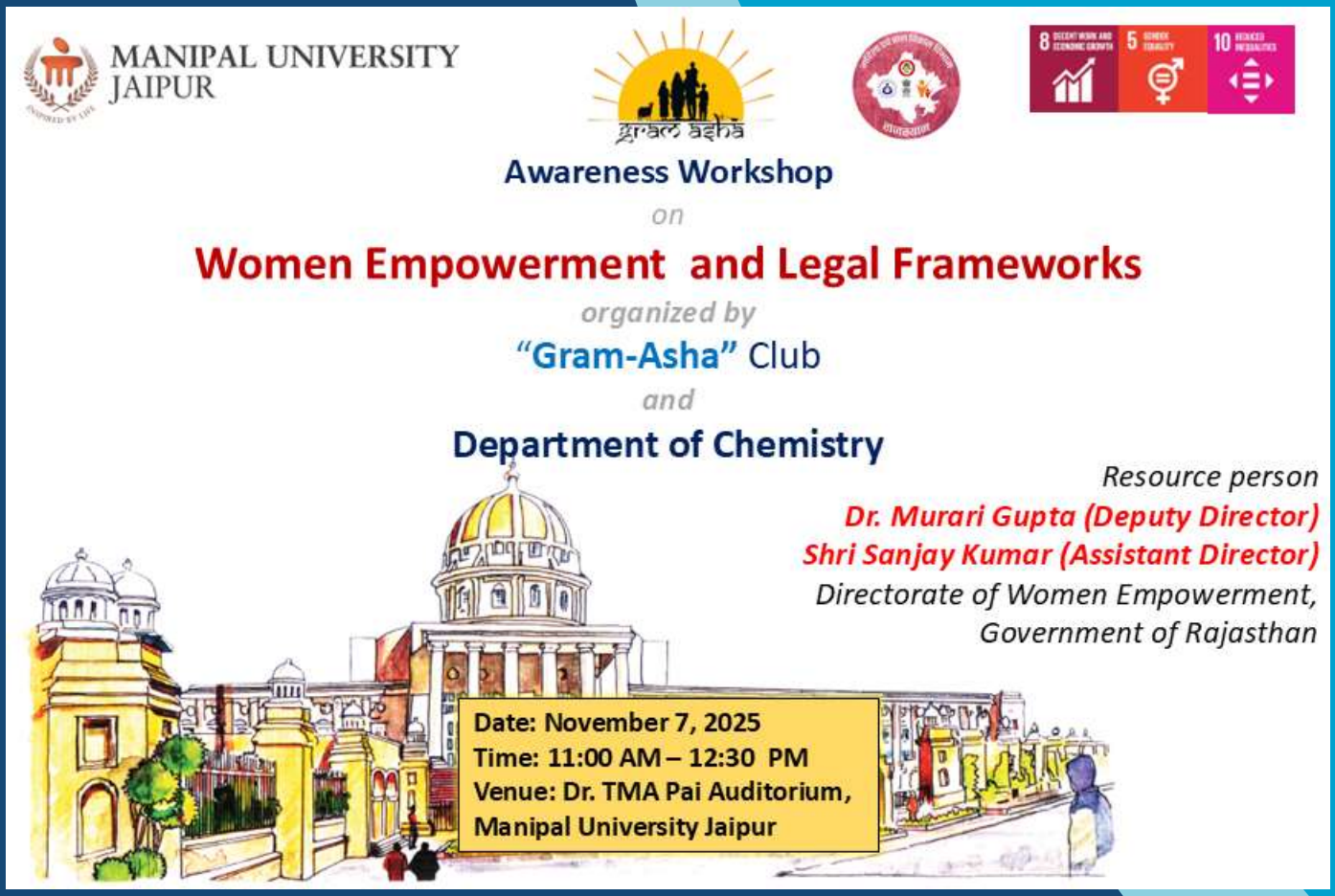
Beneficiaries of the Event

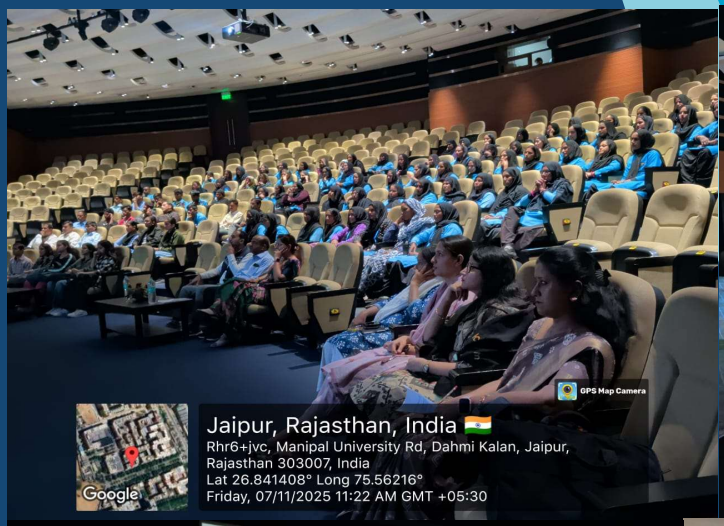
- Non-teaching staff of Manipal University Jaipur
- Students and interested faculty members

Brief Description of the Event

The workshop began with the presence and support of Ms. Ashima Bagaria, whose guidance ensured smooth execution of the event. Following this, Dr. Veena Dhayal, Faculty Coordinator of Gram Asha Club, formally welcomed the attendees and introduced the purpose of the workshop. The session was then led by the chief guests from the Directorate of Women Empowerment, Government of Rajasthan. The first keynote address was delivered by Dr. Murari Gupta (Deputy Director), who provided an in-depth explanation of the PoSH Act 2013, highlighting its legal provisions, complaint mechanisms, and the importance of maintaining safe and respectful work environments. He also elaborated on the Mukhya Mantri Nari Udhyam Protsahan Yojana, outlining the government's