

## CURRICULUM VITAE

# Sehar Tasleem



**Address:** Millat Road, Faisalabad, Pakistan

**E-Mail:** [seharroxanne@yahoo.com](mailto:seharroxanne@yahoo.com)

**Cell:** +60149449778

**Date of birth:** 16/07/1994 **Nationality:** Pakistani

**Google scholar:**

[https://scholar.google.com/citations?view\\_op=list\\_works&hl=en&hl=en&user=HkYYokMAAAAJ](https://scholar.google.com/citations?view_op=list_works&hl=en&hl=en&user=HkYYokMAAAAJ)

**WOS Researcher ID:** GYD-8043-2022

## Education

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P.hD Environmental Engineering, Universiti Teknologi Malaysia	02/2022
M.Phil Environmental Science, University of Lahore, Pakistan	09/2017
B.Sc (Hons) in Environmental Science University of Agriculture, Faisalabad, Pakistan	09/2015

## Work Experience

Postdoctoral researcher, AlFaisal university, Saudi Arabia	11/2023-present
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## Research Work

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### Masters research work

Carbon sequestration potential of vegetative species (trees) of Lahore, Pakistan.

### Ph.D. research work

Ternary Lanthanum Cobaltite Perovskite and Titania Based Nanocomposites for Photocatalytic Renewable Hydrogen Production

### Publications

- Riyadh Ramadhan Ikreedeeh, Sehar Tasleem, Md Arif Hossen "Facile fabrication of binary g-C<sub>3</sub>N<sub>4</sub>/NH<sub>2</sub>-MIL-125 (Ti) MOF nanocomposite with Z-scheme heterojunction for efficient photocatalytic H<sub>2</sub> production and CO<sub>2</sub> reduction under visible light." *Fuels*, (2024)
- Chen, Jing, Reza Abazari, Kayode Adesina Adegoke, Nobanathi Wendy Maxakato, Olugbenga Solomon Bello, Muhammad Tahir, Sehar Tasleem, Soheila Sanati, Alexander M. Kirillov, and Yingtang Zhou. "Metal-organic frameworks and derived materials as photocatalysts for water splitting and carbon dioxide reduction." *Coordination Chemistry Reviews* 469 (2022): 214664.

