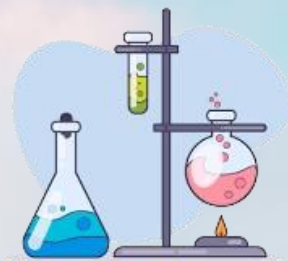




RASAYANA

A bi-annual Newsletter
July - December, 2024



Department of Chemistry
Indian Institute of Engineering Science and Technology, Shibpur

Message from the HoD

I am delighted to introduce the inaugural edition of "RASAYANA," the newsletter of our Department of Chemistry! This platform is designed to enhance communication, celebrate our collective accomplishments, and share insightful updates within our vibrant community.

The Department of Chemistry, with a rich history spanning 122 years, has built an esteemed legacy. In addition to its long-standing role in teaching undergraduate Engineering students and offering a Master of Science in Chemistry since the early 20th century, the Department has a notable tradition of conducting high-quality research across various fields. Our esteemed faculty members are actively involved in research areas such as Coordination & Bioinorganic Chemistry, Carbohydrate Chemistry, Electrochemistry & Corrosion Science, Fuel Cell Technology, Molecular Recognition & Supramolecular Chemistry, Structural Chemistry, Catalysis, Synthetic Organic & Organometallic Chemistry, and many more.

The two-year (four-semester) M.Sc. in Chemistry (with specialization in organic, inorganic and physical chemistry) offered by the Department is tailored to meet the needs of both academia and industry. The Department of Chemistry also runs its PhD program successfully, producing several well-trained PhD scholars every year.

The Department is continuously receiving research support from various national and international agencies. It has also received grants from MHRD, UGC-SAP, and DST-FIST for infrastructural development. Over seventy-five Ph.D. students are currently conducting research in diverse fields of chemical sciences. On average, the Department publishes about 80 research articles annually in prestigious international journals. Many of the Master's graduates who pursue higher studies are regularly recruited by leading national institutes such as IITs, IISERs and various international universities. The PhD scholars from our departments are getting absorbed in industry and academia. Many others are finding post-doctoral positions in different institutes abroad.



Message from the HoD Continued...

This newsletter is a reflection of our shared experiences and achievements, showcasing our collective efforts and innovations. In this edition, we will update on recent developments and activities of the department, ongoing research activities, highlights from upcoming events, and exciting opportunities for collaboration. So, join hands to support each other for the holistic development of the Department of Chemistry, IEST Shibpur.

Warm Regards

Jai Hind

Dr. Chinmoy Bhattacharya

**Head, Department of Chemistry
IEST Shibpur**



Department at a Glance

Courses Offered

PG	Two-year (four-semester) M.Sc. Intake: 44 Admission through CCMN Session Start: July-August
Ph.D.	Intake: Variable Admission through Institutes Centralized Process (July and December Cycle)
UG	Chemistry in all Engineering branches (in 1st / 2nd Semester)

No of Faculties: 12

Currently Ongoing Research Project: 10

Research Publication (July-December): 45

Recently Concluded Conference: 01

Major Facilities: NMR (400 MHz), HRMS, IR & UV-VIS, X-RAY CRYSTALLOGRAPHY, TCSPC and Many More



EVENTS

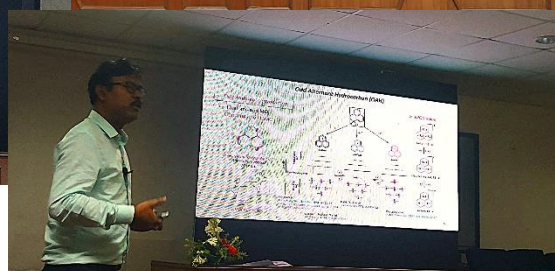
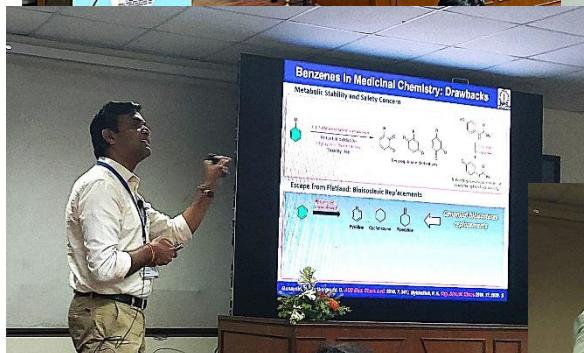
Recently Concluded Event

National Symposium on Recent Advances in Chemical Sciences
(RACS- 2024)

November 7-9, 2024



Department of Chemistry recently organized a three days national level symposium entitled "Recent Advances in Chemical Science" during 7-9th November, 2024. A large number of eminent chemists across the country participated the event to present their exciting results in various areas of chemical research. Overwhelming responses from the students community from nearby institutes was observed. This was the first such a big events organized by our department. A big thanks to our colleagues Dr. N. D. Paul, Dr. L. Adak, Dr. U. Bhattacharjee and Dr. J. Ganguly who actually made it possible.





