

SUMMAYYA BATOOL

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EDUCATION

MPhil Inorganic/Analytical Chemistry

Department of Chemistry, Quaid-i-Azam University Islamabad [09/09/2022 – 06/09/2024] CGPA: 3.5/4.0

Specialization: Inorganic/Analytical Chemistry

BS (Hons.) Chemistry

Department of Chemistry, Quaid-i-Azam University, Islamabad [04/10/2018 – 05/10/2022] CGPA: 3.4/4.0

Specialization: Inorganic/Analytical Chemistry

RESEARCH INTERESTS

~Electrochemistry ~Photocatalysis ~Green chemistry ~Energy storage ~Water splitting ~Nanomaterials
~Metal organic frameworks ~Covalent organic frameworks ~Material Chemistry

WORK EXPERIENCE

MPhil Research [06/2022 – 09/2024]

Thesis: Photocatalysis of MOF-MXene ($Ti_3C_2T_x$) composite for environmental applications

(degradation of organic pollutants and heavy metal reduction)

Link to MPhil thesis

https://drive.google.com/file/d/11nR7NTwok_501sf3aZjqPD2bWIoAyLq/view?usp=drive_link

Collaborative Projects:

- A MOF derived bifunctional electrocatalyst for overall water splitting
 - **Expertise:**
 - UV-VIS spectroscopy, Cyclic voltammetry, Linear sweep Voltammetry, Electrochemical Impedance Spectroscopy
 - Fabrication of Nanocomposites, MOFs, and MOFs derived materials

Undergraduate Research

- Performed labs on the preparation of different coordination complexes.
- Learned various characterization techniques specifically UV-VIS Spectroscopy, IR spectroscopy, NMR spectroscopy, X-Ray Crystallography.

Laboratory Assistant [09/2021 – 02/2022]

- Took lab "Experiments in Analytical Chemistry-II" of BS Hons. at Quaid-i-Azam University Islamabad, conducted experiments on redox titrations, potentiometric titrations, acid-base titrations, precipitation titrations, and conductometric titrations.

Freelance Venue Staff as Invigilator at British Council [04/2024 – 07/2024]

- Professionally worked as an invigilator for various exams.

PUBLICATIONS

- Geopolymers as sustainable alternates for portland cement in constructive concrete: systematic review (Alexandria Journal of Science and Technology, 2024, Volume 2) [DOI:10.21608/ajst.2024.290876.1032](https://doi.org/10.21608/ajst.2024.290876.1032)
- Exploring metal oxides nanostructures for sustainable hydrogen evolution via indoor electrocatalytic water splitting, (Scholars journal of engineering and technology, accepted manuscript)
- Book chapter "Polyhydroxyalkanoates: The future of sustainable denitrification for wastewater treatment" in the book Polyhydroxyalkanoates: sustainable production and biotechnological applications II (Springer: accepted manuscript)

PROFESSIONAL TRAINING

Mckinsey Academy Fully Funded Forward Program Learner [24/06/2023 – 24/11/2024]

Mckinsey & Company.

International Technical Training Course on “Vaccum Applications in Applied Surface Science”

[24/10/2023 – 26/10/2023]

By COMSTECH and Pakistan Vacuum Society in collaboration with IUUVISTA at COMSTECH, Secretariat, Islamabad.

Course on Understanding the Research Methods

University of London and SOAS University of London and offered through Coursera.

International Workshop on "Chemicals Safety and Security in Academic and Industrial Laboratories"

[24/08/2021 – 25/08/2021]

COMSTECH in collaboration with ICCBS

Science Talent Farming Scheme Summer Camp [02/03/2020 – 07/03/2020]

Training sessions on STEM education and Inquiry Based Science Education.

CONFERENCES AND SEMINARS

Symposium on Energy Conversion and Storage Technologies | PINSTECH, Islamabad | [22/10/2024 – 24/10/2024]

International Conference on Research Advancements in Chemistry (ICRA-C) (Chemistry for Green Future) | NUST, Islamabad | [21/08/2024 – 23/08/2024]

21st International, 1st Inter-Islamic and 3rd National Chemistry Conference CHEMCON'23 on “Chemical Sciences: Technology, Innovation and Sustainability” | QAU, Islamabad | [23/10/2023 – 25/10/2023]

3rd Multidisciplinary International Research Conference | IM Group of researchers, AWKUM, Mardan | [18/03/2023 – 18/03/2023]

Women in Science and Engineering (WISE) | KAUST, Thuwal, Saudi Arabia | [07/02/2023]

International Conference on Research Advancements in Chemistry (ICRA-C) | NUST | [24/08/2022 – 25/08/2022]

HONOURS AND AWARDS

Three Best Speaker Awards (2024) Rawalpindi Club of Toastmasters International

10th position in Inter-departmental running competition (Girls) (2023) Quaid-i-Azam University Islamabad

Active Volunteer Award (2022) Directorate of Student Affairs, Quaid-i-Azam University Islamabad.

Scholarship (2015-2017) Pakistan Science Foundation under Science Talent Farming Scheme

2nd Position in Space Fiction Essay Writing Competition SUPARCO & IST

Academic Scholarship in Matric and Intermediate FBISE

TECHNICAL SKILLS

Software: Endnote / Origin / ChemDraw

Instruments: UV-Visible, FTIR, Cyclic Voltammetry, Photoluminiscence

Data Analysis: XRD, FTIR, SEM

LEADERSHIP AND MANAGERIAL EXPERIENCE

Vice President (10/2022-10/2023)

Worked as a vice president at Rang-e-Hayat Society of Department of Chemistry, Quaid-i-Azam University, Islamabad.

Information Secretary (9/2021-7/2022)

Worked as information secretary of Rang-e-Hayat Society of Department of Chemistry, Quaid-i-Azam University, Islamabad

Executive team member [2022 – current]

Working as executive team member at **IWISTER, Pakistan** to promote STEM education in Pakistan

Media Team Member [2021 – 2022]

Worked as a media team member and fundraiser at **E HANDS (NGO)** | Islamabad, Pakistan

REFERENCES

1. **Prof. Dr. Amir Waseem**

Associate Secretary, The Chemical Society of Pakistan.

Member: International Science Committee (ISBC)

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2. **Dr. Ali Haider**

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