

MD. RIFAT HOSSAIN

Scientific Officer, BCSIR

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📍 Dr. Qudrat-i-Khuda Road, Dhanmondi, Dhaka-1205, Bangladesh



Summary

- Working as a scientific officer at the Hydrogen Energy Laboratory, BCSIR Laboratories Chattogram, Bangladesh Council of Scientific and Industrial Research (BCSIR)
- Extensive user experience in FESEM, AAS, Raman spectrometer, NMR, Preparative HPLC, Rotary evaporator, Spin Coater, Glove Box
- Dedicated team member to achieve goals within the deadline. A quick learner and eager to pick up new skills. Excellent analytical abilities to recognize issues and put answers in place

Education

Master of Science Chemistry
[University of Dhaka, Bangladesh](#)

Year of Passing: 2015

Bachelor of Science in Chemistry
[University of Dhaka, Bangladesh](#)

Year of Passing: 2014

Experience

BCSIR Research Work

- Surface Modification of Zinc Oxide Quantum Dots to Enhance the Performance and Stability of Perovskite Solar Cells (Ongoing R&D)
- Synthesis of Graphene Nanorod as Electron Transport Layer (ETL) for Perovskite Solar Cells (PSCs) (Ongoing R&D)
- Regular engagement and teamwork with other lab members and students

Master of Science (Thesis) Research Work

- Equilibrium and Kinetic study of adsorption of aqueous ethyl violet by Banana Trunk powder

Skill Summary

❖ Nanomaterials

❖ Device Fabrication

❖ Bio-gas

- Tools: SigmaPlot, Origin, ImageJ, Microsoft Word, Excel, PowerPoint, ChemDraw
- Language: Bangla (Native language), English (Fluent working proficiency)
- Soft Skills: Event Management, Leadership, Communication

Instruments: XRD, FTIR, UV-Vis Spectrophotometer, AAS, Preparative HPLC, Spin Coating, Glove box, Raman spectrometer

EXPERIENCE

Scientific Officer, BCSIR

2021- present

Dhaka, Bangladesh

- Synthesizing various energy material for the application in solar cells
- Kinetic and equilibrium study of adsorption
- Application of NPs in plant Growth
- Effects of Silver Nanoparticles on Seed Germination and Growth Performance of Chickpea (*Cicer arietinum*)
- Extraction of bioactive compounds from plant extracts

TRAINING

- Training on operation and maintenance of “Field Emission Scanning Electron Microscope (FESEM)”
[BTRI, BCSIR Dhaka, 26-30 May, 2024](#)
- Training on operation and maintenance of “Nuclear Magnetic Resonance (NMR)”
[INARS, BCSIR Dhaka, 16-20 October, 2023](#)
- Training on data analysis and maintenance of “Raman Spectrometer”
[CARE, BCSIR Dhaka, 07-11 May, 2023](#)
- Training on operation and maintenance of “Atomic Absorption Spectrometer (AAS)”
[BCSIR Laboratories Chattogram, 14-18 May, 2022](#)

Conferences

- Attended poster presentation on “Synthesis of graphene oxide from waste Banana Trunk to use as electron transport layer (ETL) in Perovskite solar cells” at the international conference on BCSIR Congress 2023, for the golden jubilee celebration of BCSIR
- Attended oral presentation on “Synthesis of Graphene Oxide from different waste materials by modified Hummers method” at the international conference on BCSIR Congress 2022

Publications

Phase tunable nickel doped Mn₃O₄ nanoparticle synthesis by chemical precipitation: kinetic study on dye degradation 02/2024

[Royal Society of Chemistry / Nanoscale Advances](#)

Jasim Uddin, Rahim Abdur, Md Rifat Hossain, Shahin Aziz, Mohammad Shah Jamal, Md. Aftab Ali Shaikh, Mosharof Hossain

Nanoscale Adv. 6(3), 902-909, (2024)

📄 <https://doi.org/10.1039/D3NA00754E>

Enhancing perovskite solar cell performance: Investigating the impact of post-annealing on the optoelectrical and structural properties of RF-sputtered NiO films via SCAPS-1D device modeling 03/2024

[Solar Energy](#)

Rahim Abdur, Shahariar Choudhury, M.S. Bashar, Md. Rifat Hossain, Md. Saiful Quddus, Umme Sarmeen Akhtar, Md. Aftab Ali Shaikh, Mosharof Hossain, Mohammad Shah Jamal

📄 <https://doi.org/10.1016/j.solener.2024.112443>

References

Dr. Hosne Ara Begum

Professor

Department of Chemistry

Faculty of Science

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Mohammad Shah Jamal, PhD

Principal Scientific Officer

Energy and Material Research Laboratory

Institute of Energy Research and Development (IERD)

Bangladesh Council of Scientific and Industrial Research (BCSIR)

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Dr. Abdur Rahim

Post-doctoral Researcher

Energy and Material Research Laboratory

Institute of Energy Research and Development (IERD)

Bangladesh Council of Scientific and Industrial Research (BCSIR)

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- Training on operation and maintenance of “Preparative HPLC”
[BCSIR Laboratories](#)
[Chattogram, 01-05 May,2022](#)
- Training On Industrial Process Unit Operation & process Control Technique,
[Training Institute for Chemical Industries \(TICI\), Narshingdi, 11/2013- 12/2013](#)

TRAINING COURSE

- 48th Bangladesh Accreditation Board (BAB) Understanding Training Course on ISO/IEC 17025:2017
[BAB, Ministry of Industries](#)
[9-11 July, 2023](#)
- Evening Course on “Public Procurement Management (PPM)”
[NAPD, Dhaka, Bangladesh](#)
[01 October-20 December, 2023](#)

OTHER ACTIVITIES

- Volunteer: BCSIR Congress 2023, 08-10 March, 2024
[Dhaka, Bangladesh](#)
- Volunteer: BCSIR Congress 2022, 01-03 December 2022
[Dhaka, Bangladesh](#)
- Volunteer: BCSIR, Bangladesh- CSIR, India joint symposium, 30-31 May,2023,
[Dhaka, Bangladesh](#)