

Dr. SHWETA WADHAWAN
Assistant Professor
Department of Chemistry
GGDSD COLLEGE Chandigarh
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DOB: 24 December 1976



Educational Qualifications

- ❖ **Ph.D. in Chemistry**
Department of Chemistry, Guru Nanak Dev University, Amritsar, India (2005)
PhD Thesis: *Physicochemical Aspects of Aggregated Assemblies of Cationic Surfactants with Polyelectrolytes and Triblock polymers*,
Ph.D. Supervisor: Dr. M. S. Bakshi
- ❖ Qualified U.G.C. NET in Chemical Sciences
- ❖ **MSc**–Department of Chemistry, Guru Nanak Dev University, Amritsar, India (1999-2001) Gold Medalist
- ❖ **BEd**-G.H.G.H. College of Education, Panjab University, Chandigarh, India (1998-99)
- ❖ **B Sc**– S.R. Govt. College for Women, Amritsar, India (1995-1998)
- ❖ **10+2**(Science)-S.R.G.C.W., Amritsar., India(1993-1995)
- ❖ **Matriculation** (with State Merit Position)-G.G.S.S.S., Amritsar, India(1993).

Teaching/Research Experience

- ❖ 24 March, 2008 –till date
Assistant Professor in Department of Chemistry, GGDSD College, Chandigarh
- ❖ 1 April, 2007 to 23 March, 2008
CSIR Research Associate in the Department of Chemistry, Panjab University, Chandigarh.
- ❖ April 2006 to 31 March, 2007
CSIR Research Associate from in the Department of Chemistry, Guru Nanak Dev University, Amritsar
- ❖ 04 July 2005 to 28 February 2006
Adhoc Lecturer in Department of Chemistry, Khalsa College, Amritsar, affiliated to Guru Nanak Dev University, Amritsar,

Areas of Interest

Synthesis, Characterization and applications of Nanoparticles

Publications (Journal/Book Chapters)

Citations:1279
h-index: 18
i-10 index: 19

Research Publications in Journals

- ❖ **S. Wadhawan**, D. Wadhawan, A. Jain, S.K. Mehta (2024)
Toxic implication of nanoparticles: a review of factors, mechanism, exposure and control strategies.
International Journal of Environmental Science and Technology, 1-22.
- ❖ A. Jain, **S. Wadhawan**, S.K. Mehta (2022)
Biogenic synthesis of biocompatible L-lysine coated hematite NPs for seed germination
Inorganic Chemistry Communications, 136: 109169.
- ❖ A. Jain, A. Sharma, P. Gupta, **S. Wadhawan**, S.K. Mehta

(2021)

Biosynthesis driven dysprosium oxide nanoparticles as a sensor for picric acid.

Current Research in Green and Sustainable Chemistry, 4:100080.

- ❖ A. Jain, A. Sharma, A. Kapur, **S. Wadhawan**, M. Garg, S. K. Pandey, S. Singh, S.K. Mehta (2021)
Hematite dysprosium oxide nanocomposites biosynthesized via greener route for ciprofloxacin removal and antimicrobial activity.
Journal of Nanostructure in Chemistry, 1-17.
- ❖ A. Jain, **S. Wadhawan**, S.K. Mehta (2021)
Biogenic synthesis of non-toxic iron oxide NPs via *Syzygium aromaticum* for the removal of methylene blue.
Environmental Nanotechnology, Monitoring & Management, 16:100464.
- ❖ **S. Wadhawan**, A. Jain, J. Nayyar, S. K. Mehta (2020)
Role of nanomaterials as adsorbents in heavy metal ion removal from waste water: A review.
Journal of Water Process Engineering, 33: 101038.
- ❖ A. Jain, **S. Wadhawan**, V. Kumar, S. K. Mehta (2019)
pH-Sensing Strips Based on Biologically Synthesized Ly-MgO Nanoparticles.
ACS Omega, 4:21647.
- ❖ V Kumar, A Jain, **S. Wadhawan**, SK Mehta (2018)
Synthesis of biosurfactant coated magnesium oxide nanoparticles for methylene blue removal and selective Pb^{2+} sensing.
IET Nanobiotechnology, 12:241.
- ❖ A. Jain, **S. Wadhawan**, V. Kumar, S. K. Mehta (2018)
Colorimetric sensing of Fe^{3+} ions in aqueous solution using magnesium oxide nanoparticles synthesized using green approach.
Chemical Physics Letters, 706: 53.
- ❖ R. K. Mahajan, A. Shaheen, **S. Sachar** (2009)
Effect of Triblock Polymer (Pluronic F68) on the Mixed Systems of Oppositely Charged Hydrocarbon Surfactants.
Journal of Dispersion Science and Technology, 30:1020.
- ❖ M.S. Bakshi, **S. Sachar**, G. Kaur, P. Bhandari, M. C. Biesinger, F. Possmayer, Nils O. Petersen (2008)
Dependence of Crystal Growth of Gold Nanoparticles on the Capping Behavior of Surfactant at Ambient Conditions.
Crystal Growth & Design, 8:1713.
- ❖ M.S. Bakshi, P. Thakur, **S. Sachar**, G. Kaur, T.S. Banipal, F. Possmayer, Nils O. Petersen (2007)
Aqueous Phase Surfactant Selective Shape Controlled Synthesis of Lead Sulfide Nanocrystals.
J Phys. Chem. C, 111, 18087.

