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## Shivangi Singh

### Post-Doctoral Fellow

National Taiwan University (QS Ranking 2025 - 68<sup>th</sup>), Taiwan

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 [Google Scholar link](#) |  [LinkedIn link](#) |



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### Professional Summary

Post-Doctoral Fellow specializing in CO<sub>2</sub> reduction technologies, water treatment, and advanced analytical techniques. Proven expertise in synthesizing perovskite quantum dots for efficient CO<sub>2</sub> reduction. Skilled in chromatography, spectrometry, and 3D printing for nanocomposite device fabrication, like magnetic beads, with a strong research background in environmental applications and materials science.

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### Education

- **Ph.D. in Medical Laboratory Science and Biotechnology**  
Kaohsiung Medical University, Taiwan | *March 2020 - December 2023*
- **M.Sc. in Applied Chemistry**  
Amity University, Uttar Pradesh, India | *July 2016 - June 2018*
- **B.Sc. in Chemistry (Hons.)**  
Amity University, Uttar Pradesh, India | *July 2013 - June 2016*

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### Research Experience

*1. Post-Doctoral Fellow, Department of Chemistry, **National Taiwan University, Taiwan** / March 2024-present*

#### ***Project 1:***

- Development of Perovskite quantum dots through a microfluidics setup and its application in CO<sub>2</sub> reduction through in situ APXPS analysis.

#### ***Project 2:***

- Analysis of Phosphor materials for biomonitoring and bioimaging in NIR-I and II regions also enhanced light-emitting properties in semiconductor materials.

2. *Ph.D. Candidate, Department of Medical Laboratory Science and Biotechnology, Kaohsiung Medical University, Taiwan / March 2020-December 2023*

- Researched and applied PEI-coated activated carbon magnetic beads to co-remove Cr (VI) and food colorants.
- Synthesized carbo-gel to extract multi-metal ions, prepared graphene quantum dots (GQDs) for efficient toxic metal detection, engineered a PANI (Polyaniline)-laminated PEG/cellulose aerogel for TCS analysis, and designed 3D printed models for semi-online pollutant analysis.

3. *M.Sc. (Applied Chemistry), Amity Institute of Applied Sciences, Amity University, Noida, Uttar Pradesh, India / July 2016 - June 2018*

*Research Intern, Jubilant Generics and Life Sciences | May 2017-July 2017*

- Conducted synthesizing and characterizing intermediates for antipsychotic drug synthesis and developed compounds, including 1-(chloromethyl)-4-isobutoxybenzene.

4. *Research Intern, Jamia Hamdard University, Delhi, India / Dec 2017- May 2018*

- Investigated antimicrobial properties of chemically and naturally synthesized Bismuth oxyhalides.

## Technical Skills

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- **Instrumentation:** HPLC, GC-MS, TLC, FTIR, XRD, XPS, UV/Vis, ICP-MS, SEM, TEM, In-situ-XPS, In situ XRD.
- **Analytical Techniques:** Nanocomposite Fabrication, Magnetic and Fluorescence Probes, Material Chemistry, Analyte Extraction, Photoelectrochemical Studies
- **Software:** Origin Lab, Clarity, ImageJ, Microsoft Office, Autodesk 123D

## Publications

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- *Unveiling Nano-Surface features of CsPbBr<sub>3</sub> versus Cs<sub>4</sub>PbBr<sub>6</sub>-Embedded CsPbBr<sub>3</sub> for CO<sub>2</sub> Photoreduction;* Behrouz Bazri, **Shivangi Singh**, Kashyap Dave, Da-Hua Wei\*, Ru-Shi Liu\* **Small by Wiley (I.F-13.0)**
- *Biopolymeric chitosan/polydopamine thin film-based miniaturized hand-operable 3D-printed dispersion device: A green energy-efficient method for matrix free metal analysis.* Arputharaj, Emmanuvel; Huang, Yu-Hui; **Singh, Shivangi**; Mariadoss,

Arokia Vijaya Anand; Delattre, Cedric; Chen, Po-Chih; Huang, Yeou-Lih\*  
**International Journal of Food and Drug Analysis (I.F-2.6)**

