MANIPAL UNIVERSITY
JAIPUR

CHEMISTRY CHRONICLES

DEPARTMENT OF CHEMISTRY
JANUARY-MARCH 2025
VOLUME 2025.1

CONTENTS

Faculty Editor

Dr. Susruta Samanta

Dr. Mainak Ganguly

Student Editor

Supriyo Kar

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

Irish Day

The ***Department of Chemistry, School of Physical and Biological Sciences***, in collaboration with the Directorate of International Collaboration at Manipal University Jaipur (MUJ), organized **"Irish Day" on 29th January 2025** for the students of MUJ. The event brought together faculty members from the School of Hotel and Tourism Management, the School of Basic Sciences, and various other departments, reflecting a strong interdisciplinary engagement. "**Irish Day**" was **coordinated by Dr. Suranjan De,** Assistant Professor, with enthusiastic support and guidance from Dr. Praveen Kumar Surolia, Head of the Department of Chemistry, along with Dr. Ravi Kumar Sharma and Dr. Mohit Jain, ***Directors of International Collaboration***. The event featured representatives from four prestigious Irish universities — ***University of Galway, Trinity College Dublin, University College Dublin, and University College Cork*** — who were invited to present academic opportunities and facilitate discussions on student exchange programmes and admissions into top-ranked Irish institutions.

Objective of the Event

1. To introduce MUJ students to academic and cultural opportunities available at leading Irish universities.

1. To facilitate direct interaction between MUJ students and representatives from top-ranked Irish institutions for student exchange and higher education pathways.
2. To promote international academic collaboration and expand global engagement through joint programmes and partnerships.
3. To encourage interdisciplinary participation across MUJ departments in exploring global eduation prospects.

Beneficiaries of the Event

All Students & Faculty Members of School of Hotel and Tourism Management

"IRISH-DAY" (29th January 2025)

Application Day in Ireland

Organized by Department of Chemistry

&

Directorate of International Collaborations,

Manipal University Jaipur

Coordinator
Dr. Suranjan De
Assistant Professor (SS),
Department of Chemistry
Mob: 8100903459

MANIPAL UNIVERSITY JAIPUR
(University under Section 2(f) of the UGC Act)

Venue: Smt Sharda Pai Auditorium
Time: 10 AM - 1.30 PM

"IRISH-DAY" (29th January 2025)

Venue: Smt Sharda Pai Auditorium

Time: 10 AM - 1.30 PM

Don't Miss

Trinity College Dublin

"IRISH-DAY" (29th January 2025)

Venue: Smt Sharda Pai Auditorium

Time: 10 AM - 1.30 PM

Don't Miss

University College Dublin

"IRISH-DAY" (29th January 2025)

Venue: Smt Sharda Pai Auditorium

Time: 10 AM - 1.30 PM

Don't Miss

University College Cork

"IRISH-DAY" (29th January 2025)

Venue: Smt Sharda Pai Auditorium

Time: 10 AM - 1.30 PM

Don't Miss

University of Galway

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

Recognition

- The conferment (w.e.f. March 25, 2025) of the Chartered Chemist (CChem) title to Prof Lalita Ledwani from the Royal Society of Chemistry (RSC), UK.
- Dr. Rahul Shrivastava, Dr. Komal Arora – Top researchers of January (2025) in MUJ.

Student's achievement

- Supriyo Kar (M.Sc. final year) was qualfied GATE, 2025 in Chemistry.
- Supriyo Kar (M.Sc. final year) was selected as f "R&D Trainee" in TORRECID India Pvt. Ltd.

Publications

S. No.	Name of the faculty	Title of the paper	Journal Name	Month, Year
1.	Dr Lalita Ledwani, Dr Komal Arora	A comprehensive review on the synthesis and therapeutic potential of cobalt ferrite ($CoFe_2O_4$) nanoparticles	ChemistrySelect	January 2025
2.	Dr Lalita Ledwani	Eco-friendly physical seed treatments for sustainable agriculture: enhancing plant health and performance	AIP Conference Proceedings	January 2025
3.	Dr Lalita Ledwani	Nano Miracles, Big impact: An Overview of Nanoparticles in Cosmetic Industry	AIP Conference Proceedings	January 2025
4.	Dr Lalita Ledwani	Non-Thermal Plasma Surface Modification as an Environmentally Benign Way to Improve Sustainable Textile Polymers	AIP Conference Proceedings	January 2025
5.	Dr. Praveen Kumar Surolia	TiO_2 photocatalysis for water remediation	AIP Conference Proceedings	January 2025
6.	Dr. Veena Dhayal	A comprehensive analysis of advancements in corrosion prevention methods for carbon steel structures: A review	AIP Conference Proceedings	January 2025
7.	Dr. Mainak Ganguly	Synergistic evolution of metal-enhanced fluorescence from gold-silver nanoparticles with one pot detection Cr(III) and Al(III).	Journal of Molecular Liquids	January 2025
8.	Dr. Aman Kumar	DHA-indole-triazole hybrids: Click mediated synthesis, antimicrobial, antibiofilm and In Silico studies	Journal of Molecular Structure	February, 2025
9.	Dr. Suranjan De	Thiourea compounds as multifaceted bioactive agents in medicinal chemistry	Bioorganic Chemistry	February, 2025
10.	Dr Komal Arora	Progressive wastetoresource conversion: synthesizing incense stick ashnickel ferrite composites for the pollutant abatement and targeted	Journal of Water Process Engineering	February, 2025