Sponsored Research Projects

Project Title: Assessment of insight act of new manifold functionalized sugar-microgels for triggering the application as Biomaterials.

Name of PI : Dr. Jhuma Ganguly

Duration: 3 Years

Value: Rs.

Sponsor:

Project Title: Information theoretic analysis of quorum sensing network in Vibrios

Mentor: Prof. Sudip Kumar Chattopadhyay

Duration: 2 Years

Value: Rs. 28.0 Lakh

Sponsor: NPDF project funded by SERB New Delhi

Project Title: Design of Transition Metal Incorporated Ordered Mesoporous Carbon Based Electro-Catalysts for Small Molecule Assisted Hydrogen Generation and Zinc Air Battery

Name of PI : Dr. Papu Biswas

Duration: 3 Years

Value: Rs. 17.7 Lakh

Sponsor: WB DST

Project Title: Modulation of Scheelite InVO_4 , CaWO_4 semiconductor employing carbon-supported Materials (graphene, $\text{g-C}_3\text{N}_4$, C-dots) as electron flow mediator and electrocatalysts for photoelectrochemical $\text{H}_2\text{-O}_2$ production direct splitting of water

Name of PI: Dr. Chinmoy Bhattacharya

Duration: 3 Years

Value: Rs. 28.5 Lakh

Sponsor:

Project Title: Electrochemistry in Organic Synthesis: An incredible tool for environmentally benign synthesis of valuable carbocyclic and heterocyclic compounds

Name of PI : Dr. Mrinal K. Bera

Duration: 3 Years (2021-2024)

Value: Rs. 17.7 Lakh

Sponsor: SERB, New Delhi

Project Title: Synthesis of new highly substituted pyridine derivatives.

Name of PI: Dr. Mrinal K. Bera

Duration: One Time Grant

Value: Rs. 6.0 Lakh

Sponsor: UGC, New Delhi

Project Title: Exploring Applications of Well-Defined Transition Metal Complexes of Redox Noninnocent Ligands: From Catalysis to Molecular Electronics.

Name of PI : Dr. Nanda D. Paul

Duration: 3 Years (2024-2027)

Value: Rs. 54.0 Lakh

Sponsor: ANRF, New Delhi

Project Title: Eco-Friendly and Economically Affordable Bio-Inspired Metal Ligand Cooperative Approaches for Sustainable Synthesis of Biologically and Medicinally Active Molecules

Name of PI: Dr. Dr. Nanda D. Paul

Duration: 3 Years (2023-2026)

Value: Rs. 39.5 Lakh

Sponsor: MoE STARS

Project Title: Design and Synthesis of New Cheap and Earth Abundant Transition Metal Catalysts and Development of New Catalytic Methodologies for the Dehydrogenative Functionalization of Alcohols

Name of PI : Dr. Nanda D. Paul

Duration: 3 Years (2022-2025)

Value: Rs. 25.0 Lakh

Sponsor: CSIR, New Delhi



Recent Publications

The Department of Chemistry is one of the most vibrant and dynamic department in IEST Shibpur. The faculty members in our department are very actively involved in research of their respective areas. The broad research activities in the Chemistry Department encompass a truly broad spectrum of research areas including Coordination & Bioinorganic Chemistry, Carbohydrate Chemistry, Electrochemistry & Corrosion Science, Fuel Cell Technology, Molecular Recognition & Supramolecular Chemistry, Structural Chemistry, Catalysis, Synthetic Organic & Organometallic Chemistry, Thin Film Semiconductor materials, Solar Photovoltaic, Photoelectrochemical & Photoelectrolysis cells, Non-linear Optical Phenomena: Modelling & Computation, Non-equilibrium Statistical Mechanics, Relativistic & non-relativistic Electronic Structure Theory, etc. Some of the recent publication are enlisted below:

Journal Publications from the Department of Chemistry during July-December, 2024 (Title, Authors, Journal, Year/Vol/Page)

Carborazine doped nanographene (CBNG) sheet as a promising NO₂ gas sensor: A theoretician's approach. Subhadip Ghosh, **Prasanta K. Nandi**, *Comp. Theo. Chem.* **2024**, 1242, 114977.