- ❖ P. Sharma, S. **Sachar**, G. Kaur, P. Thakur, T. S. Banipal, M. S. Bakshi (2007)
Mixed Micelle Behavior of Dodecyl- β -D-glucopyranoside with Cationic Gemini Surfactants: A Fluorescence Study.
Journal of Surface Science and Technology, 23:131.
- ❖ M. S. Bakshi, P. Thakur, S. **Sachar**, T. S. Banipal (2007)
Synthesis of Nanocomposite Gold-semiconductor Materials by Seed-growth Method.
Materials Letters, 61:3762.
- ❖ M. S. Bakshi, P. Bhandari, S. **Sachar**, R. K. Mahajan (2006)
Mixed Micelles of Binary Triblock Polymer Mixtures in Pure Water at 30°C
Colloid and Polymer Science, 284: 1363.
- ❖ M. S. Bakshi, P. Sharma, G. Kaur, S. **Sachar**, T. S. Banipal (2006)
Synergistic Mixing of L64 with Various Surfactants of Identical Hydrophobicity Under the Effect of Temperature.
Colloids and Surfaces A: Physicochemical and Engineering Aspects, 278: 218.
- ❖ M. S. Bakshi, S. **Sachar** (2006)
Influence of hydrophobicity on the mixed micelles of Pluronic F127 and P103 plus cationic surfactant mixtures
Colloids and Surfaces A: Physicochemical and Engineering Aspects 276:146.
- ❖ M. S. Bakshi, S. **Sachar** (2006)
Influence of Temperature on the Mixed Micelles of Pluronic F127 and P103 with Dimethylenebis (dodecyl dimethyl ammonium bromide)
Journal of Colloid and Interface Science, 296: 309.
- ❖ M. S. Bakshi, S. **Sachar** (2006)
Synergistic mixing of L64 with various surfactants of identical hydrophobicity under the effect of temperature
Colloids and Surfaces A: Physicochemical and Engineering Aspects, 276: 146.
- ❖ M. S. Bakshi, S. **Sachar**, K. Singh, A. Shaheen (2005)
Mixed Micelle Behavior of Pluronic L64 and Triton X-100 with Conventional and Dimeric Cationic Surfactants.
Journal of Colloid and Interface Science, 286: 369.
- ❖ M. S. Bakshi, S. **Sachar** (2005)
Interactions of Monomeric and Dimeric Cationic Surfactants Anionic Polyelectrolytes: A Fluorescence Study.
Colloid and Polymer Science, 283: 671.
- ❖ M. S. Bakshi, S. **Sachar**, T. Yoshimura, K. Esumi (2004)

Association Behavior of Poly (ethylene oxide)-poly (propylene oxide)-poly (ethylene oxide) (PEO-PPO-PEO) Block Copolymers with Cationic Surfactants in Aqueous Solution.

Journal of Colloid and Interface Science, 278: 224.

- ❖ M. S. Bakshi, I. Kaur, R. Sood, J. Singh, K. Singh, **S. Sachar**, K. Singh, G. Kaur (2004)
Mixed Micelles of Benzyldimethyltetradecylammonium chloride with Tetradecyltrimethylammonium and Tetradecyl triphenylphosphonium bromides: a Head Group Contribution.
Journal of Colloid and Interface Science, 271: 227.
- ❖ M. S. Bakshi, **S. Sachar** (2004)
Surfactant Polymer Interactions between Strongly Interacting Cationic Surfactants and Anionic Polyelectrolytes from Conductivity and Turbidity Measurements.
Colloid and Polymer Science, 282: 993.
- ❖ M. S. Bakshi, **S. Sachar**, N. Mahajan, I. Kaur, G. Kaur, Singh, P. Sehgal, H. Doe (2002)
Mixed Micelle Formation by Strongly Interacting Surfactant Binary Mixtures: Effect of Head Group Modification
Colloid and Polymer Science, 280: 990.

