

# Dr. Bappaditya Naskar, M. Sc., Ph. D.

Assistant Professor

Department of Chemistry

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## Personal information

<b>Date of Birth:</b>	07.01.1986
<b>Nationality:</b>	Indian
<b>Sex:</b>	Male
<b>Marital status:</b>	Unmarried
<b>Permanent address:</b>	Village + P.O.- Dhosa, P.S.-Joynagar, District- 24 Pgs (S), Pin-743396, West Bengal, India



## Professional Experiences

- ❖ **Assistant Professor**- Department of Chemistry, Sundarban Hazi Desarat College, Calcutta University. **From March, 2015 to present**
- ❖ **Post Doctoral Fellow**- Institut de Chimie Séparative de Marcoule, CEA Marcoule, France.  
**Advisors:** Prof. Olivier Diat and Dr. Pierre Bauduin. **From September, 2013 to December, 2014**

## Research Highlights

- ❖ Strong multidisciplinary background in **colloids, polyoxometalates (POMs), interfacial chemistry and materials science**.
- ❖ **Extensive knowledge and hands-on experience in supramolecular chemistry**
  - Polyoxometalates
  - Polymers
  - Surfactants
  - Polymer-surfactant, POMs-amino acid, POMs-surfactant mutual interaction
- ❖ Knowledge and hands-on experience on **ion-separation by flotation** (foaming),
- ❖ Synthesis of **coacervates** and their interaction with polymers at air-water interface.
- ❖ Thin film preparation by Langmuir-Blodgett (LB) technique
- ❖ **Knowledge and hands-on experience in Nanomaterials**
  - Synthesis, characterization and application
  - Dispersion of carbon nanotubes in polymer-surfactant solution

## Technical Skills

- **Scattering:** Small Angle X-ray and Neutron (SAXS and SANS), Light scattering (DLS and SLS)
- **Microscope:** Brester Angle, Optical polarization, Freeze Fracture-TEM, AFM and SEM
- **Thermal properties:** Calorimetry (ITC and DSC), TGA-DTA
- **Interfacial properties:** Tensiometry and Langmuir Balance (LB)
- **Bulk properties:** Conductometry, Densimetry, Viscometry, Vapor Pressure Osmometry, etc.
- **Spectroscopy:** Micro Raman, Spectrophotometry, Fluorimetry, X-ray Fluorimetry and IR
- **Flotation:** Separation technique by foaming

## Education

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- ❖ **Ph. D. (Science):** Thesis: **Physicochemical Studies on Polymers and Surfactants in Solution and their Mutual Interaction.** Jadavpur University, Kolkata, India. May, 2013. Advisor: Prof. S. P. Moulik
- ❖ **M. Sc. in Chemistry** with specialization in **Physical Chemistry** from Jadavpur University, August, 2008.
- ❖ **B. Sc. in Chemistry** with major, and minor in Physics and Mathematics, Jadavpur University, August, 2006.
- ❖ **Higher Secondary**, W. B. C. H. S. E., July, 2003.
- ❖ **Secondary**, W. B. B. S. E., June, 2001.

## Research Experiences

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**Post Doc:** 1 year and 4 months; **Ph. D. thesis:** 4 yrs and 10 months; **Master degree Project=** 6 months

- ✓ Physicochemical studies on **Polyoxometalates, Polymers and Block Copolymers**
- ✓ Self-association of surfactants, ionic liquids and block copolymers
- ✓ Polymers-Surfactants interactions in solution and at the air-water interface
- ✓ Polyoxometalates-amino acid interaction
- ✓ Ion separation by flotation
- ✓ Nanoparticles preparation and their application towards waste water treatment
- ✓ Coacervates formation by mixing oppositely charged surfactant, and their characterization and interaction with polymers at the air-water interface in the Langmuir balance.
- ✓ Clouding behavior of neutral surfactant and block copolymer in absence and presence of additives.
- ✓ Mixed micellization of surfactants with mutual interaction using theoretical calculation

## Computer skills

- Have knowledge of BASIC and FORTRAN
- **Software:** Excel, Origin, Msoffice, Adobe, Fit2D, Sas View, Chemdraw, WinLB, Motic Images Advanced, DTS Nano, etc.
- **Web resources:** Sci Finder, SCOPOUS, Web science, Google scholar, etc.

## Research Training Experience

**Master's Project Guided:** 3 (during PhD) and 1 (during Post-doc)

## Work Shop Attended

Workshop on Electron Microscopes: Instrumentation and Their Applications in Material Science & Biological Science, November 23-25, 2009.

