

FATEMA TUZ ZUHORA

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ACADEMIC CREDENTIALS

- ❖ **Ph.D. Student** **Fall 2025–Present**
Department of Chemistry, University of Houston
Research Area: Computational Materials
Advisor: Dr. Yeongsu Cho
- ❖ **MS (Physical Chemistry)** **July 2022- September 2024**
Department of Chemistry, Comilla University, Bangladesh
CGPA: 3.73 out of 4.00 (Top 1%)
Award date: 10/11/2024
Relevant Coursework: Advanced Computational Chemistry, Instrumental Methods of Analysis, Advanced Spectroscopy and Chromatography, Photocatalytic Materials, and Advanced Electrochemistry.
- ❖ **B.Sc. (Honors) in Chemistry** **February 2016 - November 2021**
Department of Chemistry, Comilla University, Bangladesh
CGPA: 3.61 out of 4.00 (Top 10%)
Award date: 27/06/2022
Relevant Coursework: Chemical Thermodynamics, Solution Chemistry, Bio-Organic Chemistry, Chemical Kinetics and Catalysis, Analytical Chemistry I & II, Coordination Chemistry, Environmental Chemistry, Electrochemistry, Polymer Chemistry, Colloid and Surface Chemistry, Solid State & Chemical Crystallography, Quantum Chemistry and Statistical Mechanics, Aromatic and Heterocyclic Compounds and Organometallic Chemistry.

RESEARCH EXPERIENCES

- ❖ **Research Assistant** **September 2022 - August 2023**
Project Title: *Fabrication and Characterization of Halide Doped Cu₂O Thin Films for Photovoltaic Device Application by Successive Ionic Layer Adsorption and Reaction.*
Project funded by: University Grants Commission of Bangladesh (UGC), Dhaka, Bangladesh
[Physical Chemistry Laboratory, Department of Chemistry, Comilla University](#), Cumilla-3500, Bangladesh.
Project Investigator: Dr. Md Abdul Majed Patwary
- Duties and Responsibilities:**
- Used the SILAR technique to synthesize NaF-doped Cu₂O nanowires, optimizing their photovoltaic properties.
 - Conducted advanced optical and structural characterizations using UV-Vis spectrometer, XRD, EDS, FESEM and CV to evaluate film quality.
 - Analyzed and interpreted experimental data to draw meaningful conclusions.
 - Maintained well-organized experimental records and contributed to timely progress reviews and final project reports.
 - Assisted four undergraduate research fellows in fabricating various thin film materials (CuFeO₂, Cu-doped Fe₂O₃, Zn-doped NiO) for solar cell applications.

❖ **Postgraduate Research Fellow** **July 2023-June 2024**

Project Title: Facile Synthesis of ZnO Nanoflakes in Presence of NH₄Cl Electrolyte by Successive Ionic Layer Adsorption and Reaction Method.

Project funded by: National Science and Technology (NST) fellowship, Ministry of Science and Technology, Bangladesh.

[Physical Chemistry Laboratory, Department of Chemistry, Comilla University](#), Cumilla-3500, Bangladesh.

Supervisor: Dr. Md Abdul Majed Patwary

❖ **Undergraduate Research Fellow** **May 2021- November 2021**

Project Title: Fabrication of Nanostructured ZnO Thin Films with Controlled Surface Properties by Modified Successive Ionic Layer Adsorption and Reaction Method for Photovoltaic Device Application.

Project funded by: Ministry of Science & Technology (MOST), Dhaka, Bangladesh [Physical Chemistry Laboratory, Department of Chemistry, Comilla University](#), Cumilla3500, Bangladesh.

Project Investigator: Dr. Md Abdul Majed Patwary

ONGOING TRAINING

- Trainee at Red Green Research Centre (RGRC), Bangladesh **December 2024- present**
Specialized Training in Proteomics, Metabolomics, and Lipidomics using Mass Spectrometry.
Mentored by: Professor Mohammad A. Halim, Kennesaw State University, USA

TEACHING AND RELEVANT WORK EXPERIENCE

Lecturer, O and A Level Chemistry (Full-time) **August 2024-July2025**

Organization: Bangladesh International Tutorial Limited (BITL), Uttara, Dhaka, Bangladesh

Duties and Responsibilities:

- Delivering engaging lectures and conducting classes for O and A Level Chemistry students, following the Edexcel and Cambridge International Examinations curriculum.
- Developing comprehensive lesson plans incorporating theoretical concepts, practical lab sessions, and exam preparation strategies.
- Evaluating student performance through assessments, preparing exam questions, grade assignments, and providing constructive feedback to support improvement.
- Collaborating with academic staff to enhance curriculum delivery and monitor student progress.

CONFERENCE AND PRESENTATION

- **Fatema Tuz Zuhora**, Md Abdul Majed Patwary, "Optimization of ZnO Thin Films with Ammonium Electrolytes: Morphological and Optical Modifications for Photocatalytic and Optoelectronic Uses." Abstract Book of First International Symposium on Materials, Energy and Environment (**ISMEE 24**). Nanotechnology, Renewable Energy and Catalysis

AWARDS AND FELLOWSHIPS

- 2022-2023 | National Science & Technology (NST) Fellowship
- 2006 | Bangladesh Government Scholarship – Awarded for 5th Standard.
- 2012 | Bangladesh Government Scholarship – Awarded for Secondary School Certificate (SSC).
- 2021 | Ministry of Science and Technology (MOST), Bangladesh Grant – For undergraduate research project.
- 2024 | Speaker Award – First International Symposium on Materials, Energy, and Environment (ISMEE 24), Nanotechnology, Renewable Energy, and Catalysis Research Laboratory (NRCRL), Department of Chemistry, University of Chittagong.

LABORATORY EXPERTISE

- Proficient in operating advanced instruments, including UV-Vis Spectrometer, FTIR, AAS, FESEM, Polarizing Microscope, and XRD.
- Skilled in electrochemical analysis using Cyclic Voltammetry and EIS with the CorrTest Workstation (Ver. 5.4).
- Experienced with thermal systems such as Muffle Furnace and Vacuum Oven.
- Hands-on experience with equipment, including Spin Coater, Sonicator, Slurry Mixer, Orbital Shaker, Autoclave, Centrifuge and viscosity and pH analyzers.

TECHNICAL SKILLS

- Data Analysis Software: SigmaPlot, OriginPro2018, N-Graph, LCMS (ThermoFLEXNet), UV Probe, IR Solution.
- Model Drawing Software: ChemDraw 12.0, Gaussian 09 o Simulation and Visualization Software: BIOVIA Material Studio, VESTA.
- Applications and Office Tools: Microsoft Office Suite (Word, PowerPoint, Excel).
- **References and Documentation Management:**
 - ✓ Proficient in EndNote and Mendeley for reference and article library management.
 - ✓ Skilled in documentation and reporting.