efforts to promote women's entrepreneurship and financial independence. This was followed by an impactful session by Shri Sanjay Kumar (Assistant Director), who focused on the theme of women's safety, discussing preventive measures, awareness strategies, and the collective responsibility of institutions in ensuring a secure environment for women. The event concluded with a short interaction session, where participants clarified their doubts and shared their perspectives. The workshop was well-coordinated by Ms. Avni Kothari (Student

Coordinator) under the guidance of Dr. Veena Dhayal, ensuring an engaging and informative experience for all participants.

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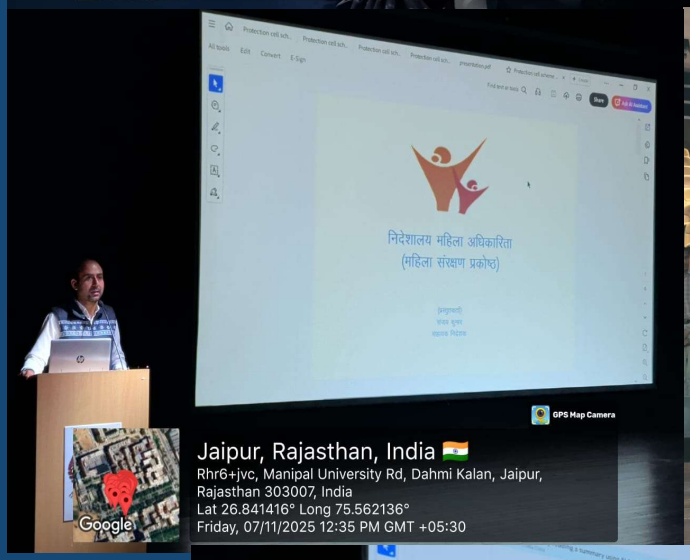
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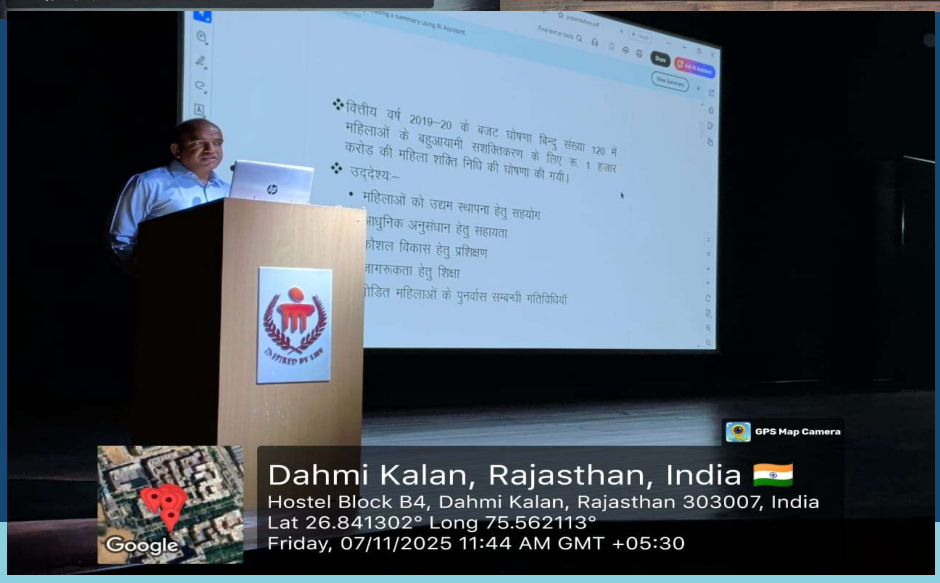
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Recent Advancements in Materials Science and Computational Techniques" (RAMSACT- 2025)

