

## Curriculum Vitae

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### **NISAR AHMAD MALIK**

Assistant Professor

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### **Websites:**

#### **Home Page:**

<https://www.iustlive.com/Index/EmployeeDetails.aspx?DeptCode=DOC&EmpId=1471>

**Google Scholar:** <https://scholar.google.com/citations?user=sbitT7MAAAAJ&hl=en>

**Researchgate:** <https://www.researchgate.net/scientific-contributions/Nisar-Ahmad-Malik-2043212916>

**YouTube Teaching Channel:** <https://www.youtube.com/channel/UChY8fliUHpbozmz70X7NqOO>

**ORCID:** 0000-0002-3573-2688

### **Education:**

**Ph.D. (Physical Chemistry)-2014:** Department of Chemistry, Jamia Millia Islamia (Central University), New Delhi, India.

**M.Sc. (Physical Chemistry) -2010:** Department of Chemistry, Jamia Millia Islamia (Central University), New Delhi, India.

**B.ed. (University of Kashmir, Hazratbal, Srinagar)-2008**

**B.Sc. (Chemistry, Botany and Zoology)-2007.** University of Kashmir, Hazratbal, Srinagar, India.

### **Area of Expertise:**

Exploring the interactions and physico-chemical properties of amphiphile-biomolecule/drug systems in aqueous medium. Surface active ionic liquids-drug/bio-molecule interactions, their thermodynamics, and transport phenomena; Drug solubilization using soft systems; Dye interactions with amphiphiles

### **Summary of the Expertise and Interest:**

- Over 15 years of research experience and 9 years of teaching experience.
- Mentored and trained graduate students.
- Served on various administrative committees to enhance the department plans and vision.
- Published more than 24 international publications of high repute.
- Published 3 books and 1 book chapter.
- More than 21 students completed their M.Sc. dissertation under my guidance.

## Teaching Disciplines:

### *Subjects Taught at P.G. level:*

1. Chemical Kinetics
2. Quantum Chemistry
3. Electrochemistry
4. Solid State Chemistry
5. Colloidal Chemistry
6. Thermodynamics
7. Lab Course Physical Chemistry

### *Special Paper taught at P.G. level:*

1. Mathematics for Chemists

### *Subjects Taught at U.G. (B.Tech) level:*

1. Nanotechnology
2. Polymer Science
3. Corrosion Chemistry
4. Instrumentation Techniques
5. Thermodynamics
6. Electrochemistry
7. Lubricants
8. Environmental Chemistry
9. Lab Course (B. Tech level)

## Academic Experience:

*Mar 2016 – Present*

### **Assistant Professor**

Islamic University of Science and Technology, Chemistry  
Awantipura, India

*Jun 2015 – Mar 2016*

### **Lecturer**

University of Kashmir, Department of Chemistry  
Srinagar, India

*March 2015-May 2015*

### **Lecturer**

Islamic University of Science and Technology, University Polytechnic

*Dec. 2010 – Nov. 2014*

### **Ph.D**

Jamia Millia Islamia, Department of Chemistry  
New Delhi, India

## Research Experience:

### **Title Ph.D. work:**

***Thermodynamic and Transport Studies of Amino Acid-Surfactant and Surfactant-Surfactant Interactions in Aqueous Medium***

### **Summary of Ph.D. work:**

The thermodynamic behaviour and the state of solvation of proteins and peptides in solution rely heavily on interactions of water with various functional groups of the protein. However biological fluids are not pure water as they contain many organic and inorganic salts. These co-

Solutes/ co-solvents affect proteins in different ways, acting as effective probes of their conformations in solutions. Investigations of these conformational changes provide valuable information on the role of solvent/co-solute/co-solvent in maintaining of native, intermediate, and denatured states of the proteins. Surfactants may interact with proteins directly by binding to them, thereby, inducing substantial changes into proteins conformation, thus leading to alterations in functional characteristics of proteins. However details of surfactants-proteins interactions are yet to be investigated. Therefore it would be important to understand the original nature of protein-surfactant interactions in aqueous medium. As the complex conformational factors affect the structure of proteins in various solutions, the direct study of proteins surfactant interaction is very difficult. Thus in order to understand these interactions, interactions of building block proteins (amino acids) with surfactants should be studied owing to the complex structure of biological macromolecules (proteins). The knowledge in thermodynamic properties of amino acids, surfactant interactions in aqueous medium will be helpful for the development and design of new separation and purification processes of bio-molecules in pharmaceutical industry, food industry and bio-technology and other fields.