- Tahir, Muhammad, Azmat Ali Khan, Sehar Tasleem, Rehan Mansoor, Areen Sherryana, and Beenish Tahir. "Recent advances in titanium carbide MXene-based nanotextures with influential effect of synthesis parameters for solar CO<sub>2</sub> reduction and H<sub>2</sub> production: A critical review." *Journal of Energy Chemistry* (2022).
- Sehar Tasleem, Muhammad Tahir, and Zaki Yamani Zakaria. "Z-scheme Ag-NPs-embedded LaCoO<sub>3</sub> dispersed pCN heterojunction with higher kinetic rate for stimulating photocatalytic solar H<sub>2</sub> production." *Energy Conversion and Management* (2022): 115787.
- Tahir, Muhammad, Areen Sherryana, Rehan Mansoor, Azmat Ali Khan, Sehar Tasleem, and Beenish Tahir. "Titanium Carbide MXene Nanostructures as Catalysts and Cocatalysts for Photocatalytic Fuel Production: A Review." *ACS Applied Nano Materials* 5, no. 1 (2022): 18-54.
- Sehar Tasleem, and Muhammad Tahir. "Investigating the performance of liquid and gas phase photoreactors for dynamic H<sub>2</sub> production over bimetallic TiO<sub>2</sub> and Ni<sub>2</sub>P dispersed MAX Ti<sub>3</sub>AlC<sub>2</sub> monolithic nanocomposite under UV and visible light." *Journal of Environmental Chemical Engineering* 9, no. 4 (2021): 105351.
- Sehar Tasleem, and Muhammad Tahir. "Synergistically improved charge separation in bimetallic Co-La modified 3D g-C<sub>3</sub>N<sub>4</sub> for enhanced photocatalytic H<sub>2</sub> production under UV-visible light." *International Journal of Hydrogen Energy* 46, no. 40 (2021): 20995-21012.
- Sehar Tasleem, and Muhammad Tahir. "Constructing La<sub>x</sub>Co<sub>y</sub>O<sub>3</sub> Perovskite Anchored 3D g-C<sub>3</sub>N<sub>4</sub> Hollow Tube Heterojunction with Proficient Interface Charge Separation for Stimulating Photocatalytic H<sub>2</sub> Production." *Energy & Fuels* 35, no. 11 (2021): 9727-9746.
- Sehar Tasleem, Muhammad Tahir, and Wesam Alsayeh Khalifa. "Current trends in structural development and modification strategies for metal-organic frameworks (MOFs) towards photocatalytic H<sub>2</sub> production: a review." *International Journal of Hydrogen Energy* 46, no. 27 (2021): 14148-14189.
- Madi, Mohamed, Muhammad Tahir, and Sehar Tasleem. "Advances in structural modification of perovskite semiconductors for visible light assisted photocatalytic CO<sub>2</sub> reduction to renewable solar fuels: A review." *Journal of Environmental Chemical Engineering* 9, no. 5 (2021): 106264.
- Tahir, Muhammad, Azmat Ali Khan, Sehar Tasleem, Rehan Mansoor, and Wei Keen Fan. "Titanium carbide (Ti<sub>3</sub>C<sub>2</sub>) MXene as a promising co-catalyst for photocatalytic CO<sub>2</sub> conversion to energy-efficient fuels: a review." *Energy & Fuels* 35, no. 13 (2021): 10374-10404.
- Irshad, Muhammad Atif, Rab Nawaz, Muhammad Zia ur Rehman, Muhammad Adrees, Muhammad Rizwan, Shafaqat Ali, Sajjad Ahmad, and Sehar Tasleem. "Synthesis, characterization and advanced sustainable applications of titanium dioxide nanoparticles: A review." *Ecotoxicology and environmental safety* 212 (2021): 111978.
- Sehar Tasleem, Muhammad Tahir, and Zaki Yamani Zakaria. "Fabricating structured 2D Ti<sub>3</sub>AlC<sub>2</sub> MAX dispersed TiO<sub>2</sub> heterostructure with Ni<sub>2</sub>P as a cocatalyst for efficient photocatalytic H<sub>2</sub> production." *Journal of Alloys and Compounds* 842 (2020): 155752.

- Sehar Tasleem, and Muhammad Tahir. "Recent progress in structural development and band engineering of perovskites materials for photocatalytic solar hydrogen production: A review." *International Journal of Hydrogen Energy* 45, no. 38 (2020): 19078-19111.
- Sehar Tasleem, and Muhammad Tahir. "Current trends in strategies to improve photocatalytic performance of perovskites materials for solar to hydrogen production." *Renewable and Sustainable Energy Reviews* 132 (2020): 110073.
- Tahir, Muhammad, Sehar Tasleem, and Beenish Tahir. "Recent development in band engineering of binary semiconductor materials for solar driven photocatalytic hydrogen production." *International Journal of Hydrogen Energy* 45, no. 32 (2020): 15985-16038.
- Umer, Muhammad, Muhammad Tahir, Muhammad Usman Azam, Sehar Tasleem, Tariq Abbas, and Ayyaz Muhammad. "Synergistic effects of single/multi-walls carbon nanotubes in TiO<sub>2</sub> and process optimization using response surface methodology for photocatalytic H<sub>2</sub> evolution." *Journal of Environmental Chemical Engineering* 7, no. 5 (2019): 103361.

### Book Chapter

- Muhammad Tahir, Sehar Tasleem, *Advanced materials for hydrogen production and storage: A new era of clean energy*, *Advanced Materials for a Sustainable Environment: Development Strategies and Applications*, Taylor & Francis

### Filed Patent

- A MAX-Phase Nanocomposite Catalyst and a Method or Producing and Using Thereof for the Production of Clean Fuel, National Patent Filing (**PI2021002431**), Malaysia.

