

# Dr Tapas Majumdar

*Assistant Professor,  
Department of Chemistry,  
University of Kalyani,  
Nadia, West Bengal, India.*  
E-mail: [tapasmju@gmail.com](mailto:tapasmju@gmail.com) ; Contact No: +91 90070 98001 (M)



## Education

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**Ph.D.** (Science): From Jadavpur University, India in 2011

**M.Sc.:** (Chemistry, Physical Chemistry Special) from Jadavpur University, India in 2004

**B.Sc.:** (Chemistry) from Kalyani University, India in 2002

## Area of Research

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- We are interested on the study of new chemical reactions (that have potential biological application) both from kinetic and thermodynamic point of view especially with respect to reaction rates, effect of various variables, re-arrangement of atoms, formation of intermediates etc.
- Studies on different photo-processes such as electron transfer, proton transfer reactions etc. of different EDA molecules by examining the spectral and temporal behavior of the systems using steady state and time-resolved fluorescence techniques.
- We are also interested on the design and development of new molecular systems & commercially available molecule that are capable of sensing various physiologically important trace metal ions, inorganic anions. The sensing event is achieved by monitoring various spectroscopic techniques as well as computational methods in absence and presence of analytes of interest.

## Teaching Experiences

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- Assistant Professor in Chemistry, University of Kalyani, Nadia, W.B. India, July 2012 till date.
- Assistant Professor in Chemistry, Dinabandhu Mahavidyalaya, Bongaon, 24 Pgs (N), India, November 2006 - July 2012.

## Research Projects

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- ***Spectroscopic and computational studies of some optical sensors for metal ions and anions, 6.0 L***; Funding Agency: UGC: 2014-2016 (ongoing) / (F.20-35/2013(BSR) dated 09.12.2013)
- **Fluorosensor and Nanomaterials for Molecule and Ion Recognition: Synthesis Characterization and Exploration for Newer Devices, 26.00 L** ; Funding Agency DST, (A Fast Track Proposal for young Scientist in Chemical Science; Ready to Submit)

## List of Research Publications

### List of Research Articles

16. Computational study on the ellipticine-anion hydrogen bonding network: Alternative route towards anion selectivity before experiment

S Paul, A Mallick, **T Majumdar**

Communicated, Chemical Physics Letters

15. Kinetic exploration appended by spectroscopic and molecular docking analysis in search of an optimal condition for effective degradation of malachite green.

S Dasmondal, H K Mondal, S Rudra, A. Kundu, **T Majumdar** and A Mahapatra

Under revision, RSc Advances

14. Binding interaction of a newly developed bisindole drug molecule with  $\alpha$ -cyclodextrin: face to face shielding of indole hoops

A Mallick, **T Majumdar**, B Haldar and U K Roy

RSC Advances **2014**, 4, pp. 38206-38212

13. Effect of cosolvents in the presence of sodium dodecyl sulfate micelles on the rate of alkaline hydrolysis of tris(2,2-bipyridine)iron(II)complex

A Kundu, S Dasmandal, **T Majumdar** and A Mahapatra

Colloids and Surfaces A: Physicochem. Eng. Aspects **2014**, 452, pp. 148–153

12. Photophysical, NMR and density functional study on the ion interaction of norharmane: proton transfer vs. hydrogen bonding

A Mallick, UK Roy, **T Majumdar**, B Haldar and S Pratihar

RSC Advances **2014**, 4, pp. 16274-16280

11. The effect of serum albumin, surfactant and their mixture on the reduction of a cobalt(III) complex by ascorbic acid

**T Majumdar**, D Bhowmik, A Kundu, S Dasmandal and A Mahapatra

Colloids and Surfaces A: Physicochemical and Engineering Aspects **2013**, 436, pp. 185-192

10. Effect of anionic biocompatible amino acid surfactant and sodium dodecyl sulfate on the rate of alkaline hydrolysis of tris(2,2'-bipyridine)iron(II) complex: A comparative study

A Kundu, S Dasmandal, **T Majumdar** and A Mahapatra

Colloids and Surfaces A: Physicochemical and Engineering Aspects **2013**, 419, pp. 216-222

9. Kinetics of basic hydrolysis of tris(1,10-phenanthroline)iron(II) in macromolecular assemblies of CTAB

HK Mandal, **T Majumdar** and A Mahapatra

International Journal of Chemical Kinetics **2011**, 43 (10), pp. 579-589

8. Kinetics of the basic hydrolysis of tris(1,10-phenanthroline)Fe(II): Influence of polymer-surfactant interactions

HK Mandal, **T Majumdar** and A Mahapatra

Colloids and Surfaces A: Physicochemical and Engineering Aspects **2011**, 380 (1-3), pp. 300-307

7. Influence of polymer-surfactant interactions on the reactivity of the  $\text{Co}^{\text{III}}\text{-Fe}^{\text{II}}$  redox couple

**T Majumdar**, HK Mandal, P Kamila and A Mahapatra

Journal of Colloid and Interface Science **2010**, 350 (1), pp. 212-219

6. Kinetic studies on the reaction between  $[\text{Co}(\text{NH}_3)_5\text{N}_3]\text{Cl}_2$  and ascorbic acid: Effect of surfactant, polymer and their mixture

**T Majumdar**, S Pahari, HK Mandal and A Mahapatra

Journal of Molecular Liquids **2010**, 153 (2-3), pp. 101-106

5. Kinetics of electron transfer reaction in micellar and reverse micellar media. Reduction of  $[\text{Co}(\text{NH}_3)_5\text{N}_3]\text{Cl}_2$  by iron(II)

**T Majumdar** and A Mahapatra

Colloids and Surfaces A: Physicochemical and Engineering Aspects **2007**, 302 (1-3), pp. 360-365

4. Kinetics of reduction of  $[\text{Co}(\text{NH}_3)_5\text{N}_3]\text{Cl}_2$  by iron (II) in CTAB/n-heptane/butanol/water reverse micelles

**T Majumdar** and A Mahapatra

Indian Journal of Chemistry - Section A **2007**, 46 (6), pp. 952-956

3. Kinetic and mechanistic studies of the interaction of 2-mercapto pyridine with dichloro[1-alkyl-2-(arylo)imidazole]palladium(II) complexes

S Saha, **T Majumdar** and A Mahapatra

Transition Metal Chemistry **2006**, 31 (8), pp. 1017-1023

2. Mechanism of interaction of DNA bases with Pd(II)-azoimidazoles: The cytosine case

S Saha, **T Majumdar** and A Mahapatra

Inorganic Reaction Mechanisms **2006**, 6 (1), pp. 19-29

1. Kinetic and mechanistic studies on the interaction of 2-aminopyrimidine with dichloro[1-alkyl-2-(arylo)imidazole]palladium (II) complexes

S. Saha, **T. Majumdar**, A. Mahapatra

Indian Journal of Chemistry - Section A **2006**, 45 (4), pp. 877-881