### Current Focus:

My current focus is on the solubilization and interaction studies of biomolecules particularly poorly soluble drugs with the amphiphile/surface active ionic liquids, their thermodynamics and physicochemical properties.

### M.Sc. Dissertations Guided:

S.No.	Title	Students	Year
01	Dye-Surfactant Interactions in Aqueous Medium	I. Fatima M. Ahar-ud-Din H. Ahmad S. Lubna M. Ashraf	2018
02	Spectroscopic Investigation of Rhodamine B and Natural Dye (Mawal) with Bovine Serum Albumin	A.H. Wani A.M. Rather S. Masoodi S. Dilkash	2019
03	Interactions of Antidepressant Drugs with Surface Active Agents: A Review	S. Shafi M. Iqbal R. Hassan	2020-21
04	Fluorescent Ensemble Based on Pyrene Fluorophore and Surfactant Assemblies: Sensing and Selective Detection of Amino Acids in Aqueous Solution	S. Yaseen T. Majeed N. Jan	2021-22
05	Spectroscopic Investigation of Bovine Serum Albumin with Fungicides	N. Nighat M. Manzoor F. Gull	2022
06	Interactions of Bovine Serum Albumin with Selected Antibiotics: A Fluorescence Study	Rumysa Jan Absa Insha Manzoor	2023

## Publications:

TITLE	CITED BY	YEAR
Influence of Antidepressant Drug on the Conductivity of Cationic Surfactant NA Malik, U Farooq, A Malik, MA Rather Colloid Journal 85 (5), 846-853		2023
Influence of HSA on micellization of NLSS and BC: An experimental-theoretical approach of its binding characteristics I Fatma, V Sharma, NA Malik, H Assad, P Cantero-López, J Sánchez, ... Journal of Molecular Liquids 367, 120532	5	2022
Plant based natural products as potential ecofriendly and safer biopesticides: A comprehensive overview of their advantages over conventional pesticides, limitations and ... A Khursheed, MA Rather, V Jain, S Rasool, R Nazir, NA Malik, SA Majid Microbial Pathogenesis, 105854	46	2022
Drug Solubilization by Surfactants: Experimental Methods and Theoretical Perspectives NA Malik Mini Reviews in Medicinal Chemistry 22 (4), 579-585	3	2022
Interactions of tricyclic antidepressant drug chlomipramine hydrochloride with imidazolium based surface active ionic liquid in aqueous solution NA Malik, U Farooq, MA Rather, AH Shalla Journal of Molecular Liquids 342, 117427	7	2021
Effect of caffeine on the micellization and related thermodynamic parameters of sodium dodecyl sulphate, hexadecyltrimethylammonium bromide and triton x-100: a physicochemical ... NA Malik, U Farooq Physics and Chemistry of Liquids	2	2021
Molecular scaffolds from mother nature as possible lead compounds in drug design and discovery against coronaviruses: A landscape analysis of published literature and molecular ... A Khursheed, V Jain, A Rasool, MA Rather, NA Malik, AH Shalla Microbial Pathogenesis 157, 104933	9	2021
Thermodynamics of cosolvent effect of surface-active ionic liquids on the micellization of conventional surfactant U Farooq, NA Malik, AH Shalla Colloid and Polymer Science	6	2021

TITLE	CITED BY	YEAR
Density functional aspects and thermodynamic evaluation of sodium dodecylsulphate in aqueous tartrazine FA Itoo, JM Mir, NA Malik, A Ali Journal of King Saud University	8	2020
Density, viscosity, and refractive index of mono-, di-, and tri-saccharides in aqueous glycine solutions at different temperatures A Ali, P Bidhuri, NA Malik, S Uzair Arabian Journal of Chemistry 12 (7), 1684-1694	20	2019
Ionic liquids as potential green solvents their interactions with surfactants and antidepressant drugs NA Malik, U Farooq Integrating Green Chemistry and Sustainable Engineering, 291-323	3	2019
Interaction, thermodynamic, and solubilisation study of amino acid-tyrosine in aqueous anionic and cationic amphiphiles: electrical conductance and spectroscopic studies NA Malik, A Ali Physics and Chemistry of Liquids 56 (1), 69-79	8	2018
Self-aggregation of ionic liquid-cationic surfactant mixed micelles in water and in diethylene glycol–water mixtures: Conductometric, tensiometric, and spectroscopic studies U Farooq, A Ali, R Patel, NA Malik Journal of Molecular Liquids 234, 452-462	34	2017
Interaction between amphiphilic antidepressant drug nortryptiline hydrochloride and conventional cationic surfactants: a physicochemical study U Farooq, A Ali, R Patel, NA Malik Journal of Molecular Liquids 233, 310-318	30	2017
Interaction of hexadecylpyridinium bromide with glycine in aqueous medium using the Krafft temperature from conductivity measurement NA Malik, A Ali, U Farooq, F Nabi Journal of Molecular Liquids 216, 224-228	9	2016
Solubilization and Interaction Studies of Bile Salts with Surfactants and Drugs: a Review NA Malik Applied Biochemistry and Biotechnology	73	2016
Interaction of Cetrimide with Nonionic Surfactants—Triton X-100 and Brij-35: A Conductometric and Tensiometric Study A Ali, NA Malik, U Farooq, S Tasneem, F Nabi Journal of Surfactants and Detergents	16	2016