EVENTS

During the three days of the conference 2 plenary speakers, 17 keynote speakers, and 24 invited speakers presented their research work and engaged in an insightful discussion in the various fields related to the material sciences. The conference was arranged by the Faculty of Science in association with the Department of Biotechnology and Chemical Engineering, Manipal University Jaipur. The conference has an international partner as Universiti Technologi Petronas (UTP) Malaysia. The conference received funding from the National agencies like Science Education Research Board (SERB), New Delhi, and Defense Research and Development Organization (DRDO), New Delhi. The conference was also sponsored by various industrial partners such as Thermofisher Scientific, Chem Dist pvt. Ltd., Frontiers Lab Japan, Verder Scientific Ltd. India. Financial support was also provided by the Ramdas Pai Research Chair, Manipal University Jaipur. Various societies such as Society for Materials Chemistry (SMC) Jaipur Chapter, Indian Chemical Counsil (ICC), and Microbiological Society of India (MBSI) were also associated with the conference.

The present 5th Edition of the conference was held from December 18-20, 2025, at Manipal University Jaipur. The event was inaugurated by *Prof. V Ramagopal Rao, VC BITS Pilani and Ex-Director IIT Delhi and Guest of honor Prof. Jainendra K Jain, Penn State University USA*. The conference hosted over 150 participants from national and international institutions, including academia, research organizations, and industry, fostering interdisciplinary and collaborative research culture. The technical program comprised 2 plenary lectures, 5 keynote talks, 13 invited lectures, 20 oral presentations, and 48 poster presentations, encouraging original research dissemination and scholarly communication. Participation from 10+ countries enhanced global research exposure and collaborative networking. The event facilitated innovation through discussions on advanced materials, computational modelling, and AI-driven materials research, promoted quality research outputs, and enabled knowledge exchange with societal and industrial relevance, thereby strengthening the institution's research visibility, outreach, and academic impact. The conference was sponsored by Anusandhan National Research Foundation (ANRF), American Chemical Society (ACS), Sinsil International Pvt. Ltd. The collaborative partners in the conference are University of Southern Denmark, Denmark, Sunway University Malaysia, Catalysis Society of India (CSI), Society for Materials Chemistry (SMC), and Microbiological Society of India (MBSI). The publication partner for the conference are Springer "Proceedings in Physics" and the "Journal of Nanoparticle Research."

Objective of the Event

The objective and impact of the Conference and the special issue can be summarized as follows.

a. 5th International Conference on “Recent Advancements in Materials Science and Computational Techniques” (RAMSACT- 2025) is a platform with the goal of bringing together prominent academic scientists, researchers, and research scholars to exchange and share their experiences and research findings on all aspects of Multifunctional Materials including nanoelectronics, nano biosciences, nano-biotechnology, drug delivery, nanomaterials for catalysis, and also the Computational Techniques and methodologies relevant for the material developments.

b. The conference is a unique idea to provide a premier interdisciplinary platform for researchers, practitioners, and educators from various streams of science and engineering in India as well as around the globe to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered, and solutions adopted in the fields aligned with the conference theme.

c. RAMSACT - 2025 aims to provide an appropriate forum, where high quality and exceptional knowledge exchange can take place among students, academics, and industry researchers.

Beneficiaries of the Event

The Conference is beneficial to all the faculty members and research scholars belonging to the Faculty of Science, Technology and Architecture.