Synthesis of V-shaped thiophene based rotor-stilbene: substituent dependent aggregation and photophysical properties. R Majumder, D Jana, **B. K. Ghorai**, *Journal of Fluorescence.* **2024**, 1-11.

Fumaronitrile-based π -conjugated mechanochromic material: Design, synthesis and photophysical properties. R Majumder, I Maity, **B. K. Ghorai**, *J. Mol. Struct.* **2024**, 1318, 139272.

Synthesis, crystal structure and sulphide ion sensing study of a Cu(II) complex of aroyl hydrazone. Moumita Chakraborty, Antu Mondal, Anwesha Ghosh, Alakananda Mahapatra, Tapan Kumar Mondal, **Shyamal Kumar Chattopadhyay**, *Polyherdon*, **2024**, 265, 117294.

A Tetranuclear copper(II) Complex with a Pyridine-2,6-dicarboxamide Ligand: Structural and Magnetic Properties and In vitro Antiproliferative Activity Against Human Cancer Cells. Antu Mondal, Moumita Saha, Sanjib Das, Krishna Das Saha, Swaraj Sengupta, Montse Corbella, Antonio Frontera, and **Shyamal Kumar Chattopadhyay**, *Chemistry Select*, **2024**, 9, e202401415.

Petrology and association of rare earth elements in magmatically altered high-ash coal of Indian origin. Riya Banerjee, Saswati Chakladar, Alok Kumar, **Shyamal Kumar Chattopadhyay**, Sanchita Chakravarty. *Int. J. Coal Sci. & Tech*, **2024**, 11, s40789-024-00709-6

A comparative study on the association and extractability of rare earth elements from laboratory ash, bottom ash, fly ash: A perspective on Indian coals. Riya Banerjee, Saswati Chakladar, **Shyamal Kumar Chattopadhyay**, Sanchita Chakravarty. *Min. Eng.*, **2024**, 213, 108745/



Journal Publication Continued...

Journal Publications from the Department of Chemistry during July-December, 2024
 (Title, Authors, Journal, Year/Vol/Page)

A ratiometric small-molecule fluorescent probe for the selective detection of hypochlorite by an oxidative cyclization reaction: application to commercial disinfectants and live cells. S. Banerjee, D. Banik, S. Halder, A. Karak, P. Ghosh, K. Janab, **Ajit Kumar Mahapatra**, *Org. Biomol. Chem.*, **2024**, 22, 1662–1670.

A Phenanthrenequinone-Based Ratiometric Fluorescent Probe for Rapid Detection of Peroxynitrite with Imaging in Osteoblast Precursor Cells. A. Karak, D. Banik, R. Ganguly, S. Banerjee, P. Ghosh, A. Maiti, D. Mandal, **Ajit Kumar Mahapatra**, *Chem. Res. Toxic.* **2024**, 37, 771–778.

Electron-donating and -withdrawing groups discriminate the fluorometric sensing of phosgene. A. Karak, P. Ghosh, S. Banerjee, D. Mandal, **Ajit Kumar Mahapatra**, *Anal. Methods*. **2024**, 16, 5296-5303.

Near-Infrared Fluorescent Turn-On Probe for Selective Detection of Hypochlorite in Aqueous Medium and Live Cell Imaging. A. Maiti, S. K. Manna, S. Halder, R. Ganguly, A. Karak, P. Ghosh, K. Jana, and Ajit Kumar Mahapatra. *Chemical Research in Toxicology*. 2024, 37, 1682–1690.

A Theoretical Study on Au(I) Decorated Isomeric Triazine Complexes as a New Class of Hydrogen Storage Materials. A. Bag, S. Giri, P. Dhaiveegan, Ramzi T.T J., G. C. De, **J. Ganguly**, G. Roymahapatra, *ES Energy & Environment*, **2024**, 23, 1115.

New insights into the coal-associated methane architect: the ancient archaeobacteria. D. Mukherjee, V. A. Selvi, **J. Ganguly**, R. Ebhin Masto, *Archives of Microbiology*, **2024**, 206, 234.

An Integrated Polysaccharide Hydrogel with Versatile Fluorescence Responses through Noncovalent Reformation of Gel Aggregation and for Bioimaging. S. Ghorai, S. Dasgupta, A. Mukherjee, A. Barui, G. Roymahapatra, **J. Ganguly**, *ACS Appl. Bio Mater.* **2024**, 7, 5640.