## Fellowships, Awards, and Member

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- Post Doctoral Fellowship- '**CataSurf**' Funded by Govt. of France.
- Qualified Joint CSIR - UGC, Govt. of India, National Eligibility Test in December 2007 for consideration award of J. R. F. - Lectureship and June, 2008 for Lectureship in **CHEMICAL SCIENCES**.
- Qualified Graduate Aptitude Test in Engineering, 2008 organized by Indian Institute of Technology, Kanpur, India.
- Junior Research Fellowship from UGC, Govt. of India in 2008-2010
- Senior Research Fellowship from UGC, Govt. of India in 2010-2013
- Life member of Indian Society for Surface Science and Technology

### Post-doc

1. **B. Naskar**, O. Diat, V. Nardello-Rataj, P. Bauduin. Nanometer-size Polyoxometalate Anions Adsorb Strongly on Neutral Soft Surfaces. *J. Phys. Chem. C*, **119**, **2015**, 20985. (I. F. - [4.772](#))

### Ph. D.

1. **B. Naskar**, S. Ghosh, S.P. Moulik. Interaction of Normal and Reverse Pluronic (L44 and 10R5) and their Mixtures with Anionic Surfactant Sodium N-Dodecanoyl Sarcosinate. *J. Colloid Interface Sci.* **414**, **2014**, 82. (I. F. - [3.368](#))
2. D. Sardar, **B. Naskar**, A. Sanyal, T. Bala, S. P. Moulik, Organic-Inorganic Hybrid: A Novel Template for Synthesis of Nanostructured Ag. *RSC Advances*, **4**, **2014**, 3521. (I. F. - [3.708](#))
3. S. Majumder, **B. Naskar**, S. Ghosh, C.-H. Lee, C.-H. Chang, S. P. Moulik, and A. K. Panda, Synthesis and Characterization of Surfactant stabilized Nanocolloidal Dispersion of Silver Chloride in Aqueous medium. *Colloids and surfaces A*, **443**, **2014**, 156. (I. F. - [2.752](#))
4. A. Pan, **B. Naskar**, et al., Micellization and Related Behavior of Sodium Dodecylsulfate in Mixed Binary Solvent Media of Tetrahydrofuran (Tf) and Formamide (Fa) with Water: A Detailed Physicochemical Investigation. *Soft Matter*, **10**, **2014**, 5682. (I. F. - [4.123](#))
5. S. Das, **B. Naskar**, S. Ghosh, Influence of Temperature and Organic Solvents (isopropanol and 1,4-dioxane) on the Micellization of Cationic Gemini Surfactant (14-4-14). *Soft Matter*, **10**, **2014**, 2863. (I. F. - [4.123](#))
6. **B. Naskar**, S. Mandal, S. P. Moulik, Amphiphilic Activities of Anionic Sodium Cholate (NaC), Zwitterionic 3-[(3-cholamidopropyl)dimethylammonio]-1-propanesulfonate (CHAPS) and their Mixtures: A Comparative Study. *Colloids Surfaces B*, **112**, **2013**, 155. (I. F. - [4.152](#))
7. **B. Naskar**, A. Dey, S. P. Moulik, Counter-ion Effect on Micellization of Ionic Surfactants: A Comprehensive Understanding with Two Representatives, Sodium Dodecyl Sulfate (SDS) and Dodecyltrimethylammonium Bromide (DTAB). *J. Surfactants and Detergents* **16**, **2013**, 785. (I. F. - [1.685](#))
8. I. Mukherjee, S. Mukherjee, **B. Naskar**, S. Ghosh, S. P. Moulik, Interfacial and Bulk Behavior of two Phosphonium Based Ionic Liquids. *J. Colloid Interface Sci.* **395**, **2013**, 135. (I. F. - [3.368](#))
9. A. Pan, S. S. Mati, **B. Naskar**, S. C. Bhattacharya, S. P. Moulik, Self-Aggregation of MEGA-9 (N-nonayl-N-methyl-D-glucamide) in Aqueous Medium: Physicochemistry of Interfacial and Solution Behaviors with Special Reference to Formation Energetics and Micelle Microenvironment. *J. Phys. Chem. B*, **117**, **2013**, 7578. (I. F. - [3.302](#))
10. **B. Naskar**, A. Dan, S. Ghosh, V. K. Aswal, S. P. Moulik, Revisiting the Self-aggregation Behavior of Cetyltrimethylammonium Bromide in Aqueous Sodium Salt Solution with Varied Anions. *J. Mol. Liquids* **170**, **2012**, 1. (I. F. - [2.083](#))
11. **B. Naskar**, S. Ghosh, S. P. Moulik, Solution Behavior of Normal and Reverse Triblock Co-polymers (Pluronic L44 and 10R5) individually and in Binary Mixture. *Langmuir* **28**, **2012**, 7134. (I. F. - [4.457](#))
12. M. Chakraborty, F. -W. Hsiao, **B. Naskar**, C. -H. Chang, A. K. Panda, Surfactant-Assisted Synthesis and Characterization of Stable Silver Bromide Nanoparticles in Aqueous Media. *Langmuir* **28**, **2012**, 7282. (I. F. - [4.457](#))
13. A. Pan, **B. Naskar**, et al., Amphiphile Behavior in Mixed Solvent Media I: Self-aggregation and Ion-association of Sodium Dodecylsulfate in 1, 4-Dioxane -Water and Methanol - Water Media. *Langmuir* **28**, **2012**, 13830. (I. F. - [4.457](#))
14. **B. Naskar**, S. Ghosh, S. Nagadome, G. Sugihara, S. P. Moulik, Behavior of the Amphiphile CHAPS Alone and in Combination with the Biopolymer Inulin in Water and Isopropanol-Water Media. *Langmuir* **27**, **2011**, 9148. (I. F. - [4.457](#))

