

# Dr. Dibakar Sardar

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**Current Designation:** Associate Professor

**Department:** Chemistry

**Date of Joining:** 17.07.2008

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## 1. Academic Qualifications

| Degree | Institution                                 | Year | Subject/Discipline |
|--------|---------------------------------------------|------|--------------------|
| M. Sc. | Jadavpur University                         | 2005 | Chemistry          |
| Ph.D.  | Jadavpur University                         | 2012 | Science            |
| NET    | Council of Scientific & Industrial Research | 2006 | Chemical sciences  |

## 2. Thesis Title

**Ph.D. Thesis Title:** Platinum Metals Chemistry of Azoimidazoles: Synthesis Structural Characterization and Electrochemical Properties

## 3. Specialization and Area of Interests

Specialization: Analytical Chemistry

Area of Interests: Coordination and Organometallic Chemistry

**4. Teaching Responsibilities:** Introduction to Quantitative analysis and its interdisciplinary nature, Titrimetric Analysis, Acid Base Chemistry, Redox Titrimetry, Precipitation Titrimetry, Complexometric Titrimetry, Gravimetric Analysis, Water Analysis and Water Treatment Technologies, Basic Laboratory Practices. Dairy Products, Food additives, adulterant, and contaminants, Vitamins, Oil and Fat, Soap and Detergent. Theoretical principles of inorganic qualitative analysis, Basic coordination chemistry, Valence bond Theory and crystal field theory, Electronic spectra of complexes and magnetic properties. Radioactivity.

## 5. Research Project(s)

| Title | Funding Agency | Role | Duration | Status    |
|-------|----------------|------|----------|-----------|
|       | UGC            |      |          | Completed |

## 6. Publications

### a. Research Papers in Journals

1. “Cadmium (II) complexes of arylazoimidazoles: Synthesis, structure, photochromism and DFT calculation” – K. K. Sarker, **D. Sardar**, K. Suwa, J. Otsuki, C. Sinha, *Inorganic Chemistry* 46 (2007) 8291.
2. “Nickel(II)-Azido/Thiocyanato Complexes of 1-Alkyl-2-(arylazo)imidazole: Single Crystal X-ray Structure of [Ni(Pai-Me)<sub>2</sub>(N<sub>3</sub>)<sub>2</sub>](Pai-Me = 1-methyl-2(phenylazo)imidazole)” – P. Bhunia, **D. Sardar**, K. K. Sarker, U. S. Ray, J. –S. Wu, T. –H. Lu and C. Sinha, *Journal of Coordination Chemistry* 62(4) (2009) 552.
3. “Rhodium(III) and iridium(III) complexes of thioarylazoimidazoles: Synthesis, structure, spectral characterization, electrochemistry and DFT calculation”- **Dibakar Sardar**, Papia Datta, Partha Mitra, Chittaranjan Sinha, *Polyhedron*, 29 ( 2010) 3170-3177.
4. “Ir(I)–carbonyl complexes of coumarinazoimidazoles: Synthesis structure, electrochemistry, photophysical properties and DFT calculations”- Papia Datta, **Dibakar Sardar**, Partha Mitra, Chittaranjan Sinha, *Polyhedron*, 30 ( 2011) 1516-1523
5. “Group-6 metal carbonyl complexes of pyridylbenzoxazole and pyridylbenzothiazole: Synthesis, structure, electrochemistry, photophysical property and DFT calculations”- Papia Datta, **Dibakar Sardar**, Ambika Prasad Mukhopadhyay, Elena López-Torres, César J. Pastor, Chittaranjan Sinha, *Journal of Organometallic Chemistry*, 696 (2011) 488-495
6. “The reaction of heterocyclic amine with pendant naphthyl group in Pd(alpha/betaNaiR)Cl-2 (alpha/beta-NaiR=1-alkyl-2-(naphthyl-alpha/beta-azo)imidazoles) and the product characterisation”- Pratihari, P., Dutta, P., Datta, P., **Sardar, D.**, Slawin, A. M. Z. & Sinha, C. *Journal of the Indian Chemical Society*, 89 (2012)1071-1084
7. “ Structure, electrochemistry and photochromism of [Cu(RaaiR')(PPh<sub>3</sub>)X] (RaaiR' =1alkyl-2-(arylazo)imidazole; X=Cl, Br,I) and correlation with theoretical calculations”- Gunomoni Saha, Kamal Krishna Sarkar, **Dibakar Sardar**, Jack Cheng, Tian-Huey Lu, Chittaranjan Sinha, *Polyhedron*, 45( 2012) 158-169