Book Chapters

- ❖ A. Jain, **S. Wadhawan**, T. Wadhawan, S. K. Mehta (2023)
Nanoadsorbents in the removal of biological pollutants
Adsorption through Advanced Nanoscale Materials, 443-460
Publisher: Elsevier
- ❖ A. Jain, **S. Wadhawan**, S. K. Mehta (2022)
Nanoparticles-Based Adsorbents for Water Pollutants Removal
Rapid Refrigeration and Water Protection: Next Generation Adsorbents, 237-265
Publisher: Springer International Publishing
- ❖ A. Jain, **S. Wadhawan**, V. Kumar, S. K. Mehta (2021)
Functionalized Nanomaterials for Remediation and Environmental Applications
Functionalized Nanomaterials II: 115-128
Publisher: CRC Press, Taylor & Francis group
- ❖ **S. Wadhawan** (2018)
Indoor environment
Environment, Road Safety and Violence against Women and Children, drug abuse, 92-109
Publisher: Mohindra Publishing House

Editor and Reviewer

Editor for journal *New Materials, Compounds and Applications* by Jomard Publishing since 2024

Reviewer for articles of *Elsevier* and *American Chemical Society*

Seminars/

Conferences/Symposiums (Paper Presented)

- ❖ Presented a poster in 6th National Conference on *Recent Advances in Materials Sciences (RAMS-2024)* organized by Department of Physics, GGSDS College, Sector 32, Chandigarh on October 16, 2024.

- ❖ Presented a paper in 2nd International Conference on Advance *Interdisciplinary Research* (ICAIR-2023) jointly organized by Digvijay Nath Post Graduate College, Gorakhpur, UP and Science Tech Institute, Lucknow during April 07-09, 2023.
- ❖ Presented a poster in 5th National Seminar on *Recent Advances in Materials Sciences* organized by Department of Physics, GGSDS College, Sector 32, Chandigarh on September 30, 2022.
- ❖ Presented a poster in *14th Chandigarh Science Congress* (CHASCON-2020) jointly organized by Panjab University, Chandigarh and Chandigarh Region Innovation and Knowledge Cluster during December 17-19, 2020.
- ❖ Presented a poster in Professor Ram Chand Paul National symposium (RCPNS-2020) on *Emerging Chemical Innovations for Swachh, Swasth & Sarvatra Bharat* organized by Department of Chemistry and Centre of advanced Studies in Chemistry, Panjab University, Chandigarh during February 27- 28, 2020.
- ❖ Presented a poster in 4th National Seminar on *Recent Advances in Materials Sciences* organized by Department of Physics, GGSDS College, Sector 32, Chandigarh on February 01, 2020.
- ❖ Presented a paper in *11th Chandigarh Science Congress* (CHASCON-2017) organized by Panjab University, Chandigarh during March 9-11, 2017.
- ❖ Presented a poster in 2nd National Seminar on *Recent Advances in Material Science* organized by Department of Physics, GGSDS College, Sector 32 C, Chandigarh on September 17, 2016.
- ❖ Presented a poster in Professor Ram Chand Paul National symposium on '*Progressive trends in Chemical Sciences*' organized by Department of Chemistry and Centre of advanced Studies in Chemistry, Panjab University, Chandigarh on January 23, 2016.
- ❖ Presented a poster in National Conference on *Achievement of Women in Science and Technology: Current Scenario and Future Prospects* held at Department of Chemistry, Panjab University, Chandigarh during January 13-14, 2014.
- ❖ Presented a poster in 2nd Chandigarh Science Congress (CHASCON-2008) held at Department of Chemistry, Panjab University, Chandigarh during March 14 -15, 2008.
- ❖ Presented a poster in National Symposium on *New Challenges in Chemistry* held at Guru Nanak Dev University, Amritsar during March 20-21, 2006.
- ❖ Presented a poster in National Conference on Thermodynamics of Chemical and Biological Systems held at Guru Nanak Dev University, Amritsar during December 28-30, 2005.
- ❖ Presented a poster in 7th Punjab Science Congress held at Guru Nanak Dev University, Amritsar during February 7-9, 2004.