- *Aerogel-based 3D printed SPE syringe filter: An enhanced quick sample pretreatment clip-on cartridge for matrix-free complex sample analysis.* **Shivangi Singh**, Emmanuvel Arputharaj, You-Rong Wu, Hans-Uwe Dahms\*, Yeou-Lih Huang\*  
**Chemosphere (Under Review-Chemosphere)**
- *Switchable metal extractant integrated miniaturized 3D-printed device: A semi-online multi-metal separation system for matrix-free ICP-MS analysis.* Emmanuvel Arputharaj; **Shivangi Singh**; Yu-Hui Huang; You-Rong Wu; Karthikeyan Perumal; Govindasami Periyasami; Yu-Ying Chao; Hans-Uwe Dahms\*; Yeou-Lih Huang\*  
**Analytica Chimica Acta (I.F-6.91)**
- *Phosphonium ionic liquid conjugated magnetic graphitic carbon nitride nanocomposite: An effective sample pretreatment tool for selenium separation and determination.* Emmanuvel Arputharaj, **Shivangi Singh**, Raghavendra Rao Pasupuleti, Chun-An Kuo, WeiJyun Ya, Yu-Hui Huang, You-Rong Wu, Yu-Ying Chao, Yeou-Lih Huang\* **RSC- Analytical Methods (I.F-3.1)**
- *Lysozyme Carbo-Gel Integrated Repackable Miniaturized Microextraction Device: A Platform for Rapid Enrichment and Sensitive Detection of Multimetal Ions.* **Shivangi Singh**, Emmanuvel Arputharaj, You-Rong Wu, Chetan Prakash Sharma, Christopher J. Arnusch, Hans-Uwe Dahms, \* and Yeou-Lih Huang\* **ACS ES&T Engineering (I.F-7.1)**
- *Chitosan-based nanocomposites for removal of Cr (VI) and synthetic food colorants from wastewater.* **S Singh**, E Arputharaj, HU Dahms, AK Patel, YL Huang\*, **Bioresource Technology (I.F- 11.89)**
- *Visible fluorescent sensing of Cu<sup>2+</sup> ions in urine by reusable chitosan/L-histidine-stabilized silicon nanoparticles integrated thin layer chromatography sheet.* E Arputharaj, **S Singh**, RR Pasupuleti, HU Dahms, YL Huang\*, **Analytica Chimica Acta (I.F-6.99)**
- *Zinc oxide nanoparticles using plant Lawsonia inermis and their mosquitocidal, antimicrobial, anticancer applications showing moderate side effects.* P Amuthavalli, JS Hwang, HU Dahms, L Wang, J Anitha, ...**S Singh**, **Scientific reports (I.F-4.99)**

## Teaching and Mentorship Experience

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*Teaching Assistant, College of Life Sciences, Kaohsiung Medical University, Taiwan*

- Mentored master's students in metal chemistry concepts and experiments, fostering a deeper understanding of the subject matter

## Presentations and Conferences

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- MRS-T Annual Meeting, Taichung Taiwan | *November 15-16, 2024*
- Phosphor Safari Conference 2024, Taipei, Taiwan | *August 1- 2, 2024*
- Bio Asia Taiwan 2023, Taipei / *July 26-30, 2023*
- TSMS Annual Conference (Taiwan Society for Mass Spectrometry), Taichung | *July 4-06, 2023*
- International Virtual Conference on Food Science & Nutrition, London, United Kingdom | *June 26-27, 2023*
- Chemistry National Meeting, National University of Kaohsiung | *March 12, 2023*
- Ocean Sciences Conference, National Penghu University | *October 2021*
- International Sustainable Development Conference, National Pingtung University of Science and Technology | *November 2020*

## Achievements

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- **Excellence prize** in STEM Female Talents Cultivation Program - 111 Academic Year Student Paper Competition, International Symposium on Biosciences for Human Health, 2023
- **First place** in student poster competition, College of Life Science, Kaohsiung Medical University, 2022
- Secured **17th rank** in Delhi University Ph.D. entrance test conducted by NTA, 2019.
- Qualified **CUCET**, India, Ph.D. (Central Universities Common Entrance test), 2019

## References:

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1. Prof. Hans-Uwe Dahms, Ph.D., D.Sc

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2. Prof. Yeou-Lih Huang

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