

Sukanya Dutta

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Summary

- Physical chemistry Ph.D. student specializing in nanofabrication and plasmonic photoelectrochemistry
- Strong experimental background in lithography, optics, and electrochemistry.
- Extensive leadership experience in the planning of new chemistry lab spaces and enforcement of safety protocols.

Education

Ph.D. Physical Chemistry	<i>summer 2026</i>
University of Illinois Urbana-Champaign, IL, USA	GPA 4.00 / 4.00
M.A. Chemistry	<i>Jul 2023</i>
Rice University, TX, USA	GPA 3.94 / 4.00
<i>D.J. Evans Atwell-Welch Graduate Fellowship</i>	
M.S. Chemistry	<i>Jul 2021</i>
IISER Mohali, India	GPA 9.64 / 10.00
<i>Award of Academic Excellence</i>	
B.Sc. (Hons) Chemistry	<i>Jun 2017</i>
St Xavier's College, Kolkata India	79.4 %
<i>Qualified INSPIRE Fellowship (top 1 %)</i>	

Experience

Research Assistant	<i>Jan 2022 – Present</i>
Link Lab, Rice University & University of Illinois Urbana-Champaign	
○ Plasmonic Lattices (2025 - Present):	
– Fabricate and characterize finite nanoparticle lattices using polymer pen lithography (TERA-print) to study surface lattice resonance modes.	
○ Plasmon Generated Solvated Electrons (2022 - Present):	
– Study the mechanistic shift from bulk to surface photoemission with decreasing nanoparticle size for improved solvated electron generation yield.	
– Investigate the role of coupled gold plasmon modes with high electric fields for solvated electron generation.	
– Establish the mechanism of plasmon generated solvated electron mediated reductive organic photocatalysis under visible light.	
Mentorship	<i>Nov 2022</i>
Mentoring Program Volunteer, Rice University	
○ Volunteered in the undergraduate mentoring program offered by the Chemistry department at Rice to help struggling students improve their academic success.	
Teaching Assistant	<i>Aug 2021 – Dec 2022</i>
Department of Chemistry, Rice University	
○ Facilitated and graded experiments for undergraduate general chemistry laboratory courses.	
MS Researcher	<i>May 2019 – Jul 2021</i>
Pal Lab, IISER Mohali	
○ Studied self-assembly of non-ionic surfactants at liquid crystal–water interfaces for drug delivery applications using polarized optical microscopy.	
Teaching Assistant	<i>Aug 2020 – Apr 2021</i>
Department of Chemistry, IISER Mohali	
○ Supervised undergraduate chemistry laboratory sessions.	

Publications

- Dutta, S.; Kim, J.-H.; Al-Zubeidi, A.; Landes, C. F.; Link, S. Solvated Electron Generation from Coupled Plasmon Modes of Gold Using Visible Light. *Nano Lett.*, submitted.
- Al-Zubeidi, A.; Ostovar, B.; Carlin, C. C.; Li, B. C.; Lee, S. A.; Chiang, W.-Y.; Gross, N.; Dutta, S.; Misiura, A.; Searles, E. K.; Chakraborty, A.; Roberts, S. T.; Dionne, J. A.; Rossky, P. J.; Landes, C. F.; Link, S. Mechanism for Plasmon-Generated Solvated Electrons  Proc. Natl. Acad. Sci. U.S.A. **2023**, 120 (3).
- Pani, I.; Nailwal, Y.; Dutta, S.; Pal, S. K. Tailoring Liquid Crystals as Vehicles for Encapsulation and Enzyme-Triggered Release  J. Mater. Chem. B **2022**, 10 (16), 3032–3038.

Skills

Languages

MATLAB, Python, FORTRAN 77, L^AT_EX

Software

Lumerical FDTD, Gnuplot, ChemDraw, Origin, ImageJ, Gaussian 09

Instrumentation

- **Fabrication tools:** Polymer pen lithography (TERA-print); Thin film deposition tools - atomic layer deposition (ALD), electron-beam evaporator, and sputter coater; Langmuir–Blodgett trough for monolayer transfer.
- **Characterization tools:** Electron microscopy – scanning (SEM) and transmission (TEM); dynamic light scattering; nuclear magnetic resonance spectrometer; liquid chromatography mass spectrometry; high performance liquid chromatography.
- **Optical tools:** Hyperspectral dark-field microscope; ultraviolet–visible (UV-Vis) absorption spectrometer; spectrofluorometer; circular dichroism spectrophotometer; polarized optical microscope; attenuated total reflection Fourier transform infrared spectrometer.
- **Electrochemical tools:** Bulk and single-particle electrochemical cells; electrochemical techniques – voltammetry, chronoamperometry, electrochemical impedance spectroscopy.

Leadership and Organizational Experience

Lab Safety Officer (LSO)

2024 – Present

Link Lab, University of Illinois Urbana-Champaign

- Serve as the liaison between faculty advisor, group members, and campus safety offices.
- Received ACS Recognition of Excellence, Fall 2024 for leadership in promoting Research Safety.

Women Chemists Committee (WCC) Board Member

2024 – Present

ACS East Central Illinois, University of Illinois Urbana-Champaign

- **Vice Chair (2025 – Present):** Support organizational leadership, professional development programs, and serve as liaison to the ACS local chapter.
- **Invited Speaker Co-Chair (2024 – 2025):** Coordinated invited speaker seminar series, alumni outreach, and cross-organization events, including logistics and speaker engagement.

Professional Leadership Coaching

2022 – 2023

Doerr Institute for New Leaders, Rice University

- Served as the **Graduate Student Ambassador** at Doerr Institute for the Fall 2023 term.
- Participated in intensive leadership development programs involving working one-on-one with International Coaching Federation (ICF) certified coaches, attending workshops (decision-making, conflict management, and delivering constructive feedback), and team leadership training.

Treasurer & STRIVE Liaison

2021 – 2023

Graduate STRIVE: Students Transforming Rice Into a Violence-Free Environment,
Rice University

- Hosted prevention activities and supported graduate students by providing information about resources available on and off campus.

Member

2021 - Present

American Chemical Society