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## Dr. Debolina Mitra

### ➤ Academic Records

**Ph. D. :** : 2010, on Surface Chemistry  
from Jadavpur University, Kolkata  
**M. Sc.:** : 2004, Chemistry (Physical Chemistry)  
from Jadavpur University, Kolkata

### ➤ Fellowship

CSIR-UGC, JRF & SRF : 2004 & 2006, CSIR, New Delhi  
(Chemical Science)  
SLET : 2004, WBCSC  
(Chemical Science)  
GATE(Chemistry) : 2004, IIT, New Delhi

### ➤ Research Interest

Thermodynamics of Organized Surfactant Media  
Polymer-Surfactant Interaction  
Nanotechnology

### ➤ Research Experience

Sl. No.	Name & Address of the Institute	Designation	From	To	Research Area
1.	Centre for Surface Science, Jadavpur University, Kolkata	JRF	31.08.04	31.08.06	Nanoparticles, Surfactants, Microemulsion
2.	Centre for Surface Science, Jadavpur University, Kolkata	SRF	01.09.06	10.07.08	Polymer – Surfactant Interaction

### ➤ List of Publications

Research Articles:

1. Use of Isothermal Titration Calorimetry to study various Systems, **D. Mitra**, Materials Today: Proceedings, 2020, Vol. 23, p 284-300.
2. Atomic Force Microscopy (AFM) and its Uses, **D. Mitra**, International Journal of Engineering, Science and Mathematics, 2018, Vol. 7, Special Issue 4(2), p 88 – 97.
3. Coacervates, **D. Mitra**, Journal of the Institution of Chemists (India), 2016, Vol 88, Part – 2, p 33 – 43.
4. How to find order in explaining a disordered physical parameter?, **D. Mitra**, The Beats of Natural Sciences, 2016, Vol 3, Issue 1, p 1-6.
5. Physicochemistry of hexadecylammonium bromide and its methyl and ethanolic head group analogues in buffered aqueous and gelatin solution, **D. Mitra** & S. P. Moulik, J. Chem. Sci. (Indian Academy of Sciences & Springer), 2010, Vol: 122 (3), Page No. 349-362.
6. Self-aggregation of synthesized novel bolaforms and their mixtures with sodium dodecyl sulfate (SDS) and cetyltrimethylammonium bromide (CTAB) in aqueous medium, K. Maiti, **D. Mitra**, R. N. Mitra, A. K. Panda, P. K. Das, A. K. Rakshit, S. P. Moulik, J. Phys. Chem. B (ACS), 2010, Vol: 114, Page No. 7499-7508.
7. Physicochemistry of dispersions of HgO, HgS and ‘Makardhwaj’ (an Ayurvedic medicine) prepared in micelles and microemulsion templates, I. Mukherjee, S. Senapati, **D. Mitra**, A. K. Rakshit, A. R. Das, S. P. Moulik, Colloids and Surfaces A (Elsevier), 2010, Vol: 360, Page No. 142-149.
8. A LB Film Morphological Study with Reference to Biopolymer-Surfactant Interaction taking Gelatin-CTAB System as a Model, **D. Mitra**, S. C. Bhattacharya and S. P. Moulik, Biophysical Chem. (Elsevier) 2009, Vol: 139, Page No. 123-136.
9. Physicochemical studies on the micellization behaviour of cetylpyridinium chloride and Triton X-100 binary mixtures in aqueous medium, S. Mukherjee, **D. Mitra**, S. C. Bhattacharya, A. K. Panda, S. P. Moulik, Colloid Journal (Springer), 2009, 71(5), Page No. 1-10.
10. Amphiphile self-aggregation: An attempt to reconcile the agreement-disagreement between the enthalpies of micellization determined by the van't Hoff and calorimetry methods, S. P. Moulik, **D. Mitra**, J. Colloid Interface Sci. (Elsevier), 2009, Vol: 337, Page No. 569-578.
11. Salt effect on self-aggregation of sodium dodecylsulfate (SDS) and tetradecyltrimethylammonium bromide (TTAB): Physicochemical correlation and assessment in the light of Hofmeister (lyotropic) effect, K. Maiti, **D. Mitra**, S. Guha, S. P. Moulik, J. Mol. Liqds. (Elsevier) 2009, Vol: 146, Page No. 44-51.
12. Physicochemical Studies on the Interaction of Gelatin with Cationic Surfactants Alkyltrimethylammonium Bromides (ATABs) with special focus on the behavior of the hexadecyl homologue, **D. Mitra**, S. C. Bhattacharya and S. P. Moulik, J. Phys. Chem. B, 2008, 112, Page No. 6609-6619.

13. Interfacial and solution properties of tetraalkylammonium bromides and their SDS interacted products: A Detail Physicochemical Study, **D. Mitra**, I. Chakraborty, S. C. Bhattacharya and S. P. Moulik, Langmuir (ACS), 2007, 13,23 (6), Page No. 3049-3061.

14. Physicochemical studies on cetylammonium bromide and its modified (mono-, di- and tri-ethoxylated) head group analogues. Their micellization characteristics in water and thermodynamic and structural aspects of water-in-oil microemulsion formed with them along with n-hexanol and isooctane, **D. Mitra**, I. Chakraborty, S. C. Bhattacharya, S. P. Moulik, S. Roy, D. Das and P. K. Das, J. Phys. Chem. B. (ACS), 2006, 110, Page No. 11314-11326.

15. Spectroscopic studies on nanodispersions of CdS, HgS, their core-shell and composites prepared in micellar medium, I. Chakraborty, **D. Mitra** and S. P. Moulik, J. Nanoparticle Res. (Springer), 2005, 7, Page No. 227-236.

16. Preparation and Characterization of ZnS nanomaterial in Micellar medium of SDS, **D. Mitra**, I. Chakraborty and S. P. Moulik, Colloid Journal (Springer), 2005, 67, Page No. 494-499.

#### Chapter in Books:

1. Energetics of micelle formation: Non Agreement between the Enthalpy change Measured by the Direct Method of Calorimetry and the Indirect method of van't Hoff, Recent Trends in Surface and Colloid Science, S. P. Moulik & **D. Mitra**, Statistical Science & Interdisciplinary Research – Vol. 12, Editor: Bidyut K. Paul, Platinum Jubilee Series, World Scientific Publishing Co. Pte. Ltd., Page No. 51-67.

2. LB film formation and characterization: potential methods, Encyclopaedia of Surface and Colloid Science, S. P. Moulik & **D. Mitra**, Second edition, Editor: P Somasundaran, Taylor & Francis group (CRC press), 2012, Page No. 1-24.

#### ➤ Teaching Methodology: