Dr. Dhrubajyoti Mondal

Assistant Professor
Department of Chemistry
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Academic Experiences

6th July, 2021 – till Date:	**Assistant Professor in Chemistry** *Department of Chemistry,* *Visva-Bharati (A Central University)* *Santiniketan, West Bengal* *Courses Taught: B.Sc. and M.Sc.*
16th Dec 2019 – 5th Jul 2021:	**Assistant Professor in Chemistry** *Department of Chemistry,* *Government General Degree College, Mangalkote* *Afficiated to Burdwan University, West Bengal* *Courses Taught: B.Sc.*
16th Jan 2018 – 14th Dec 2019:	**Assistant Professor in Chemistry** *Academy of Technology* *Affiliated to Maulana Abul Kalam Azad University of Technology, West Bengal* *Courses Taught: B. Tech.*
1st Jul 2017 –31st May 2018:	**Guest Lecturer in Chemistry** *Lady Brabourne College* *Affiliated to Calcutta University, West Bengal* *Courses Taught: M.Sc.*

Academic Qualifications

July, 2011 - November, 2017:	**Ph.D. in Chemistry** Department of Inorganic Chemistry Indian Association for the Cultivation of Science (IACS)
September, 2009 - June, 2011:	**M.Sc. in Chemistry** *Indian Institute of Technology Delhi (IIT Delhi)*
August, 2006 - July, 2009:	**B.Sc. in Chemistry** *Visva-Bharati (A Central University), Santiniketan*
August, 2004 - June, 2006:	**Pre-degree Examination (10+2)** *Visva-Bharati (A Central University), Santiniketan*
June 2004:	**Madhyamik (10th)** *West Bengal Board of Secondary Education (WBBSE)*

Ph.D. Thesis / Dissertation Title

Title:	***Studies on the Metal Complexes of Sterically Constrained Facially Coordinating Phenol Based Ligands***
Supervisor:	**Prof. Muktimoy Chaudhury** (Retired), Dept. of Inorganic Chemistry, **Indian Association for the Cultivation of Science**, Jadavpur, Kolkata-700 032, West Bengal, India.

Academic Achievements, Scholarships, Fellowships & Awards

Project:	*Recipient of Start-up research grant (**SRG, 2023**) by Science and Engineering Board (**SERB**)*
IIT-JAM Exam:	*Cleared **IIT-JAM** exam in 2009 and got admission to IIT Delhi.*
NET Exam:	*Cleared **NET** exams in 2010 (Dec) and 2011 (Jan) as **CSIR-JRF**.*
WBPSC Exam:	*Cleared **WBPSC** (West Bengal Public Service Commission) exam and was selected an Assistant Professor in **Government General Degree College, Mangalkote**, in 2019.*
WBCSC Exam:	*Cleared **WBCSC** (West Bengal College Service Commission) interview and was selected as an Assistant Professor in **Sree Chaitanya College, Habra**, in 2020.*
Fellowships:	***CSIR-NET** Fellowship (**JRF**, 2011-12 and **SRF**, 2013-2015) at IACS.*
Scholarships (BSc & MSc):	*Merit-cum-Means Scholarship 2006-2008 (Visva-Bharati) for Undergraduate and 2009 - 2010 (IIT Delhi) for Postgraduate.*

Research Interests / Major Fields of Work

Major Field of Research Work: Coordination Chemistry, Bio-Inspired Inorganic Chemistry and Catalysis

Details of Research Area
▪ Coordination Chemistry and Reactivity of Transition and Lanthanide Metal Complexes
▪ Design and Reactivity of Metal Complexes for Small Molecule Activation and Biomimetic Applications.
▪ X-Ray Crystallography / X-Ray Crystal Structure.
▪ Synthesis and Properties of Stable Metal Complexes with Ligand Radical
▪ Detection and Characterization of High-valent Metal-Oxido Complexes
▪ Synthesis of Multinuclear Metal complexes and their Magnetic Properties.

Present Research Group

PhD Scholars

Ms. Lesa Dutta

Institute Fellow

Research Interest: Biomimetic Coordination Chemistry
M.Sc. (Applied Chemistry): Department of Chemistry, Central University of Punjab (2020-2022)

B.Sc. (Hons.) in Chemistry: Department of Chemistry, Central University of Jharkhand (2016-2019)

Email: lesa.fcg@gmail.com

Mr. Babar Hasan

SERB Project Fellow

Research Interest: Biomimetic Coordination Chemistry

M.Sc. (Organic Chemistry): Department of Chemistry, Rani Rashmoni Green University (2020-2022)

B.Sc. (Hons.) in Chemistry: Nabagram Hiralal Paul College, University of Calcutta (2017-2020)

Email: hasanbabarhb@gmail.com

M.Sc. Project Students

Academic Year	Name of the Students
2024-2025	• Krishnagopal Thakur • Shreya Debnath • Sunandita Daripa • Anirban Majhi
2023-2024	• Ankita Paul • Arpita Mondal • Prakash Banerjee
2022-2023	• Nazia Sultana • Anita Kumari
2021-2022	• Banashree Mondal • Pritam Majee • Rituparna Maji

Project

(1) ANRF PROJECT (SERB): Start-up Research Grant (SRG/2023/000511); Research Area: Inorganic Chemistry and Catalysis; **Title:** Synthesis, Structural and Spectroscopic Characterisation of Heteroleptic Binuclear Metal Complexes bridged by Noninnocent Ligand: Their Magnetic and Water Oxidation properties**,** Duration: 24 Months (07-10-2023 to 07-10-2025); Total Cost (INR): ₹ 33,00,000/-.