### Academic Awards

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- Higher Education Commission, Pakistan partial funding scholarship for PhD, 2021.
- Alumni award, PhD, Universiti Teknologi Malaysia, 2022.
- Publication award, PhD, Universiti Teknologi Malaysia, 2022.
- Best Post-graduate Student Award, Universiti Teknologi Malaysia, 2022.

### Research Awards

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- 1<sup>st</sup> place in 21<sup>st</sup> Industrial Art & Technology Exhibition at State level, Universiti Teknologi Malaysia, September 2019, Green 2D MXene photocatalyst for CO<sub>2</sub> Conversion to Solar Methanol, (Gold Award).

- 2<sup>nd</sup> place in 21<sup>st</sup> Industrial Art & Technology Exhibition at State level, Universiti Teknologi Malaysia, September 2019 for Hybrid Solar System for Water Treatment and Hydrogen Production, (Silver Award).
- Silver award in Pecipita' 19 under Higher education Malaysia, September 2019 for Conversion of Carbon dioxide to Sustainable Green Fuels using Photoreactor Solar Systems.
- 2<sup>nd</sup> place in 22<sup>nd</sup> Industrial Art & Technology Exhibition at State level, Universiti Teknologi Malaysia, December 2020 for Smart 2D Nano-catalysts for Carbon Dioxide Conversion to Green Methanol, (Silver Award).
- 3<sup>rd</sup> place in 22<sup>nd</sup> Industrial Art & Technology Exhibition at State level, Universiti Teknologi Malaysia, December 2020 for Perovskite Based Hybrid Scheme for Hydrogen Production and Wastewater Degradation, (Bronze Award).
- Bronze Award in 22<sup>nd</sup> Industrial Art & Technology Exhibition at State level, Universiti Teknologi Malaysia, December 2020 for Hybrid Nano-clay Photoreactor Solar System for CO<sub>2</sub> Conversion to Methane.
- Silver Award in 23<sup>rd</sup> Industrial Art & Technology Exhibition at State level, Universiti Teknologi Malaysia, March 2022 for Novel 2D MAX Hybrid Photocatalytic H<sub>2</sub> Production and Wastewater Degradation.
- Synthesis and Mechanistic Study of Biotemplated Layered Double Hydroxide (LDH) Heterostructures for Stimulating Photocatalytic CO<sub>2</sub> Dry Reforming to Solar Fuels- Universiti Teknologi, Malaysia

## Internship

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3/2015 – 6/2015

### **Environmental Impact Assessment (EIA)**

Environmental Protection Agency, Lahore, Pakistan

## Project

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- Synthesis and Mechanistic Study of Biotemplated Layered Double Hydroxide (LDH) Heterostructures for Stimulating Photocatalytic CO<sub>2</sub> Dry Reforming to Solar Fuels- Universiti Teknologi, Malaysia

## Research Experience

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Research assistant, CREG group 06/2020 - 10/2020

Universiti Teknologi Malaysia.

## Skills

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- Knowledge of research methodologies
- Softwares- Origin, Polymath, Gatan, Arc GIS
- Computing skills- Microsoft office, Excel
- Communication skills

## Linguistic Proficiency

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Urdu- Fluent

English- Fluent

## References

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Dr Muhammad Tahir (Assistant professor),  
Chemical and Petroleum Engineering Department,  
Faculty of Chemical Engineering, UAEU, UAE.  
Email- muhammad.tahir@uaeu.ac.ae

Dr. Zaki Yamani (Senior lecturer),  
Faculty of Chemical and Energy Engineering,  
UTM, Malaysia.  
Email- zakiyamani@utm.my

Dr Nusrat Ehsan (Lecturer),  
Department of Environmental Science,  
University of Lahore, Pakistan.  
Email. nusrat.ehsan@envs.uol.edu.pk