8. "Synthesis, structure, DNA interaction and nuclease activity of rhodium(III)-arylaazoimidazole complexes"- **Dibakar Sardar**, Papia Datta, Sanju Das, Biswarup Saha, Saheli Samanta, Debalina Bhattacharya, Parimal Karmakar, Chung-De Chen, Chun-Jung Chen, Chittaranjan Sinha, *Inorganica Chimica Acta*, 394(2013) 98-106
9. "The C–H activation of pendant naphthyl group of 1-alkyl-2-(naphthyl- $\alpha$ -azo)imidazole by rhodium(III). Spectral, structural characterization and, DFT computation"- **Dibakar Sardar**, Papia Datta, Rajat Saha, Pallepogu Raghavaiah, Chittaranjan Sinha, *Journal of Organometallic Chemistry*, 732 (2013)109-115
10. "Structure, photophysics, electrochemistry and DFT calculations of  $\text{RuH}(\text{CO})(\text{PPh}_3)_2(\text{coumarinyl-azo-imidazole})]$ "- Papia Datta, **Dibakar Sardar**, Rajat Saha, Tapan Kumar Mondal, Chittaranjan Sinha, *Polyhedron*, 53 (2013) 193-201
11. "Coumarinyl azaimidazolyl complexes of osmium(II) hydridocarbonyls: spectroscopic and structural characterization, oxidation catalysis, photovoltaic effect and density functional theory computation" - Papia Datta, **Dibakar Sardar**, Uttam Panda, Ajanta Halder, Nabin Baran Manik, Chun-Jung Chen and Chittaranjan Sinha\*, *Appl. Organometal Chem.* 30 (2016) 323–334
12. "Rhodium(III) supported amination reaction of a pendant naphthyl group: Structure, electrochemistry and theoretical interpretation" **Dibakar Sardar**, Papia Datta, Rajat Saha, Raghavaiah Pallepogu, Chittaranjan Sinha, *Polyhedron*, 171(2019)542
13. "Synthesis, characterisation, DFT computation and DNA binding study of Ir(III)-dichloro bis[1-alkyl-2-(tolylazo)]imidazoles complexes" **Dibakar Sardar**, Chittaranjan Sinha, *Journal of the Indian Chemical Society.* 97(2020) 839
14. "Rhodium(III) complexes of 1-Alkyl-2-{(o-thioalkyl) phenylazo}imidazoles: synthesis, structure, spectral characterization, DNA binding study and DFT calculation" **Dibakar Sardar**, Papia Datta, Chittaranjan Sinha, *Transition Metal Chemistry*, 45(2020)59

## 7. Oral/Poster Presentations

| Sl. No. | Title of the invited lecture                                                                                                                                         | Title of Conference/ Seminar with date                                               | Organized by                        | Date               |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------|--------------------|
| 1.      | C-N Coupling reaction of aniline with coordinated 1-alkyl-2-(naphthyl- $\beta$ -azo)imidazole ( $\beta$ -NaiR) in Rh(III) complexes – Synthesis and characterisation | UGC-CPE sponsored International Conference On Facets of Basic sciences & Application | Bijoy Krishna Girls College, Howrah | February 5-7, 2018 |

|    |                                                                                                                                                                                                     |                                                                                                   |                                                                                                 |                      |
|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------|
| 2. | <b>Synthesis, Structure and DNA Interaction Study of <math>[\text{Rh}(\text{1-alkyl-2-}\{o\text{-thioalkyl}\}\text{phenylazo})\text{imidazole}] (\text{PPh}_3)_2(\text{ClO}_4)</math> Complexes</b> | A National Symposium On Facets of Chemistry in Materials and Biology                              | Department of Chemistry, St. Xavier College                                                     | February 16-17, 2018 |
| 3. | <b>Coupling of aniline with coordinated p-tolylazoimidazole in Rh(III) complexes – Synthesis, characterisation and electrochemical studies</b>                                                      | WBDBT Sponsored International Seminar On Recent Trends in Science Towards Sustainable Development | Acharya Prafulla Chandra College, New Barrackpore In Collaboration With Indian Chemical Society | August 6-7, 2018     |
| 4. | <b>Structure and Photochromism Coumarinyl-Azo-Imidazole</b>                                                                                                                                         | International Conference On Emerging Technologies for Sustainable Development                     | Government College of Engineering and Lather Technology, Salt Lake                              | March 5-6, 2019      |

## 8. Membership in Academic Bodies:

Life member of Indian Association for the Cultivation of Science (IACS), Kolkata

## 9. Administrative Responsibility

- i) Member, Provident Fund and income Tax Sub-Committee
- ii) Member, UGC Sub-Committee, Cas and Promotion Sub-Committee