RAMSACT


RAMSACT


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Ongoing projects

S. No.	Name of the Investigator	Project No.	Funding Agency	Title of the project and duration (Start and end date)	Amount sanctioned (INR, Lakh)
1	Dr Praveen Kumar Surolia	CRD/2024/000885	ANRF	Design and development of ordered mesoporous materials-based heterojunctions for wastewater treatment (Two Years; Selected for Funding)	35.0
2	Dr Praveen Kumar Surolia	CRG/2021/002477	SERB	Development of Air and Moisture Stable Novel Perovskite Charge Mediators for Sensitized Solar Cells (22-Dec-2021 – 26-June-2025)	46.97
3	Dr. Saurabh Srivastava	SRG/2023/001007	SERB	Covalent Organic Framework (COF) Based Novel Molecular Gears on Solid Surfaces: A Quantum Mechanical Investigation (2022-2025)	24.56
4.	Dr. Lalita Ledwani (Coordinator & PI)	SR/PURSE/2022/142	DST PURSE	Development and Utilization of high value products from waste resources: Circular solution for agricultural and non-agricultural applications	1000

				(2022 -2026)	
5.	Dr. Rahul Shrivastava	DST/R and D/2016/4871	DST, Rajasthan	A selective and sensitive nano sensor based test kit for visual sensing of fluoride ion in drinking ground water (2017-2020)	4

Awards

Publications

S. No.	Name of the faculty	Title of the paper	Journal Name	Month, Year
1.	Dr Amrita Biswas	Architecturally refined ceriumintegrated hydroxyapatite/cnt nanocomposite coatings: enhanced mechanics and biofunction for orthopaedic implantation	Macromolecular Bioscience	October, 2025
2.	Dr Amrita Biswas	Engineering doublelayered hydroxyapatite/polyvinyl alcoholceria composite coatings for potential orthopaedic applications	International Journal of Biological Macromolecules	October, 2025
3.	Dr Komal	Nanoallotrope-integrated polyacrylamide hydrogels: a synergistic experiment–theory approach for engineering mechanically resilient and cytocompatible composites for cartilage tissue regeneration	Nanoscale	October, 2025
4.	Dr Sriparna Ray	N-heterocyclic Carbene–Supported transition-metal catalysts for C–H functionalization: sustainable pathway for value-added chemicals	Journal of Applied Organometallic Chemistry	October, 2025
5.	Dr Mainak Ganguly	Influence of Lysozyme on Coinage Metals for the Evolution of Superatomic Emissive Nanoclusters and the Tuning of Emission for Versatile Applications	Journal of Cluster Science	October, 2025
6.	Dr Mainak Ganguly	Histidine passivated coinage metal nanoclusters with applications	Materials Research Bulletin	October, 2025
7.	Dr Mainak Ganguly	Fluorometric Zn^{2+} detection with gallic acid passivated Fe-Ag bimetallic nanocomposites	Materials Research Bulletin	October, 2025
8.	Dr Mainak Ganguly	Role of lipoic acid and gold nanomaterials and nanoclusters for biomedical and environmental applications	Materials Research Bulletin	October, 2025
9.	Dr Mainak Ganguly	Use of the sunscreen for the degradation of a toxic methyl blue dye with hydrogen peroxide	Scientific Reports	November, 2025

10.	Dr Mainak Ganguly	Sensing of ascorbic acid and Hg (II) ion using quinone-capped (oxidized 2-hydroxy benzaldehyde) silver hydrosol via metal-enhanced fluorescence mechanism	Discover Applied Sciences	November, 2025
11.	Dr Komal	Polysorbate facilitated instantaneous production of NIR light responsive Gold nanostars for cancer chemo-photothermal therapy	Chemical Biology Letters	December, 2025
12.	Dr Mainak Ganguly	Oxidized Salicylaldoxime: A Candidate for Metal-Enhanced Fluorescence with Sensing Applications	Langmuir	December, 2025
13.	Dr Suranjan De	Green supercapacitors for transportation systems	Sustainable Materials in Supercapacitors	December, 2025
14.	Dr Suranjan De	Generative AI as chemist's virtual assistant: a case study with the chemistry of SmI_2	Discover Applied Sciences	December, 2025
15.	Dr Samanta Yadav	Ruthenium-catalyzed dehydrogenation of primary amines to nitriles: hydrogen release in liquid organic hydrogen carriers	Chemistry-A European	December, 2025
16.	Dr Jayasmita Jana	Unraveling the high-performance mechanism of Mo_2C catalysts in methylcyclohexane dehydrogenation	Applied Surface Science	December, 2025
17.	Dr Babita Malik, Dr Meenakshi Pilania	PIDA-Mediated Synthesis of Symmetrical 1, 2, 4, 5-Tetrazine Using N-Tosylhydrazones	Synthesis	December, 2025
18.	Dr Meenakshi Pilania	Thickness dependent NO2 gas sensing properties of sputtered grown nanostructured TiO2 thin films	Applied Physics A	December, 2025