Functionalized Sugar Hydrogel Associated with Unique Exciplex Emission and Its Reflection in Bioimaging. D Pan, S Ghorai, S Maity, A Das, A Barui, **J Ganguly**, *ACS Applied Polymer Materials*, **2024**, 6, 12700-12707.

Cu (I)-Decorated Five-membered Aromatic Heterocyclic Complexes: A Potential Hydrogen Storage System. Abhishek Bag, Mrinal Kanti Dash, Ejaj Tarif, John Zhanhu Guo, Gobinda Chandra De, Sibaprasad Maity, **Jhuma Ganguly**, Shampa Bhattacharyya, and Gourisankar Roymahapatra, *ES Chemistry and Sustainability*, **2024**, 1,

Channel assisted noise propagation in a two-step cascade. Nandi M., **Chattopadhyay, S.**, Bandyopadhyay, S., and Banik, S. K. *CHAOS*, **2024**, 34, 83128.

Near-Infrared Active Tri-nanohybrid for Enhanced Energy Harvesting. Nivedita Pan, M. Nur Hasan, Sangeeta Ghosh, Lopamudra Roy, **Chinmoy Bhattacharya**, Debjani Karmakar, Samir Kumar Pal, *ChemistrySelect*, **2024**, 9, e202400968.

Selective additions of dopants, Co-catalyst and surfactant on the hydrothermally synthesized BiVO₄ semiconductors for outstanding photoelectrochemical water oxidation behavior. Sangeeta Ghosh, Jitendra Kumar Singh, Swarnendu Baduri, Debasish Ray, **Chinmoy Bhattacharya**, *Journal of Physics and Chemistry of Solids*, **2024**, 192, 112112.



Journal Publication Continued...

Journal Publications from the Department of Chemistry during July-December, 2024
 (Title, Authors, Journal, Year/Vol/Page)

Modifications of bismuth molybdates through selective additions of Zn^{2+} : an efficient photo catalyst for solar-driven water splitting applications. Swarnendu Baduri, Sangeeta Ghosh, Debasish Ray, Jitendra Kumar Singh, Han-Seung Lee, **Chinmoy Bhattacharya**, *Journal of Solid State Electrochemistry*, **2024**, 28, 3841-3855.

A Phosphine-Free Air-Stable Mn(II)-Catalyst for Sustainable Synthesis of Quinazolin-4(3H)-ones, Quinolines and Quinoxalines in Water. Sucheta Mondal, Subhajit Chakraborty, Subhankar Khanra, Santana Chakraborty, Shrestha Pal, Paula Brandao, **Nanda D. Paul** *J. Org. Chem.*, **2024**, 89, 5250-5265.

Oxygen Dependent Ligand-Controlled Iron Catalyzed Chemoselective Synthesis of Olefins and Vinyl Nitriles. Amit Kumar Guin, Subhajit Chakraborty, Subhankar Khanra, Santana Chakraborty, **Nanda D. Paul**, *Org. Lett.*, **2024**, 26, 2540-2545.

Ruthenium Catalyzed Dehydrogenative $C-H$ Functionalization of b-Naphthol Using Alcohols: A Metal-Ligand Cooperative Borrowing Hydrogen Approach Amit Kumar Guin, Santana Chakraborty, Subhankar Khanra, Arijit Singha Mohapatra, **Nanda D. Paul**, *Catal. Sci. Tech.*, **2024**, 14, 3540-3549.

Fe(II)-Catalyzed Metal-Ligand Cooperative Approach for Selective C3-Alkylation of Indoles. Subhajit Chakraborty, Sutanuva Mandal, **Nanda D. Paul** *SynLett*, **2024**, 35, 2508-2514

Hydrogen Bonding Interaction Enabled Ru(III)-Catalyzed Synthesis of (Multi)- Substituted Pyridines Santana Chakraborty, Rina Sikari, Subhajit Chakraborty, Manisha Sharma, Paula Brandão, **Nanda D. Paul**, *Adv. Synth. Catal*, **2024**, 366, 5123-5134.

Selective C- and N-Methylation of Secondary Alcohols and Nitroaromatics with Methanol Catalyzed by a New Ru(II)-Azo Complex Santana Chakraborty, Subhankar Khanra, Sreekanta Dutta, Paula Brandão, **Nanda D. Paul**, *Organometallics*, **2024**, 43, 2714-2726.

Zn(II)-Stabilized Azo-Anion Radical-Catalyzed Dehydrogenative Synthesis of Olefins Subhasree Pal, Amit Kumar Guin, Subhankar Khanra, **Nanda D. Paul**. *J. Org. Chem.*, **2024**, 90, 225-239.