		fluorescence detection of hexavalent chromium		
11.	Dr Komal Arora	Advances in cellulose/graphene oxide-based polymer composites as a versatile platform for the diminution of water toxicants	Journal of Molecular Liquids	February, 2025
12.	Dr. Mianak Ganguly	Role of Black Tea in the Advancement of Nanotechnology: A Critical Review	ACS Omega	February, 2025
13.	Dr. Aman Kumar	Recent advancements in the multifaceted biomedical efficacy of triazole based metal complexes	Coordination Chemistry Reviews	March, 2025
14.	Dr. Lalita Ledwani	Study of synergistic effect of pre-enzyme treatment and dielectric barrier discharge plasma for surface modification of cellulosic textile polymer	International Journal of Biological Macromolecules	March, 2025
15.	Dr. Veena Dhayal	Enhancing Epoxy Adhesion and their Anti-Corrosion Performance on TiO_2-Conversed Steel via Hybrid Inhibitor Modification	Journal of Bio- and Tribo-Corrosion	March, 2025
16.	Dr. Mainak Ganguly	Evolution of strong fluorescence from the thiolated nanoclusters for the detection of H_2O_2 and Ba^{2+}in one pot.	Journal of Molecular Structure	March, 2025

Meet our faculty member

DR. BABITA MALIK

DEPUTY DIRECTOR

DIRECTORATE OF STUDENTS' WELFARE

DEPARTMENT OF CHEMISTRY

SPBS

FOSTA

Professor, Department of Chemistry

School of Basic Sciences; Faculty of Science

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+91-[redacted]

ABOUT

Dr. Babita Malik has been serving as a **Professor** in the Department of Chemistry at MUJ since its inception in 2011 and is currently the Deputy Director at the Directorate of Students' Welfare. With over 25 years of teaching experience, she specializes in Synthetic Organic Chemistry and has expanded her research interests to include Theoretical and Computational Chemistry. Dr. Babita teaches a range of Organic Chemistry courses at both undergraduate and postgraduate levels. She has supervised three PhD scholars to completion, one has submitted their thesis, and four are currently working under her guidance. She has published numerous research papers in reputed peer-reviewed international journals.