List of Publications

(20) **Comparing Electrocatalytic and Chemical Oxygen Reduction Reaction by a Molecular Copper Complex.** L. Dutta, A. Das, B. Hasan, S. Paria*, and **D. Mondal*** *Chemical Communications* **2025**, *61*, 10158-10161.

(19) **Synthesis, crystal structure and optical properties of 2,4-diaminotoluene based Schiff Base: experimental and theoretical approaches** K. Ghosh, A. Mandi, N. G. Bar, A. Ray, G. K. Das, **D. Mondal**, P. Chowdhury* *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* **2025**, 344, 126731.

(18) **Synthesis of a Photochromic Schiff Base Metal Complex for the Spectroscopic, Thermodynamic, and Computational Studies** A. Mandi, N. Bar, A. Ray, K. Ghosh, M. Khatun, A. Mandal, **D. Mondal**, G. Kanti Das, P. Chowdhury* *ChemistrySelect* **2025**, 10, e02179.

(17) **Synthesis of a new Schiff base probe: Crystal structure, spectral properties, understanding and prospect.** K. Ghosh, A. Mandi, N. Bar, A. Ray, **D. Mondal**, G. K. Das, P. Chowdhury* *Journal of Chemical Sciences* **2024,** *136*, 66**.**

(16) **Rhodamine 6G salicylaldehyde hydrazone-Zn complex: Synthesis, characterization, photochromism, understanding, and application** A. Mandi, N. Bar, D. Biswas, A. Ray, K. Ghosh, **D. Mondal**, G. K. Das, P. Chowdhury* *Journal of Luminescence* **2024**, *271*, 120611.

(15) **Mononuclear Mn(III) complex with a Terminal Azide supported by Phenol-based Tetradentate N2O2 donor Ligand: Synthesis, Structure, Properties, and Catechol Oxidase Activity**
A. Haldar, B. Mandal, S. Maji, P. Chakraborty, **D. Mondal***, D. Mandal* *Polyhedron* **2023**, *245*, 116665.

(14) **Synthesis, Structure and Catechol Oxidase Activity of Mono Nuclear Cu(II) Complex with Phenol-Based Chelating Agent with N, N, O Donor Sites**
T. Rakshit, B. Mandal, A. Haldar, **D. Mondal**, D. Mandal,* and R. Ganguly* *Crystals* **2022**, *12*, 511.

(13) **Generalized Heisenberg-Type Magnetic Phenomena in Coordination Polymers with Nickel−Lanthanide Dinuclear Units**
M. Antkowiak, M. C. Majee, M. Maity, **D. Mondal**, M. Kaj, M. Lesiów, A. Bienko,* L. Kronik,* M. Chaudhury,* and G. Kamieniarz* *J. Phys. Chem. C* **2021**, *125*, 11182−11196.

(12) **Mono and tri-nuclear cobalt(III) complexes with sterically constrained phenol-based N_2O_2 ligand: Synthesis, structure and catechol oxidase activity**
I. Ali, B. Mandal, R. Saha, R. Ghosh, M. C. Majee, **D. Mondal**, P. Mitra, D. Mandal* *Polyhedron* **2020**, 180, 114429.

(11) **Crossover from Antiferromagnetic to Ferromagnetic Exchange Coupling in a New Family of Bis-(μ-phenoxido)dicopper(II) Complexes: A Comprehensive Magneto−Structural Correlation by Experimental and Theoretical Study**
D. Mondal, M. Chandra Majee, K. Bhattacharya, J. Long, J. Larionova, M. M. Khusniyarov, M. Chaudhury* *ACS Omega* **2019**, *4*, 10558−10570.

(10) **Dinuclear Iron(III) and Cobalt(III) Complexes Featuring a Biradical Bridge: Their Molecular Structures, Magnetic, Spectroscopic, and Redox Properties.**
D. Mondal, M. C. Majee, S. Kundu, G. Abbas, A. Endo, M. M. Khusniyarov M. Chaudhury* *Inorg. Chem.* **2018**, 57, 1004-1016.

(9) **Instant Detection of Hydrogen Cyanide Gas and Cyanide Salts in Solid Matrices and Water by the Cu(II) and Ni(II) Complexes of Intramolecularly Hydrogen-Bonded Zwitterions**
M Raju, K. Jana, **D. Mondal**, E. Suresh, B. Ganguly, R. R Nair, P. B. Chatterjee* *Chem.-Eur. J.* **2018**, *24*, 10721−10731.