Zn(II)-Stabilized Azo-Anion Radical Catalyzed Sustainable C-C Bond Formation: Regioselective Alkylation of Fluorene, Oxindole, and Indoles Subhasree Pal, Amit Kumar Guin, Subhajit Chakraborty, **Nanda D. Paul** *ChemCatChem*, **2024**, 16, e202400026

Ligand Assisted Co(II)-Catalyzed Multicomponent Synthesis of Substituted Pyrroles and Pyridines Subhajit Chakraborty, Arijit Singha Mohapatra, Subhangi Saha, Sutanuva Mandal, **Nanda D. Paul** *Chem. Asian J.*, **2024**, e202401038.

Reusable Iron-Copper Catalyzed Cross-Coupling of Primary Amides with Aryl and Alkyl Halides: Access to N-Arylamides as Potential Antibacterial and Anticancer Agents Roy, K.; Saha, A.; Saha, B.; Banerjee, S.; Mukhopadhyay, C. D.; Sahu, S. K.; **Adak, L.**, *Chem. Eur. J.*, **2024**, doi.org/10.1002/chem.202403649.

Room temperature palladium-catalyzed synthesis of novel unsymmetrical diamide scaffolds containing moieties of α -ketoester as potential antibacterial, antifungal and anticancer agents Saha, A.; Roy, K.; Banerjee, S.; Panja, S.; Khatua, M.; Mukhopadhyay, C. D.; Samanta, S.; **Adak, L.**, *J. Mol. Struct.*, **2024**, 1322, 140177.



Journal Publication Continued...

Journal Publications from the Department of Chemistry during July-December, 2024 (Title, Authors, Journal, Year/Vol/Page)

Reaction under Ball-Milling: Solvent- and Metal-Free One-Pot Diastereoselective Synthesis of Tetrahydroquinoline Derivatives as Potential Antibacterial and Anticancer Agents Roy, K.; Saha, A.; Sahoo, S.; Banerjee, S.; Mukhopadhyay, C. D.; Banerjee, S.; **Adak, L.**, *Synlett* **2024**, 35, 2487-2495.

Nickel boride as hydride source in nickel catalyzed chemoselective reduction of α,β -unsaturated amides. Rumpa Sarkara, Anila M. Menon, Deepak Chopra, **Mrinal K. Bera**. *Chemistry Select*, **2024**, 9, e202404235.

An Electrochemical Route to Novel N-Benzoyl-1,2,3-Triazoles and Protein Binding Studies of Selected Triazole Derivatives. Manas Bandyopadhyay, Upasi Goswami, Shubhankar Ghorai, Swastik Pathak, Debabani Ganguly, Jorge Escorihuela, Jhuma Ganguly, **Mrinal K. Bera**. *Asian J. Org. Chem.* **2024**, 13, e202400415.

Carbonyldiimidazole (CDI) Promoted Direct and Instantaneous Thio-esterification of Carboxylic Acid and Thiol at Ambient Temperature. Biman Bera, Upasi Goswami, Sujan Seikh, **Mrinal K. Bera**, *Org. Biomol. Chem.* **2024**, 22, 8570-8574.

Selective Hydro- and Deuterodechlorination of Trichloroacetamides under Controlled Electrochemical Conditions To Prepare Mono-, Di-, and Deuteriochloroacetamides. Manas Bandyopadhyay, Biman Bera, Swastik Pathak, Dipendu Bhunia, Sayan Bhadra, Snehangshu Patra, Manish Pal Chowdhury, Jorge Escorihuela, **Mrinal K. Bera**. *Adv. Synth Catal.* **2024**, 366, 2696-2704.

Awards & Accolades

- ❖ Professor D.K. Banerjee Memorial Lecture Award was conferred to Dr. Nanda D. Paul by the Department of Chemistry, Indian Institute of Science, Bangalore.
Many Congratulations Dr. Paul.
- ❖ Thieme Chemistry Journals Award – 2024 was awarded to Dr. Nanda D. Paul.
A big clapp for Dr. Paul!
- ❖ C. G. Memorial Award 2024 in Carbohydrate Research was conferred to Dr. Jhuma Ganguly by Association of Carbohydrate Chemist and Technologists India (ACCTI).
Heartiest Congratulations Dr. Ganguly!



