

Imama Abbas

Research Scholar

Expertise in renewable energy, seeking roles to drive sustainable solutions and tackle national energy challenges.

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Education

USPCAS-E National University of Sciences and Technology - Pakistan Master of Thermal Energy Engineering (Chemical Engineering) - https://uspcase.nust.edu.pk/	2022 - 2024
University of Wah, Wah Cantt - Pakistan BS (HONS) Physics - https://uow.edu.pk/	2016 - 2020

Work Experience

Photocatalysis Expertise - Uspace Nust H12 https://uspcase.nust.edu.pk/ Strong foundation in photocatalytic principles, including material synthesis, band engineering, and light-harvesting mechanisms for enhanced quantum efficiency.	Sep 2022 - Sep 2024
Hydrogen Production Focus - Uspace Nust H12 https://uspcase.nust.edu.pk/ Specialized knowledge in developing photocatalytic systems for water splitting to produce clean hydrogen fuel, optimizing catalyst stability and turnover frequency.	Sep 2022 - Sep 2024
Wastewater Treatment Application - Uspace Nust H12 https://uspcase.nust.edu.pk/ Proficient in applying photocatalysis for dye degradation (wastewater treatment), achieving efficient mineralization of organic pollutants into non-toxic byproducts.	Sep 2022 - Sep 2024
Integrated Sustainability - Uspace Nust H12 https://uspcase.nust.edu.pk/ Ability to bridge both energy generation and environmental remediation (dye degradation) using advanced, sustainable photocatalytic technologies.	Sep 2022 - Sep 2024
Beaconhouse School System - Attock Science Instructor - https://www.beaconhouse.net/ - Inquiry-driven science: Hands-on learning and questioning. - Scientific literacy: Understanding and applying science. - Real-world relevance: Connecting science to daily life.	July 2020 - Feb 2021
Passion to Education - Attock Academy Instructor - Effective communication, understanding different learning styles. - Improved student test scores, helped students reach their goals. 2 years of experience as an academy tutor.	June 2018 - April 2019

Technical Skills

Experienced with lab equipment: Photocatalytic Reactor | Fixed Bed Thermal Reactor | Gas Chromatography
Proficient in: TGA | DTA | XRD | XRF | FTIR | BET Theory | SEM | TEM | EDS | GC-MS | UV-Vis Spectroscopy
PL Spectroscopy | RAMAN Techniques

Software Skills

MS Office | Endnote | OriginPro | Mendeley | JADE | Image j | TSoI | MATLAB

Projects

Research Paper Published - *International Journal (Diamond and Related Materials)*

Bi-functional V₂O₅ Nanorods Loaded Biomass-derived Activated Carbon Nanocomposites for Enhanced Photocatalytic Dye Degradation and Hydrogen Production

<https://doi.org/10.1016/j.diamond.2025.112104>

Photocatalytic Hydrogen Production

Results-driven expert in photocatalytic processes, specializing in hydrogen production, advancing sustainable energy through innovative R&D.

Photocatalytic Dye Degradation (Wastewater Treatment)

Specialist in photocatalytic dye degradation, optimizing pollutant removal through experimental design and analysis.

Electrocatalysis (Water splitting)

Professional in electrocatalytic water splitting, developing high-performance catalysts and optimizing electrolysis systems.

Certifications

Certificate of Appreciation as “Organizer” in Symposium

2023

Youth Empowerment in Energy Transition at NUST

Certificate of Appreciation

2022

2nd International Conference on Water, Energy & Environment for Sustainability