Meet Our Faculty Member

ASSOCIATE PROFESSOR

DR. SRIPARNA RAY

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Associate Professor

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ABOUT

Dr. Sriparna Ray is Associate Professor in the Department of Chemistry, Manipal University Jaipur, India. She teaches Inorganic Chemistry and Green Chemistry at UG and PG level. She has over 20 years of research experience in the interdisciplinary areas of Chemistry and Biochemistry. One aspect of her research incorporates various types of Catalysis, including homogeneous catalysis by organometallic complexes, biocatalysis as well as bioelectrocatalysis. She is interested in designing and synthesizing new inorganic molecules, which can have various applications ranging from sensors to pharmaceutical applications. She has published research articles in different internationally reputed Chemistry journals and some book chapters.

Before joining Manipal University Jaipur, she had obtained professional experience from Tata Institute of Fundamental Research, Mumbai and University of Texas at Arlington, USA.

DEGREES

- PhD: I. I. T. Bombay, Mumbai.
- MSc: Banaras Hindu University, India

AWARD, PRIZE, HONOUR

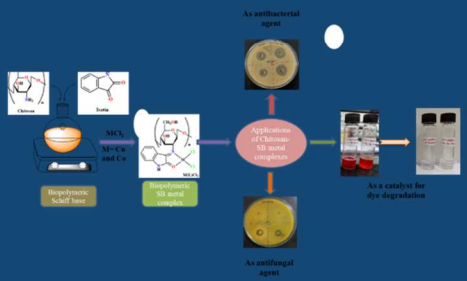
- Was recognized as Swayam-NPTEL Discipline Star, for the session Jan-Apr 2024
- Received the IIT Bombay Research Paper Award for the year 2014 for the paper: *J. Am. Chem. Soc.* **2007**, *129*, 15042-15053.

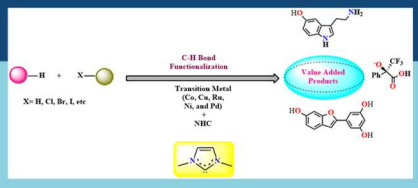
PROFESSIONAL ASSOCIATION

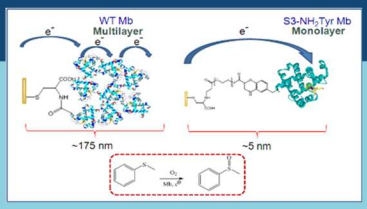
- American Chemical Society: Annual Member
- Indian Society of Chemists and Biologists: Life Member
- Chemical Research Society of India: Life Member
- Catalytic Society of India: Life Member

RESEARCH AREAS

Catalytic Applications, Biological activity:







Team: Department of Chemistry

Provost

Dr. Nitu Bhatnagar

RIAAA

Dr. Lalita Ledwani

HOD

Dr. Praveen K. Surolia

Dr. Aman Kumar

Dr. Amrita Biswas

Dr. Anjani K. Pandey

Dr. Babia Malik

Dr. Deepak Kumar

Dr. Jagadeesh K. Alagarasan

Dr. Jayasmita Jana

Dr. Komal Arora

Dr. Mainak Ganguly

Dr. Meenakshi Pilania

Dr. Michel P. Inbaraj

Dr. Rahul Shrivastava

Dr. Samanta Yadav

Dr. Saurabh Srivastava

Dr. Sriparna Ray

Dr. Suranjan De

Dr. Sushil Kumar

Dr. Susruta Samanta

Dr. Veena Dhayal

Our New Faculty Member

Dr. Samanta Yadav joined Manipal University Jaipur in September 2025 as an Assistant Professor in the Department of Chemistry, following her postdoctoral research at IIT Jodhpur, India. Her research focuses on energy organometallic chemistry, sustainable catalysis and hydrogen economy. She has published 10 international research articles in reputed journals and with an h-index of 6.

Degrees

• PhD. University of Delhi, Delhi, India (2023).