15. **B. Naskar**, A. Dan, S. Ghosh, S. P. Moulik, Characteristic Physicochemical Features of the Biopolymer Inulin in Solvent Added and Depleted States. *Carbohydrate Polymers* 81, 2010, 700. (I. F. - 4.074)
16. **B. Naskar**, A. Dan, S. Ghosh, S. P. Moulik, Viscosity and Solubility Behavior of the Polysaccharide Inulin in Water, Water + Dimethyl Sulfoxide, and Water + Isopropanol Media. *J. Chem. Eng. Data* 55, 2010, 2424. (I. F. - 2.037)

### **Conference Proceedings**

1. Self-aggregation of the of the Amphiphile CHAPS and its interaction with the Biopolymer Inulin in Water and Isopropanol-Water Media, **B. Naskar**, S. Ghosh, S.P. Moulik in Trends in Surface Science and Related areas by Indian Society for Surface Science and Technology, November 19, 2010.
2. Self-aggregation and Related Properties of Ionic Surfactant in Aquo-organic Solvent Media, A. Pan, **B. Naskar**, S. C. Bhattacharya, S.P. Moulik in Trends in Surface Science and Related areas by Indian Society for Surface Science and Technology, November 19, 2010.

### **Conference/Seminars/ Meeting Contribution**

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#### **Post-doc**

1. ANR Meeting at UPMC, Paris, France: Solution behaviors of native POMs, 13<sup>th</sup> March, 2014 (**Oral**)
2. 20<sup>th</sup> Oswald-Colloquium; Catalytic and physicochemical properties of Polyoxomatalates based surfactants, Organized by Max Planck Institute for Polymer Research, Mainz, Germany, 17-19 September 2014 (**Oral**)

#### **Ph. D.**

3. International Conference on Soft Systems (ICSS-2008); organized by Indian Society for Surface Science and Technology and Centre for Surface Science, Jadavpur University, Central Glass and Ceramic Research Institute, February 13-15, 2008.
4. **National Conference on Trends in Surface Science and Related Areas V**; organized by Indian Society for Surface Science and Technology and University of North Bengal, December 6, 2008
5. National Conference on Frontiers of Colloids, Surface and Nanostructured Systems; Organized by Manipur University, North East Chapter, ISSST, Marh 28-30, 2009. (**oral**)
6. 14<sup>th</sup> National Conference on Surfactans, Emulsions and Biocolloids (NATCOSEB-XIV); Indian Society for Surface Science and Technology and University of Kashmir, July 28-30, 2009 (**Poster**)
7. National Seminar on Membranes, Microemulsions and Self-Assembled Systems (MMSAS-2010); Organized by Sikkim Manipal Institute of Technology, Sikkim, September 28-30, 2010 (**Oral**).
8. National Conference on Trends in Surface Science and Related Areas (TSSRA-2010); organized by Indian Society for Surface Science and Technology and Centre for Surface Science, Jadavpur University, November 19, 2010. (**Poster**)
9. **International Year of Chemistry**; organized by Department of Chemistry, Jadavpur University, March 19, 2011.
10. Chemical Research in the First Decade of 21<sup>st</sup> Century; organized by Visva-Bharati, August 06, 2011.
11. **Trends in Surface Science and Related Areas**; organized by Indian Society for Surface Science and Jadavpur University, November 08, 2011.
12. Fifteen National Conference on Surfactants, Emulsions and Biocolloids-2011; organized by Indian Society for Surface Science and Technology and Tripura University, December 27-29, 2011 (**Oral**).

13. **Trends in Surface Science and Related Areas;** organized by Indian Society for Surface Science and Scottish Church College, 24<sup>th</sup> July, 2012.
  14. **Understanding Physical Chemistry: Students and Teachers Relationship,** organized by Department of Chemistry, Jadavpur University, 26<sup>th</sup> July, 2012.
  15. Trends in Surface Science and Related Areas; organized by Indian Society for Surface Science and Department of Pharmaceutical Science, Jadavpur University, 3rd May, 2013. (**Invited Lecture**)
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