

SACHCHIDANAND SOAHAM GUPTA

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EDUCATION

- PhD** University of Pittsburgh, PA, USA
Chemistry Aug 2022 – *till date*
Advisor: Prof. Alexander Star
Project: Chirality Induction and Modulation in Single-Walled Carbon Nanotubes (SWCNTs) for Enantiomer Separation and Biosensing Applications
GPA: 3.48/4.00
- MS** Amity University NOIDA, Uttar Pradesh, IN
Applied Chemistry Jun 2021
Thesis: “Synthesis and processing of bioderived and biodegradable polymers from agricultural-industrial wastes for packaging materials”
Advisor: Dr. Kumar Rakesh Ranjan
Graduated First Class with Distinction
GPA: 8.94/10.00
- BS** Atma Ram Sanatan Dharma College(ARSD), University of Delhi, New Delhi, IN
Industrial Chemistry May 2019
Advisor: Prof. Rajeev Singh
Graduated in the First Class
GPA: 8.03/10.00

RESEARCH EXPERIENCE

- CSIR National Physical Laboratory**, New Delhi, IN Dec 2020 to Jul 2021
Graduate Intern, Conducting Polymers Laboratory,
Advisor: Dr. Parveen Saini, Principal Scientist
- Synthesized bioderived polymers from agricultural and industrial waste to develop eco-friendly packaging solutions.
 - Analyzed material properties and tested biodegradability under diverse environmental conditions.
 - Optimized processing parameters to improve material performance, durability, and production scalability.

Kwansei Gakuin University, Japan & Sakura Science Exchange Program
Online Exchange Program (due to COVID-19)

Mar 2021

- Investigated endemic arsenic contamination in Indian groundwater systems and assessed socioeconomic impacts.
- Designed an electrocoagulation-based process for effective arsenic and iron removal from water sources.
- Developed community-focused strategies to improve safe water access and implement sustainable remediation solutions.

ARSD College, University of Delhi, New Delhi, IN

Jul 2016 to May 2019

Undergraduate Research Fellow, Materials and Organometallics Research Laboratory

Advisor(s): Prof. Rajeev Singh and Dr. Amit Kumar

- Synthesized bio-based, semi-bio-based, biodegradable, and photo-functional polymers as sustainable alternatives to petrochemical-based materials.
- Engineered high-performance polymers with advanced mechanical strength and optical properties.
- Produced bimetallic and trimetallic nanocomposites using sol-gel synthesis techniques.
- Prepared Au-DTC and Pt-DTC metal complexes and evaluated their potential biological applications.
- Developed and tested hydrogels for use in water purification and remediation.

PUBLICATIONS

Journal Publications

Khandelwal, D., Bhattacharya, A., Kumari, V., **Gupta, S.S.**, Ranjan, K.R., Mishra, V., “Leveraging nanomaterials for ultrasensitive biosensors in early cancer detection: a review,” *Journal of Materials Chemistry B*, issue 3, 2025, pp 802-820. [\[Link\]](#)

Gupta, S.S., Mishra, V., Mukherjee, M.D., Saini, P., and Ranjan, K.R., “Amino Acid Derived Biopolymers: Recent Advances and Biomedical Applications,” *International Journal of Biological Macromolecules*, vol. 188, 2021, pp. 542–567. [\[Link\]](#)

Gupta, S.S., Patanjali, P., Mishra, N.K., Kumar, A., Chopra, I., and Singh, R., “Green Synthesis of Gold Nanoparticles from *Combretum indicum* and Their Characterization,” *Indian Journal of Chemical Technology*, vol. 28, no. 6, 2021, pp. 730–734. [\[Link\]](#)

Kumar, A., Mishra, N.K., Sachan, K., Ali, M.A., **Gupta, S.S.**, and Singh, R., “Trimetallic Oxide Nanocomposites of Transition Metals Titanium and Vanadium by Sol-Gel Technique: Synthesis, Characterization and Electronic Properties,” *Materials Research Express*, vol. 5, no. 4, 2018, 045037. [\[Link\]](#)

Books / Book Chapters

Sharma, N., Sharma, K., **Gupta, S.S.**, Ranjan, K.R., Mishra, V. and Mukherjee, M.D., “Essential Oil-Based Biopesticides. In Essential Oils: Extraction Methods and Applications,” 2023 [\[Link\]](#)

