

# MIAH ABDULLAH SAHRIAR

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[Google Scholar](#) ◊ [LinkedIn](#) ◊ [Personal Website](#)

## EDUCATION

**Bangladesh University of Engineering and Technology**

BSC IN MATERIALS AND METALLURGICAL ENGINEERING

*Dhaka, Bangladesh*

*Mar. 2018–May 2023*

- *CGPA*: 3.52/4.00 ; 3.72/4.00 (Last 4 semesters)
- *Thesis title*: Synthesis and Characterization of MXene-Reinforced ZnO Nanocomposite as Potential Photocatalyst
- *Supervisor*: Prof. Dr. Kazi Md. Shorowordi

## RESERACH INTERESTS

- Semiconductor materials
- Density functional theory
- Molecular dynamics simulation
- Battery and energy storage devices
- Machine learning for materials design
- Materials characterization using deep learning

## PUBLICATIONS

### JOURNAL ARTICLES

- Rodriguez, A. C., Qiu, G., Nirjhar, A. R., Islam, M. T., Laughlin, J., **Sahriar, M. A.**, Nishat, S. S., Mullick, K., Poyraz, A. S., Ahmed, S., Biswas, S. (2023). Unconventional Rapid Synthesis of Layered Manganese Dioxide Nanostructures for Selective Oxidation of 5-Hydroxymethylfurfural to 2,5-Diformylfuran. *ACS Applied Nano Materials*. <https://doi.org/10.1021/acsanm.3c02858>
- **Sahriar, M. A.\***, Abed, M. R. H., Nirjhar, A. R., Dipon, N. A., Tan-Ema, S. J., Somphonsane, R., Buapan, K., Wei, Y., Ramamoorthy, H., Jang, H., Nam, C.-Y., Ahmed, S. (2023). Versatile recognition of graphene layers from optical images under controlled illumination through green channel correlation method. *Nanotechnology*, 34(44), 445704. <https://doi.org/10.1088/1361-6528/ace979>
- Nirjhar, A. R., Tan-Ema, S. J., **Sahriar, M. A.**, Ahsan Dipon, M. N., Hasan Abed, M. R., Gainza, D. B., Koneru, A., Nishat, S. S., Shorowordi, K. M., Ahmed, S. (2023). Vacancy-induced spontaneous H<sub>2</sub> evolution by overall water splitting on *MoTe<sub>2</sub>/Ti<sub>2</sub>CO<sub>2</sub>*: A two-dimensional direct Z scheme heterostructure. *International Journal of Hydrogen Energy*. <https://doi.org/10.1016/j.ijhydene.2023.06.107>

### UNDER REVIEW

- Rumman A.H.\*, **Sahriar, M.A.\***, Islam, M. T.\*, Shorowordi, K. M., Carbonara, J., Broderick, S., Ahmed, S. Data-Driven Design for Enhanced Efficiency of Sn-based Perovskite Solar Cells Using Machine Learning. *APL Machine Learning*.
- Ahsan Dipon, M. N.\*, **Sahriar, M.A.\***, Sarker, S.\*, Rauf, A., Abed, M. R. H., Nirjhar, A. R., Tan-Ema, S. J., Shorowordi, K. M., Ahmed, S. A Comprehensive Study of Mechanically Stacked Tandem Photovoltaic Devices: Materials Selection and Efficiency Analysis using SCAPS. *Energy Conversion and Management*.
- Tan-Ema, S. J.\*, Nirjhar, A. R.\*, **Sahriar, M.A.**, Ahsan Dipon, M. N., Abed, M. R. H., Shorowordi, K. M., Ahmed, S. Halogen-functionalized chromium-based MBenes as potential anode material for alkali-ion batteries with high charge storage capacity. *Journal of Energy Storage*.

### CONFERENCE PRESENTATION

- Comparative Analysis of MXene Synthesis Methods: Evaluating the Effectiveness of HF Etching and Lewis Acid Etching Approaches for High-Quality MXene Materials. *1st IUT International Conference on Mechanical, Materials and Production Engineering (IUT-ICMMPE) 2023*.

## PROGRAMMING AND COMPUTING SKILLS

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Programming Languages	Python, MATLAB, C++
Modeling and Analysis	Machine Learning, Molecular Dynamics with LAMMPS, DFT with VASP
Software	Origin, High Score Plus, MS Office
Operating System	Windows, Ubuntu

## WORK EXPERIENCE

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<b>Ahmedlab Research Group</b>	<i>SUNY Buffalo, USA</i>
Undergraduate Researcher	<i>Feb. 2022-Present</i>

**Project:** Optical characterization of graphene layer count using low-cost methods.

Virtually worked and developed a low-compute methodology to identify number of graphene flake layers on  $SiO_2$  substrate from optical images, which has been published in a journal. Currently refining this methodology and enhancing its adaptability by introducing adjustable thresholds.

## HONORS AND SCHOLARSHIP

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RISE-BUET Research Grant for Undergraduate Thesis	2022
Government Board Scholarship	2009-2017

## TEST SCORES

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| • <b>IELTS Academic Test Result:</b> Overall Band Score 8.0 (S - 7.0, L - 8.5, R - 9.0, W - 6.5) | Oct 2023 |
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## EXTRACURRICULAR ACTIVITIES

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| • <b>Bangladesh Math Olympiad</b><br>Regional champion | 2009-2016 |
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## RELEVANT CERTIFICATON

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- **Course : Material Processing**  
Offered by: Georgia Institute of Technology  
Platform: Coursera  
Certificate ID: [coursera.org/verify/KQTDV6D2WTY](https://coursera.org/verify/KQTDV6D2WTY)
- **Course : Introduction to Programming with MATLAB**  
Offered by: Vanderbilt University  
Platform: Coursera  
Certificate ID: [coursera.org/verify/V4LM84J32GNL](https://coursera.org/verify/V4LM84J32GNL)

## REFERENCES

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### Dr. Saquib Ahmed

Assistant Professor  
Department of Engineering Technology  
Founder & Director, Center for Integrated Studies in  
Nanoscience and Nanotechnology  
SUNY Buffalo  
New York 14222, USA  
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### Dr. Kazi Md. Shorowordi

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