(8) **Synthesis and magneto-structural studies on a new family of carbonato bridged 3d-4f complexes featuring a [$Co^{II}_3Ln^{III}_3(CO_3)$] (Ln = La, Gd, Tb, Dy, and Ho) core: slow magnetic relaxation displayed by the cobalt(II)-dysprosium(III) analogue.**
M. C. Majee, S. M. T. Abtab, **D. Mondal**, M. Maity, M. Weselski, M. Witwicki, A. Bieńko, M. Antkowiak, G. Kamieniarz, and M. Chaudhury* *Dalton Trans* **2018**, *47*, 3425-3439.

(7) **Ligand-Induced Tuning of Oxidase Activity of μ-Hydroxido Manganese(III) Complexes using 3,5 Di-tert-Butylcatechol as Substrate: Isolation and Characterization of Products Involving Oxidized Dioxolene Moiety**
D. Mondal, S. Kundu, M. C. Majee, A. Rana, A. Endo, M. Chaudhury* *Inorg. Chem.* **2017**, *56*, 9448–9460.

(6) **Synthesis and Structural Characterization of a New High-valent Bis(oxo)-bridged Manganese(IV) Complex and its Catechol Oxidase Activity**
D. Mondal*, M. Chandra Majee *Inorganica Chimica Acta* **2017**, *465*, 70-77.

(5) **Synthesis and Structural Characterization of a Hemiacetal and Aldehyde bound Diiron(III) Complex with two Different Coordination Numbers: A Product by Oxidative Cleavage of Carbon-Nitrogen Single Bond.**
D. Mondal*, K. Bhattacharya *Inorg. Chem. Commun.* **2017**, *84*, 109-112.

(4) **Synthesis, Structure, Catechol Oxidase Activity and Antibacterial Studies of Mn(III) Complex with Sterically Constrained Phenol-based N2O2 Ligand**
B. Mandal, T. Chakraborty, I. Ali, **D. Mondal**, M. C. Majeee, S. Raha, K. Ghosh, P. Mitra, D. Mandal* *J. Indian Chem. Soc.* **2017**, *94*, 1-9.

(3) **CCDC 1547345: Experimental Crystal Structure Determination doi.org/10.5517/ccdc.csd.cc1ny4c3 D. Mondal** *CSD Communication* **2017**

(2) **Nonoxido Vanadium(IV) Compounds Involving Dithiocarbazate Based Tridentate ONS Ligands: Synthesis, Electronic and Molecular Structure, Spectroscopic and Redox Properties**
S. Kundu, **D. Mondal**, K. Bhattacharya, A. Endo, D. Sanna, E. Garribba, M. Chaudhury* *Inorg. Chem.* **2015**, *54*, 6203−6215.

(1) **Targeted Synthesis of Heterobimetallic Compounds Containing a Discrete Vanadium(V)−μ-Oxygen−Iron(III) Core**
K. Bhattacharya, M. Maity, **D. Mondal**, A. Endo, M. Chaudhury* *Inorg. Chem.* **2012**, *51*, 7454−7456.

Participated in Workshops/Seminars/Symposiums/Webinars

- ***Symposium on Advanced Biological Inorganic Chemistry*** (**SABIC-2024**) January 7-11, 2024, Kolkata, India
- ***Symposium on Advanced Biological Inorganic Chemistry*** **(SABIC-2017)** January 7-11, 2017,

Kolkata, India

- ***One-day National Webinar: Importance of Chemistry in Biological Science***, 25th August 2021, Sidhu-Kanho-Birsha University, Purulia, West Bengal
- ***Workshop and Training Course on Single Crystal XRD*** August 28-30, 2017, Indian Association for the Cultivation of Science (IACS), Kolkata, India
- ***Two Days International Webinar on Chemistry: A Motivation in Research***, August 26.-27, 2020, Government General Degree College, Keshiary, West Bengal

Teaching

Undergraduate Courses	BSc SEM-I	• MDCH 01 (Multidisciplinary Course in Chemistry): Chemistry in Everyday Life
	BSc SEM-II	• MDCH 01 (Multidisciplinary Course in Chemistry): Chemistry in Everyday Life
	BSc SEM-III	• SEC 3A: Inorganic Materials of Industrial Importance. • SEC 3B: Inorganic Practical.
	BSc SEM-IV	• MJCH07 (Theory): Coordination Chemistry III • MJCH07 (Theory): Basics of Analytical Chemistry • MJCH10A: Inorganic Practical • INTERNSHIP COORDINATOR
	BSc SEM-V	• MJCH11: (Theory): Reaction Kinetics and Mechanism of Coordination Compounds. • MNCH 03 (Gr. A): Coordination Chemistry
Postgraduate Courses	MSc SEM-III	• MCH33-I (Theory): Nuclear Detection Techniques and Spectroscopy • MCH35-I (Theory): Errors and Evaluation • MCH31-E1 (Theory): Supramolecular Chemistry-I
	MSc SEM-IV	• MCH41-I (Theory): Selected Topics of Coordination Chemistry • MCH41-I (Theory): Selected Topics on the Chemistry of p Block Elements