Invited Talk by Our Faculties



Our esteemed faculty members are regularly being invited to different institution across the country to share their scientific Ideas and present their recent results of their research. This activities help us to enhance the visibility of our department within the country and beyond and to establish new collaborative networks. The following section is an enlistment of our faculty visit to deliver a talk before a large number of learned colleagues and students.

Invited Talks delivered by our faculty members during July-December, 2024

FICS 2024 - 7th International Conference on Frontiers in Chemical Sciences, 02-04 December, 2024, IIT Guwahati, Assam, India by **Dr. Nanda D. Paul.**

International Conference on Chemistry for Human Development, 04-06 January, 2025, ICCHD-2025, Calcutta University, Kolkata, India by **Dr. Nanda D. paul.**

"Electrocatalysis in organic synthesis: An incredible tool for sustainable organic synthesis" 1st International Conference on Advanced Materials and Manufacturing (ICAMM-2024), 18-19 December 2024, JIS Institute of Advanced Studies and Research, Kolkata by **Dr. Mrinal K. Bera**

"Chemosensors: A rapid and sensitive strip-based visual detection of chemical warfare agents" BITS Pilani Goa Campus, Department of Chemistry by **Prof. Ajit Kumar Mahapatra.**

"Recent trends of sugar coupled organic carriers for Green Transition" at CSIR-IIP Dehradun (Uttarakhand), India by **Dr. Jhuma Ganguly.**

"Recognition of aromatic anchored sugar gel." Gauhati University, Guwahati Assam, India in collaboration with Association of Carbohydrate Chemist and Technologists India (ACCTI) from 4-6 December 2024 by **Dr. Jhuma Ganguly.**

"Compositional and structural elucidation of carbohydrate in GC MS." Workshop cum Hands-on Training Programme on "CHROMATOGRAPHY PATHSHALA" at Presidency University, Kolkata by **Dr. Jhuma Ganguly.**

Invited talk at IISc by the Department of Organic Chemistry, IISc Bangalore, India by **Dr. Nanda D. Paul.**

"Guest Assist Proton Conduction Inside the Hydrophobic Channels of Mn+—4,4'bipyridine System" at Department of Chemistry, Indian Institute of Technology, Kharagpur by **Dr. Syed Meheboob Elahi**



Collaborative Network



Collaborative research has gained significant traction in the academic world, particularly with the rise of interdisciplinary studies. Its appeal continues to grow among scientists worldwide. This approach brings together individuals from various backgrounds to work toward a shared objective, fostering a culture of collaborative learning and innovation. The result is often improved outcomes compared to traditional research methods. By integrating diverse perspectives, collaborative research strengthens the foundation for generating new ideas and solutions. It facilitates the exchange of information, ideas, and resources, leading to deeper understanding and more creative results. Building on the advantages of collaborative research, our faculty members are continually working to establish various collaborative networks at both national and international levels.

Sl	Collaborator	Institute	National/ International	Faculty Involved
1	Prof. Jorge Escorihuela	University of Valencia	International	Dr. Mrinal K. Bera
2	Prof. Hans Reissig	FU Berlin	International	Dr. Mrinal K. Bera
3	Prof Bas de Bruin	University of Amsterdam	International	Dr. Nanda D. Paul
4	Dr. Ashis Kumar Satpati	BARC Mumbai, India	National	Dr. Chinmoy Bhattacharya
5	Dr. S. Senthil Kumar	CECRI-CSIR), Karaikudi	National	Dr. Chinmoy Bhattacharya
6	Dr. Srabanti Ghosh	CSIR – CGCRI, Kolkata	National	Dr. Chinmoy Bhattacharya
7	Prof. Arun Goyal	IIT Guwahati	National	Dr. Jhuma Ganguly
8	Prof. Siddhartha Das	IIT Kharagpur	National	Dr. Jhuma Ganguly
9	Dr. Maloy Das	Presidency University	National	Dr. Jhuma Ganguly
10	Prof. Samir Kumar Pal	S. N. Bose National Centre for Basic Sciences, Kolkata	National	Dr. Chinmoy Bhattacharya
11	Dr. Avishek Banik	Presidency University	National	Dr. Jhuma Ganguly



Students' Achievement



Mr. Debojit Ghosh (Registration No. PhD/R/2018/0099 dated 31/08/2018) successfully defended his Ph.D. thesis entitled "Development of First-Row Transition Metal Based Electrocatalysts for Energy-related Applications." His PhD work was carried out under the supervision of **Dr. Papu Biswas**.
Heartiest Congratulations Dr. Debojit!

