



Dr. Laila Noureen (PhD)

Current Status: Postdoc Researcher (PKU)

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Research Interest

- Nanostructured materials
- 2D graphene oxide composites
- Solar energy conversion
- Photothermal membranes
- Water splitting
- Carbon based materials.
- Hybrid materials and their optical/photothermal studies

Education

DOCTOR OF PHILOSOPHY (PH. D.) | SEPTEMBER 2017 – JUNE 2021

- **Major:** |Inorganic Chemistry |
- **Research Projects:**
- BiVO₄ and reduced graphene oxide based composite hydrogels fabrication for water decontamination via steam generation and photodegradation of the organic pollutants. A simple hydrothermal method was followed for the fabrication of composites hydrogels.
- Development of multifunctional Ag₃PO₄-rGO nanocomposites coated textiles as an all-in-one system for water decontamination via water evaporation, photocatalysis, and disinfection of the organic pollutants present in water. Multifunctional coated textiles were developed by drop-casting of the Ag₃PO₄-rGO nanocomposites on cotton fabric.
- Designing of three-layered solar steam generation device for solar steam sterilization at ambient conditions.
- **Ph.D. thesis title:**

Photothermal membranes and integrated devices for solar-driven steam generation and clean water production

MASTER OF PHILOSOPHY (M. PHIL) | SEPTEMBER 2013 – JUNE 2015

- **Major:** | Inorganic/Analytical Chemistry |
- **Masters' thesis title:**
Thin Film deposition for electrochemical and photoelectrochemical studies.

Research Direction

Current research project: Synthesis of graphene oxide-based composites for photocatalytic water splitting and pollutant degradation.

- Synthesis and characterization of nanostructured materials
- Synthesis of graphene oxide (GO) and Metal Oxides (MOs)
- Fabrication of graphene oxide-based nanocomposites for hydrogen generation, oxygen evaluation and pollutant degradation.

Photothermal membranes, solar-energy conversion, wastewater treatment, solar steam sterilization

- Synthesis of 2D nanoparticles, graphene oxide (GO) and Metal Oxides (MOs)
- Fabrication of rGO based photothermal membranes for solar driven applications e.g., solar-thermal conversion, photocatalysis, steam sterilization and disinfection.

Metal Oxide based thin films fabrication for electrochemical studies.

- Synthesis of metal complexes and metal oxides
- Thin Film fabrication for electrochemical studies (CV) and photoelectrochemical studies (PEC).

Teaching Experience

- **Lecturer** |New Muslim Degree College Charsadda Pakistan| |Aug 2015– Dec 2015|
- **Lecturer** | Army Public Schools and Colleges Islamabad Pakistan| |Jan 2016–Sep 2016|
- **Reviewer** |Jan 2022- Present | | Chemcomm
- **Reviewer** |Jan 2021- Present | | Desalination and Water Treatment

Professional Skills & Abilities

- Microsoft Office and all its application
- Endnote software and its applications
- Origin software and all its applications
- Photoshop
- Fluent in English
- Basic communication in Chinese
- Strong interpersonal & communication skills
- Ability to work independently and collaboratively in a team.
- Excellent organizational skills

- Poised under pressure

Awards & Achievements

1. Chinese Gov't Scholarship | 2017-2021|
2. Honorary International Graduate Award |2021|
3. Poster Presentation THU-HUST Joint PhD Student Forum | April 2020|
4. Poster Presentation SKKU-HUST Annual Academic International Conference |March 2021|