Gupta, S.S., Singh, R., and Chaudhary, P., “Advancing Water Quality Assessment via Artificial Neural Networks (ANNs),” in: *Spectroscopy and Machine Learning for Water Quality Analysis*, 2021. [\[Link\]](#)

Nagyal, L., **Gupta, S.S.**, Singh, R., Kumar, A., and Chaudhary, P., “Sol–Gel Deposition of Thin Films,” in: digital Encyclopedia of Applied Physics, Wiley-VCH, 2019, pp. 1–18. [\[Link\]](#)

HONORS AND AWARDS

Best All-Round Student Award

Dec 2022

Amity Institute of Applied Sciences, Amity University, NOIDA

Conferred for outstanding all-round performance in academics, cultural activities, and leadership during the Master of Science in Applied Chemistry (2019–2021).

ChemCrown of the Year

Mar 2019

Atma Ram Sanatan Dharma College, University of Delhi, New Delhi, IN

Awarded as Best Student of the Class of 2019 for exceptional performance in academics, extra-curricular engagement, and research activities

TEACHING EXPERIENCE

University of Pittsburgh, Pittsburgh, PA, USA

Aug 2023 till date

Graduate Teaching Fellow, Department of Chemistry

- Supported three lab sections each semester for General Chemistry I and II (approx. 72 students per term) as a Graduate Teaching Fellow.
- Delivered mini lectures on experiments, safety protocols, and laboratory equipment.
- Held office hours to support students’ understanding and lab skills.
- Proctored and graded quizzes and exams to assess student understanding.
- Guided students in developing core lab skills, data interpretation, and scientific writing.

University of Pittsburgh, Pittsburgh, PA, USA

Aug 2022 to May 2023

Graduate Teaching Assistant, Department of Chemistry

- Led three lab sections each semester for General Chemistry I and II (approx. 72 students per term).
- Delivered mini lectures on lab procedures, safety, and equipment use.
- Guided students through experiments, lab skills, and data analysis.

CONFERENCES AND PRESENTATIONS

Oral Presentation, “Sustainable Synthesis and Study of Trimetallic Oxide Nanocomposites of Titanium and Vanadium,” National Seminar on Environment and Sustainability in the Third World, *Hans Raj College, University of Delhi, March 2020*.

Poster Presentation, “Structural Investigation of Nanomixed $x\text{SnO}_2\text{--Al}_2\text{O}_3$ Synthesized by Sol–Gel Route,” National Conference on New Trends in Nanotechnology and Applications, *Atma Ram Sanatan Dharma College, University of Delhi, February 2020*.

Poster Presentation, “Study of Platinum(II) Complexes with Biologically Active Ligands,” International Conference on Green Chemistry in Environmental Sustainability & Chemical Education, *Daulat Ram College, University of Delhi, September 2016*.

PROFESSIONAL TRAINING

Carbon Nanotube Sorting Camp

Aug 11 to Aug 14, 2025

National Institute of Standards and Technology (NIST), Gaithersburg, MD, USA

Instructors: Dr. Ming Zheng and Dr. Jeffrey A Fagan

Participated in an intensive training workshop focused on advanced techniques for sorting, characterizing, and processing carbon nanotubes, with hands-on sessions using ultramodern instrumentation and protocols.

COMMUNITY SERVICE

Renukiran Welfare Foundation, New Delhi, IN

Volunteer, *Aug 2020 to Oct 2020*

- Developed educational content to support online learning for underprivileged children.
- Collaborated on fundraising and volunteer recruitment through seminars and workshops.
- Contributed ideas for social media outreach and growth strategy.

SKILLS

Software & Applications: ChemOffice, OriginPro, EndNote, Adobe Illustrator, Python, BioRender

Techniques: Aqueous Two-Phase Extraction (ATPE), Exfoliation of Carbon 2-D materials, Sol-gel synthesis, polycondensation, Soxhlet extraction,

Instruments: UV-Vis/nIR spectrophotometer, FT-IR spectrometer, Horiba Nanolog nIR Fluorescence Spectrometer, Jasco J-1700 and J-800 Circular Dichroism,

PERSONAL ATTRIBUTES

Problem solving | Effective communication | Teamwork | Adaptability | Creative thinking | Initiative |

OTHER

Interests/Hobbies: Photography, Cooking, Creative Writing
Citizenship: Indian