- M.Sc. Kirori Mal College, University of Delhi, Delhi, India (2017).
- B.Sc. Maitreyi College, University of Delhi, Delhi, India (2015).

Academic Experience

- DST Women in Science and Engineering Postdoctoral Fellow (DST WISE-PDF, Women Scientist), Indian Institute of Technology Jodhpur (IITJ), India (Sept, 2024-Sept, 2025)
- Assistant Professor (Guest), Department of Chemistry, Jai Narayan Vyas University, Jodhpur, India (July, 2024- September, 2024)

Research Areas

- Organometallic Chemistry
- Homogenous Catalysis
- Hydrogen Economy
- Coordination Chemistry
- Kinetic Studies & Reaction Mechanisms

Awards and fellowships

- DST-WISE-PDF (Women Scientist) by DST, (2024).
- CSIR-JRF and SRF fellowship and Lectureship in Chemical Sciences, CSIR, New Delhi (2017).
- GATE - Chemistry (2017 and 2023).

Membership

- Annual member of Indian Society of Chemists and Biologists (2025-2026)

Publications

1. Yadav, S.; Vijayan, P.; Yadav, S.; Gupta, R. Ruthenium Complexes of Phosphine–Amide Based Ligands as Efficient Catalysts for Transfer Hydrogenation Reactions. Dalton Trans. 2021, 50, 3269–3279. https://doi.org/10.1039/D0DT04401F

2. Pachisia, S.; Kishan, R.; Yadav, S.; Gupta, R. Half-Sandwich Ruthenium Complexes of Amide-Phosphine Based Ligands: H-Bonding Cavity Assisted Binding and Reduction of Nitro-Substrates. Inorg. Chem. 2021, 60, 2009–2022. https://doi.org/10.1021/acs.inorgchem.0c03505

3. Yadav, S.; Vijayan, P.; Gupta, R. Ruthenium Complexes of N/O/S Based Multidentate Ligands: Structural Diversities and Catalysis Perspectives. J. Organomet. Chem. 2021, 954–955, 122081. https://doi.org/10.1016/j.jorganchem.2021.122081

4. Vijayan, P.; Yadav, S.; Yadav, S.; Gupta, R. Ruthenium(II) Complexes of Pyridine-Carboxamide Ligands Bearing Appended Benzothiazole/Benzimidazole Rings: Structural Diversity and Catalysis. Inorganica Chim. Acta 2020, 502, 119285. https://doi.org/10.1016/j.ica.2019.119285

5. Yadav, S.; Gupta, R. Hydration of Nitriles Catalyzed by Ruthenium Complexes: Role of Dihydrogen Bonding Interactions in Promoting Base-free Catalysis. Inorg. Chem. 2022, 61, 15463–15474. https://doi.org/10.1021/acs.inorgchem.2c02058

6. Yadav, S.; Prabha, D.; Ahluwalia, D.; Bag, A.; Gupta, R. Cobalt Complexes as Efficient Cooperative Catalysts for Transfer Hydrogenation. Eur. J. Org. Chem. 2022. e202201059 https://doi.org/10.1002/ejoc.202201059

7. Bansal, D.; Yadav, S.; Gupta, R. Oxo-Bridged Tri- and Tetra-Nuclear Cobalt Complexes Supported with Amide-Based Nitrogen Donor Ligands. Eur. J. Inorg. Chem. 2023, 26, e202200601 https://doi.org/10.1002/ejic.202200601

8. Yadav, S.; Gupta, R. Base-Free Transfer Hydrogenation Catalyzed by Ruthenium Hydride Complexes of Coumarin-Amide Ligands. ACS Sustainable Chem. Eng. 2023. 11, 8533−8543 https://doi.org/10.1021/acssuschemeng.3c01104.

9. Yadav, S.; Gupta, R. Acceptorless oxidant-free dehydrogenation of amines catalyzed by Ru–hydride complexes of amide-acid/ester ligands. Dalton Trans. 2025, 54, 5675-5684. https://doi.org/10.1039/D4DT03201B

10. Yadav, S.; Chauhan, Y.; Upma; Sharma, R. K. Ruthenium-Catalyzed Dehydrogenation of Primary Amines to Nitriles: Hydrogen Release in Liquid Organic Hydrogen Carriers. Chem. – Eur. J. n/a (n/a), e02271. https://doi.org/10.1002/chem.202502271