**Refresher
Courses/Workshops/
Training Programmes**

- ❖ One-Week Online National Faculty Development Program on *AI Tools for e-Content Development and Teaching- Learning* from 15.04.2024 to 26.04.2024 organized by UGC-Malaviya Mission Teacher Training Centre (UGC-MMTTC/GAD-MMTTC), SGTB Khalsa College, University of Delhi.
- ❖ *NEP Orientation & Sensitization* Online Training Program from 16.01.24 to 26.01.2024 under Malaviya Mission Teacher Training Programme (MM-TTP) of University Grants Commission (UGC) organized by UGC-Malaviya Mission Teacher Training Centre (MMTTC), Panjab University, Chandigarh.
- ❖ One-Week Online National Faculty Development Program on

Safer And Greener Chemistry labs from 19.07.2022 to 25.07.2022 organized by UGC-Malaviya Mission Teacher Training Centre (UGC-MMTTC/GAD-MMTTC), SGTB Khalsa College, University of Delhi.

- ❖ One-Week Online National Faculty Development Program on *Developing Positive Mental Health for Teaching Learning Environment* from 25.01.2022 to 31.01.2022 organized by UGC-Malaviya Mission Teacher Training Centre (UGC-MMTTC/GAD-MMTTC), SGTB Khalsa College, University of Delhi.
- ❖ One Week Online National Faculty Development Program on *Assessment and Evaluation in Higher Education* 14.07.2021 to 20.07.2021 jointly organized by GAD-TLC & SGND Khalsa College, University of Delhi.
- ❖ Online Short-Term Course in *Latex: A Document Preparation System* from 19.03.2021 to 25.03.2021 organized by GC-Human Resource Development Centre, Guru Nanak Dev University, Amritsar.
- ❖ One Week online National Faculty Development Program on *Enhancing Quality of Chemistry Education in India* from 25.2.2021 to 03.03.2021 organized by Guru Angad Dev Teaching Learning Centre SGTB Khalsa College, University of Delhi.
- ❖ One Week online National Faculty Development Program on *Developing Multimedia enriched Powerful Presentation* from 11.08.2020 to 16.08.2020 organized by Guru Angad Dev Teaching Learning Centre SGTB Khalsa College, University of Delhi.
- ❖ One week Faculty Skill Development Programme on *Biological Data Analysis and Data Science* from 27.02.2020 to 04.03.2020 organized by Department of Bioinformatics and Biochemistry, GGSDS College, Chandigarh.
- ❖ Short Term Course on *Research Methodology* from 11.10.2019 to 17.10.2019 organized by UGC-Human Resource Development Centre, Panjab University, Chandigarh.
- ❖ UGC sponsored Refresher Course in *Basic and Applied Science* from 26.05.2016 to 15.06.2016 organized by the Department of Biochemistry, under the auspices of the UGC-Human Resource Development Centre, Panjab University, Chandigarh.
- ❖ International Faculty Development Programme (Instructional Skills Workshop) from 27.04.2015 to 03.05.2015 organized by GGSDS College, Chandigarh.
- ❖ UGC sponsored Refresher Course in Chemistry from 28.11.2014 to 18.12.2014 organized by the Department of Chemistry, under the auspices of the UGC-Academic Staff College, Panjab University, Chandigarh.
- ❖ Faculty Development Programme from 29.04.2013 to 03.05.2013 organized by University of the Fraser Valley and GGSDS College, Chandigarh.
- ❖ Orientation Course from 16.02.2011 to 15.03.2011 organized by UGC-Academic Staff College, Panjab University, Chandigarh.

PhD Thesis

Degree awarded: 01 (Ayushi Jain, 2021)

Currently Supervising: 01 (Tamanna Wadhawan, enrolled in 2022)

Administrative Experience

- ❖ Member Undergraduate Board of Studies in Chemistry, Panjab

University, Chandigarh (2015-2017)

- ❖ Member Time Table committee-Basic Sciences(In charge) since 2020
- ❖ Coordinator-Resonance Clubs since 2019
- ❖ Editor (Science Section) for College magazine Tyagmurti since 2013
- ❖ Member Admission committee since 2012
- ❖ Member IIC since 2022
- ❖ Member Section formation committee (2016-2020)
- ❖ Member Practical Group committee (2015-2020)
- ❖ Member Annual Report committee (2018-2020)
- ❖ Member Alumni committee (2012-2020)
- ❖ Successfully conducted University Exams in 2016(as Deputy Superintendent) and 2012(as Center Superintendent)

Membership of Chemistry Associations

Life membership of Chemical Research Society of India, IISc, Bangalore

DR. SHWETA WADHAWAN