TITLE	CITED BY	YEAR
Physico-chemical properties of binary liquid mixtures of n-hexane + acrylic esters ( C4, C5, C6 and C7 ) at different temperatures F Nabi, S Tasneem, P Bidhuri, NA Malik, F Itoo, A Ali Chemical Engineering Communications	3	2016
Krafft temperature and thermodynamic study of interaction of glycine, diglycine, and triglycine with hexadecylpyridinium chloride and hexadecylpyridinium bromide: A ... NA Malik, A Ali Journal of Molecular Liquids 213, 213-220	22	2015
Surfactant–amino acid and surfactant–surfactant interactions in aqueous medium: a review NA Malik Applied biochemistry and biotechnology 176, 2077-2106	41	2015
Physico-chemical studies of glycine, L-alanine, L-phenylalanine and glycyglycine in aqueous Triton X-100 at different temperatures A Ali, Shahjahan, NA Malik, S Uzair, V Bhushan Tenside Surfactants Detergents 52 (1), 54-61	4	2015
Conductometric Study of Interaction of Cetrimide with Sodium Dodecyl Sulfate in Aqueous Medium Anwar Ali, Nisar Ahmad Malik, Sahar Uzair, Ummer Farooq Journal of Solution Chemistry	9	2015
Polymeric chain dependent anomalous solvatochromism of ionic liquid+ poly (ethylene glycol) mixtures A Ali, M Ali, NA Malik, S Uzair, U Farooq Fluid Phase Equilibria 382, 31-41	9	2014
Conductometric and fluorometric studies of sodium dodecyl sulphate in aqueous solution and in the presence of amino acids A Ali, NA Malik, S Uzair, M Ali Molecular Physics 112 (20), 2681-2693	38	2014
Study of interaction between cationic surfactants and cresol red dye by electrical conductivity and spectroscopy methods A Ali, S Uzair, NA Malik, M Ali Journal of Molecular Liquids 196, 395-403	86	2014
Hexadecyltrimethylammonium bromide micellization in glycine, diglycine, and triglycine aqueous solutions as a function of surfactant concentration and temperatures A Ali, NA Malik, S Uzair, M Ali, MF Ahmad Russian Journal of Physical Chemistry A 88, 1053-1061	17	2014

TITLE	CITED BY	YEAR
Solvatochromic Absorbance Probe Behavior within Mixtures of the Ionic Liquid 1-Butyl-3-methylimidazolium Bis(trifluoromethylsulfonyl)imide + Molecular Organic Solvents A Ali, M Ali, NA Malik, S Uzair Journal of Chemical Engineering Data, DOI: 10.1021/je400908z	38	2014
Unusual solvatochromic absorbance probe behaviour within mixtures of poly (ethylene glycol)-400+ ionic liquid,[bmim][Tf2N] A Ali, M Ali, NA Malik, S Uzair Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 121, 363-371	11	2014
Study of micellization of sodium dodecyl sulfate in non-aqueous media containing lauric acid and dimethylsulfoxide A Ali, F Nabi, NA Malik, S Tasneem, S Uzair Journal of Surfactants and Detergents 17 (1), 151-160	36	2014
Role of 1-methyl-3-octylimidazolium chloride in the micellization behavior of amphiphilic drug amitriptyline hydrochloride AB Khan, M Ali, NA Malik, A Ali, R Patel Colloids and Surfaces B: Biointerfaces 112, 460-465	50	2013
<u>Study of tetrabutylammonium bromide in water and in aqueous tartrazine at different temperatures</u> S Uzair, NA Malik, A Ali Acoustical Society of India, 430-436		2013
Study of mixed micellar aqueous solutions of sodium dodecyl sulfate and amino acids A Ali, V Bhushan, NA Malik, K Behera Colloid Journal 75, 357-365	26	2013
Critical micelle concentration and self-aggregation of hexadecyltrimethylammonium bromide in aqueous glycine and glycyglycine solutions at different temperatures A Ali, S Tasneem, P Bidhuri, V Bhushan, NA Malik Russian Journal of Physical Chemistry A 86, 1923-1929	16	2012