Mr. Swarnendu Baduri (Regn No. PhD/R/2018/0101 dt 10.09.2018) successfully defended his Ph.D. thesis entitled "Modifications of Bismuth Molybdate based Photoelectrodes for Water Splitting Applications" His doctoral work was supervised by **Dr. Chinmoy Bhattacharya**.
Heartiest Congratulations Dr. Swarnendu!



Mr. Samanka Narayan Bhaduri (Regn No: PhD/R/2019/0032 Dated: 26/07/2019) successfully defended his Ph.D. thesis entitled "Design and synthesis of metal incorporated porphyrin-based covalent organic polymer and their catalytic activity" Mr. Samanka completed his PhD work under the supervision of **Dr. Papu Biswas**. **Heartiest Congratulations Dr. Samanka!**

Ms. Rima Biswas (Regn. No. PhD/R/2017/0124 dated 21/09/2017) successfully defended her PhD thesis entitled "Metal Incorporated Mesoporous Silica as Heterogeneous Catalyst and Nanozyme." Her doctoral work was conducted under the guidance of **Dr. Papu Biswas**. **Heartiest Congratulations Dr. Rima!**



Ms. Sangeeta Ghosh (Regin no.: 2020CHPR021 dated 18.08.2020) successfully defended her Ph.D. thesis entitled "Synthesis and characterizations of n-type Bi_2O_3 and BiVO_4 -based semiconductors for their applications in photoelectrochemical processes." She was working under the guidance of **Dr. Chinmoy Bhattacharya**. **Heartiest Congratulations Dr. Sangeeta!**

Mr. Anirban Karak (Regn. No. PhD/R/2019/0030 dt. 24.06.2019) successfully defended his Ph.D. thesis entitled "Design of Fluorescent Probes for Toxic Analytes Detection: Synthesis and Studies of their Photophysical and Photobiological Properties." His doctoral supervisor was **Prof. Ajit Kumar Mahapatra**. **Heartiest Congratulations Dr. Anirban!**



Ms. Shilpita Banerjee (Regn. No. PhD/R/2019/0031 dated 24.06.2019) successfully defended her Ph.D. thesis entitled "Detection of Hazardous Analytes: Synthesis, Photophysical and Photobiological Studies of Designed Fluorescent Chemodosimeters." She had worked under the supervision of **Prof. Ajit Kumar Mahapatra**. **A big congratulation to Dr. Shilpita!**

Mr. Subhadip Ghosh, (Regn No: PhD/R/2017/0143 Dated: 06/09/2017) defended his Ph.D. thesis entitled "Theoretical Investigation of Several Organometallic, Inorganic, and Organic Reactions: Mechanistic Aspects and Probable Industrial Applications." His thesis work was conducted under the supervision of **Prof. Prasanta Kumar Nandi**. **A big applause for Dr. Subhadip!**





Students' Achievement



Best Poster Presentation Award received by **Debasish Ray**, PhD Scholar, Department of Chemistry, IEST Shibpur) in SPARC Workshop on Catalysis for Energy and Environment Technology 2024, organized by Department of Physics, **Central University of Rajasthan**.

Heartiest Congratulations Debasish!

Best Poster Presentation Award received by **Santana Chakraborty**, (PhD Scholar, Department of Chemistry, IEST Shibpur) in a three-day national symposium on Recent Advances Chemical Sciences (RACS) organized by Department of Chemistry, **IEST Shibpur**.

Heartiest Congratulations Santana!



Our M.Sc. Student **Prithwiraj Jana** has secured a Ph.D. position in the Department of Chemistry, University of Illinois, Chicago, USA after successfully completing his masters from our department.

Heartiest Congratulations Prithwiraj!

Our M.Sc. Student **Manisha Sharma** has secured a Ph.D. position in the Emory University Laney Graduate School, USA after successfully completing her masters from our department.

Heartiest Congratulations Manisha!



Our M.Sc. Student **Upashi Goswami** has secured a Ph.D. position in the Department of Chemistry, Indian Institute of Technology, Bhubaneswar after successfully completing her masters from our department.

Many Congratulations Upasi!

Our M.Sc. Student **Riya Kuiry** has joined a Ph.D. program in the Department of Chemistry, Indian Institute of Technology, Dhanbad after successfully completing her masters from our department.

Many Congratulations Riya!