DEGREES

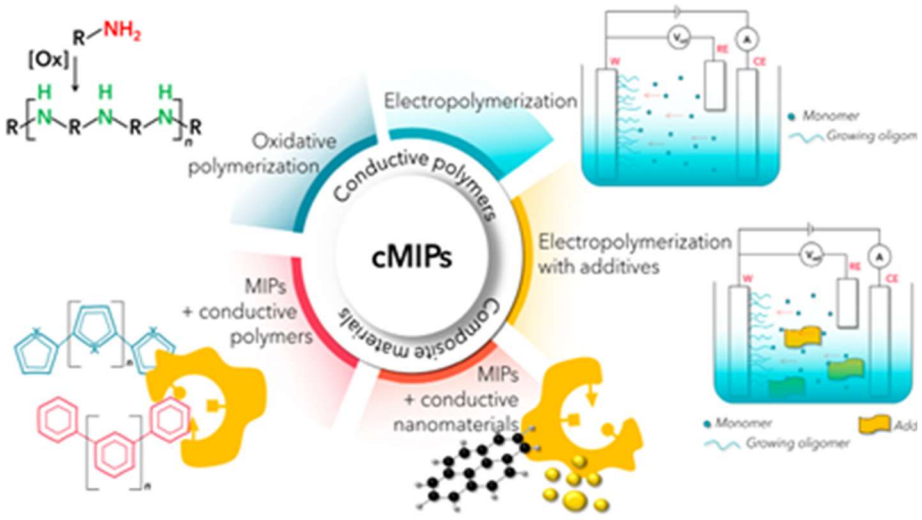
- PhD: University of Rajasthan

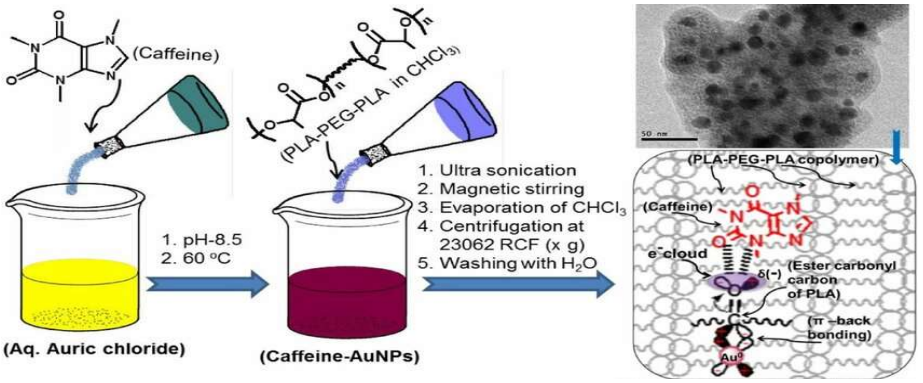
PROFESSIONAL ASSOCIATION

- CRSI: Life Member
- Indian Society of Chemists and Biologists: Life Member
- ACS: Annual Member
- Association of Chemistry Teacher: Life Member

RESEARCH AREAS

- **Smart Polymers for Targeted Molecular Recognition**
- **Toxicological Insights into Silver Nanoparticles**
- **In Silico Approaches in Modern Drug Discovery**





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. Binitendra K. Mondal

Dr. Jagadeesh K. Alagarasan

Dr. Komal Arora

Dr. Mainak Ganguly

Dr. Meenakshi Pilania

Dr. Michel P. Inbaraj

Dr. Rahul Shrivastava

Dr. Saurabh Srivastava

Dr. Sriparna Ray

Dr. Suranjan De

Dr. Sushil Kumar

Dr. Susruta Samanta

Dr. Veena Dhayal

Meet our new faculty member

Dr. Jagadeesh Kumar Alagarasan is serving as an Associate Professor (Research) in the Department of Chemistry at Manipal University Jaipur since January 2025. Before joining MUJ, he worked as a Postdoctoral Scientist in China and as an Assistant Professor in South Korea. He is known as an environmental chemist specializing in the study of organic pollutants in aquatic environments. In particular, he has expertise in adsorption, photocatalysis, membranes, activated carbon, nanomaterials, and surface science. He conducts research on equilibrium kinetics and isotherms to better understand these processes. Additionally, he is currently expanding his knowledge by learning Aspen Adsorption for process system and design control. He has published numerous research papers in reputed international journals and H-Index is 19.

Degrees & Experiences:

Ph.D. in Environmental Science, Bharathiar University, Coimbatore, 2015.
M.Sc. in Environmental Science, Bharathiar University, Coimbatore, 2010.
B.Sc. in Environment and Water Management, Bharathiar University, Coimbatore 2007.
Acadamic Experience:
Post Doctoral Fellow, Southeast University, China, (Jan 2016-March 2018).
Post Doctoral Fellow, Jiangsu University, China, (OCT 2018 - Dec 2020).
Post Doctoral Fellow, Periyar University, India, (April 2021 - March 2022).
Assistant Professor (Research), Yeungnam University, School of Chemical Engineering, South Korea, (March 2022- Jan 2025).
Visiting Research Scientist (June 2017 to July 2017): Fukuoka University, Research University in Fukuoka, Japan.
Research Areas: Adsorption/Photocatalysis/Wastewater Treatment

Selected Publications:

1) S. Kumaravel, S. Ramasundaram, V. Paranthaman, A. S. Prabu, P. Barmavatu,J. K. Alagarasan*, Mathivanan Durai, Lalitha Gnanasekaran, Tae Hwan Oh. Hierarchical design of $NiFe_2O_4$@BN/g-C_3N_4 Z-scheme heterojunctions for enhanced photocatalytic detoxification of tetracycline: Optimization of key parameters and H_2 evolution, **International Journal of Hydrogen Energy**, **134, 2025, 268-282.**

2) T. Kavinkumar, S. Ayyaru, J. K. Alagarasan*, P. Ramaswamy, A. Rosenkranz, J. Yu, G. Sandoval-Hevia, S. A. Hevia, A. A. Fakhrabadi, R.V. Mangalaraja, A. Thirumurugan. Magnetic reduced graphene oxide/MXene/cobalt ferrite nanocomposite for high-energy-density supercapacitors with excellent cycling stability. **Journal of Energy Storage, 125, 2025, 116925.**

3) Y. A. Kumar, J. K. Alagarasan**,** T. Ramachandran, M. Reseq, M. A. Bajaber, A. A. Alalwiat, M. Moniruzzaman, M. Lee*. The Landscape of energy storage: Insights into carbon electrode materials and future directions. **Journal of Energy Storage, 86, 2024, 111119.**

4) J. K. Alagarasan**,** S. Siddharthy, G. Sivarasan, A. Manimekalan, M. Utaiyachandran, P. Senthilkumar, D. D. Nguyen, S. Wo. Chang, M. Lee*, H. -M. Lo. Silicon nanoparticles as a fluorometric probe for sensitive detection of cyanide ion and its application in C. elegans bio-imaging. **Environmental Research,** 8, 2023, 115402.