### Books or Book Chapters

S.No.	Title of Book	Publisher	Author 1",2" or 3"	Date of Publishing	ISBN No.
01	Ionic Liquids, Surfactants and Drugs	LAP Lambert	1	23-10-2017	978-620-2-02744-1
02	Bio-surfactants and Drugs	LAP Lambert	1	01-01-2017	978-620-20265-05

03	Introduction to Zeolite-Polymer Applications	LAP Lambert	2	27-12-2017	978-620-21965-05
04	Ionic Liquids as Potential Green Solvents Their Interactions with Surfactants and Antidepressant Drugs, Integrating Green Chemistry and Sustainable Engineering	Scrivener Publishing LLC, Wiley	1	19-03-2019	9781119509837

### Seminars and Conferences

S.No.	Date of presentation of paper in the conference	Seminar/Conference		Title of the paper presented
		National	International	
01	November 2-4, 2011,(Held at Department of Chemistry, M.D. University,Rohtak)	National		Volumetric study of glycine in aqueous xylose and xylitol at different temperatures
02	103rd AOCs Annual Meeting & Expo, April 29—May 2, 2012, (Long Beach Convention Centre Long Beach, California, USA)		International	“Interaction of Glycylglycine with Surfactants in Aqueous medium
03	International Conference on Interface between Chemistry and Environment (ICICE) Held at Ramjas College (D.U University), New Delhi on December 13-14, 2012.		International	Study Of Micellization Of Cetyltrimethylammonium Bromide In Non-Aqueous Medium Containing Lauric Acid And Dimethylsulphoxide
04	International Conference on Interface between Chemistry and Environment (ICICE) Held at Ramjas College (D.U University), New Delhi on December 13-14, 2012		International	Fluorometric and conductometric investigation of interaction of anionic surfactant, Sodium Dodecyl Sulphate, with valine in aqueous medium”



05	International conference on chemistry frontiers and challenges” Held at Department of Chemistry Aligarh Muslim University on March 2-3, 2013.		International	“Cetrimide-lysine interaction in aqueous medium : a conductometric approach
06	Chemistry in Interdisciplinary applications” Held at Hans Raj College (D.U University), New Delhi on March 19, 2013.	National		“Conductometric and Fluorometric investigation of interaction of amino acid (Leucine) with anionic surfactant, Sodium Dodecyl Sulphate at different temperatures in aqueous medium
07	* Acoustics 2013 New Delhi “Technologies for a quieter India” Held at CSIR-National Physical Laboratory, New Delhi 110012 on November 10-15, 2013.	National		Study of Tetrabutylammonium bromide in water and in aqueous tartrazine at different temperatures
08	National Symposium on Chemistry” Held at Department of Chemistry Aligarh Muslim University on March 22, 2014.	National		Interaction of Sodium Dodecyl Sulphate and Hexadecyltrimethylammonium Bromide with Tyrosine in Aqueous Medium: A Conductometric Study
09	Recent Advances in Chemistry, held at department of chemistry, Jamia Millia Islamia, New Delhi, March 24, 2014	National		Krafft temperature, fluorescence and conductometric investigation of interaction of cetyltrimethylammonium bromide in aqueous amino acids”
10	Recent Advances in Chemistry, held at department of chemistry, Jamia Millia Islamia, New Delhi, March 24, 2014	National		“Conductometric study of cationic surfactants in water and in aqueous cresol red dye at different temperatures” (Poster Presentation)
11	Department of Chemistry Jamia Millia Islamia, New Delhi. March 10, 2009	National		Conference: Recent Advances in Chemistry 2009

12	Department of Chemistry Jamia Millia Islamia, New Delhi. March 10, 2010.	National		Recent Advances in Chemistry 2010
13	Department of Chemistry Jamia Millia Islamia, New Delhi. March 10, 2011	National		Recent Advances in Chemistry 2011
14	Department of Chemistry Jamia Millia Islamia, New Delhi. March 22, 2012	National		Recent Advances in Chemistry 2012
15	Department of Chemistry, Jamia Millia Islamia, New Delhi, November 24-26, 2011.	National		7th national Symposium and Conference on Solid State Chemistry and Allied areas

#### REFERENCES:

##### (1) Prof. Anwar Ali

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