Announcement for Prospective Students

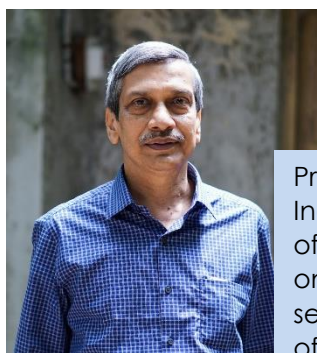
Department of Chemistry, IEST Shibpur accepts potential Ph.D. students (Fully funded) twice in a year, one in July cycle and another in December cycle. Prospective students are advised to check our institute website for the advertisement for Ph.D. admission.

Post Graduate admissions in the Department of Chemistry, IEST Shibpur are conducted through Joint Admission Test for Masters (JAM).



Recent Visitors in the Department

Dr. Prakash Chandra Mondal, Assistant Professor, Department of Chemistry, IIT Kanpur, visited our Department and delivered a research talk on the topic entitled "Electrochemistry Meets Molecular Electronics and Beyond" on 18th October 2024 (Friday) at 3:30 pm.



Prof. Puspendu Kumar Das, Department of Inorganic & Physical Chemistry, Indian Institute of Science, Bangalore visited the Department on December 17, 2024 and delivered a seminar lecture on the topic "Thermodynamics of protein adsorption on nanoparticle surface studied by second harmonic light scattering at ultralow concentrations".

Dr. Mainak Banerjee, Professor, Department of Chemistry, BITS-Pilani, K K Birla Goa Campus, visited the Department on December 27, 2024 and delivered a seminar lecture on the topic "Organic Transformations by Frictional Force: Opportunity, Sustainability, Scalability".



Dr. Amrita Chatterjee, Professor, Department of Chemistry, BITS-Pilani, K K Birla Goa Campus, visited the Department on December 27, 2024 and delivered a seminar lecture on the topic "Glow in Unity: Exploring Aggregation-Induced Emission for Sensing".



Major Facilities in the Department



The Department is equipped with a range of advanced **spectroscopic and other instruments** to support research, analysis, and practical learning in various fields of study. These instruments are crucial for investigating the properties of matter by measuring the interaction of light with substances. The following are the key spectroscopic instruments available:



400 MHz NMR



HRMS Instrument



Single crystal X-ray diffractometer



Glove Box



FT-IR Spectrophotometer



OUR FACULTY MEMBERS



Prof. Ajit K. Mahapatra
MSc. IIT Kharagpur
PhD. IEST Shibpur
Broad Area: **Organic**



Prof. Binoy K. Ghorai
MSc. IIT Kharagpur
PhD. IIT Kharagpur
Broad Area: **Organic**



Dr. Chinmoy Bhattacharya
MSc. University of Calcutta
PhD. IEST Shibpur
Broad Area: **Physical**



Dr. Jhuma Ganguly
MSc. University of Burdwan
PhD. IICB Kolkata
Broad Area: **Organic**



Dr. Lakshmikanta Adak
MSc. Vidyasagar University
PhD. IACS Kolkata
Broad Area: **Organic**



Dr. Mrinal K. Bera
MSc. Berhampur University
PhD. IISc Bangalore
Broad Area: **Organic**



Dr. Nanda Dulal Paul
MSc. University of Calcutta
PhD. IACS Kolkata
Broad Area: **Inorganic**



Dr. Papu Biswas
MSc. University of Calcutta
PhD. IACS Kolkata
Broad Area: **Inorganic**



Prof. Prasanta K. Nandi
MSc. IIT Kharagpur
PhD. IIT Kharagpur
Broad Area: **Physical**



Prof. Shyamal Chattopadhyay
MSc. University of Calcutta
PhD. IACS Kolkata
Broad Area: **Inorganic**



Prof. Sudip Chattopadhyay
MSc. University of Burdwan
PhD. IACS Kolkata
Broad Area: **Physical**



Dr. Ujjal Bhattacharjee
MSc. IIT Bombay
PhD. Iowa State University
Broad Area: **Physical**



Dr. Syed Meheboob Elahi
MSc. Viswv Bharati
PhD. University of Hyderabad
Broad Area: **Inorganic**



Concluding Note

As we conclude this edition of newsletter, Department of Chemistry, IEST Shibpur, we would like to express our gratitude to all faculty, students, and staff who continue to contribute to the growth and success of our department. Your dedication to excellence in teaching, research, and innovation is truly inspiring. We look forward to the exciting developments ahead and encourage everyone to stay engaged, curious, and passionate about the endless possibilities in the world of chemistry. Thank you for being an integral part of our vibrant community. Until next time, let's continue to spark curiosity and inspire breakthroughs in science!

“Every brilliant experiment, like every great work of art, starts with an act of imagination.” – Jonah Lehrer

Our Editorial Team

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