Publications

1. **Laila Noureen***, et. al. Bifunctional photothermal membrane for high-temperature interfacial solar steam generation and off-grid sterilization. *Chem. Eng. J.* **2023**, 473, 145122 (DOI:10.1016/j.cej.2023.145122).
2. **Laila Noureen**, et. al. Recent advances in structural engineering of photocatalysts for environmental remediation, *Env. Res.* **2023**, (219), 115084, (DOI: 10.1016/j.envres.2022.115084).
3. **Laila Noureen**, et al. Multifunctional Ag₃PO₄-rGO nanocomposites coated textiles for clean water production by solar-driven evaporation, photocatalysis, and disinfection. *Appl. Mater. Interfaces*, **2021**, 12(5), 6343-6350, (DOI:10.1021/acsami.9b16043).
4. **Laila Noureen**, et al. BiVO₄ and reduced graphene oxide composite hydrogels for solar-driven steam generation and decontamination of polluted water. *Sol. Energy Mater. Sol. Cells*, **2021**, 222, 110952, (DOI: 10.1016/j.solmat.2020.110952).
5. **Laila Noureen**, et. al. Multifunctional aerogels for solar driven steam generation and seawater desalination. **2023**, (Under review *Nano Today*).
6. Nouredine El Messaoudi, Zeynep Cigeroglu, Zeynep Mine Senol, Maryam Elhajam, **Laila Noureen***; A comparative review of the adsorption and photocatalytic degradation of tetracycline in aquatic environment by g-C₃N₄-based materials, *J. Water Process. Eng.* **2023**, 55, 104150, (DOI:10.1016/j.jwpe.2023.104150).
7. Co-author, Advances of 2D-Enabled Photothermal Materials in Hybrid Solar-Driven Interfacial Evaporation Systems toward Water-Fuel-Energy Crisis, *Adv. Funct. Mater.* **2023**, 2304936, (DOI:10.1002/adfm.202304936).
8. Shahid Zaman, Abdoukader Ibro Douka, **Laila Noureen**, Xinlong Tian, Zeeshan Ajmal, Haijiang Wang, Oxygen reduction performance measurements: Discrepancies against benchmarks, *Batt. Energy*, **2023**, 2:20220060, (DOI:10.1002/bte2.20220060).
9. Co-Author, Nanocomposite-Enhanced Efficient Evaporation System for Solar-Driven Seawater Desalination—An Optimized Design for Clean Water Production, *Nanomaterials*, **2022**, 12(19), 3296, (DOI: 10.3390/nano12193296).

10. Ridha Djellabi, **Laila Noureen**, Van Duong Dao, Daniela Meroni, Ermelinda Falletta, Dionysios D. Dionysiou, Claudia L. Bianchi, Recent advances and challenges of emerging solar-driven steam and the contribution of photocatalytic effect, **Chem. Eng. J.** **2022**, 431, 134024, (DOI:10.1016/j.cej.2021.134024).
11. Co-Author, Study and Application Status of Manganese Oxide-based Materials for the Efficient Removal of Arsenic: A Review, **J. Water Process. Eng.** **2023** (Under review).
12. Co-Author, Nickel containing polyoxometalates incorporated in two different metal-organic frameworks for hydrogen evolution reaction, **Environ. Chem. Eng.** **2021**, 106004, (DOI: 10.1016/j.jece.2021.106004).
13. Co-Author, Biodegradable Polymer Microparticles with Tunable Shapes and Surface Textures for Enhancement of Dendritic Cell Maturation, **Appl. Mater. Interfaces**, **2019**, 11(45), 42734-42743, (DOI:10.1021/acsami.9b14286).
14. Co-Author, Robust and efficient electrocatalyst for water oxidation based on 4,4'-oxybis(benzoate)-linked copper(II) hydroxide layers, **Ino. Chim. Act.** **2019**, 497, 119080, (DOI: 10.1016/j.ica.2019.119080).
15. Co-Author, Encapsulation of Keggin-type manganese-polyoxomolybdates in MIL-100 (Fe) for efficient reduction of p-nitrophenol, **J. Solid State Chem.** **2018**, 268, 75-82, (DOI: 10.1016/j.jssc.2018.08.024).

Book Chapters

1. Green synthesis of nanoparticles for remediation of organic pollutants in wastewater by adsorption, **Elsevier**, **2023**.
2. Co-Author, Emerging MXenes-derived Photocatalysts for Harvesting Solar Energy into Chemical Energy, **CRC Press**, **2023**.

References

1. **Prof. Wang Xinwei** (Postdoc Supervisor)
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