Department of Materials Science and Engineering
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**Md Mehidi Hasan**
Lecturer
**Research Area**Additive Manufacturing First-principle Method Solar energy Nanoparticles

## Biography

## Education

**M.Sc Engg.**
Bangladesh University of Engineering & Technology,Bangladesh(Ongoing)
**B. Sc Engg.**
Khulna University of Engineering & Technology,Bangladesh(2022)Group: Department of Materials Science and,Merit Position: 3rd,Achievement:Dean's Award for consecutive 4 years, Technical scholarship from KUET
**A Level**
Academia,Bangladesh(2016)Achievement:Academia Excellence Award
**O Level**
Shahan International School,Bangladesh(2014)Achievement:Edexcel High Achiever's Award, The Daily Star Award

## Research Interest

**Additive Manufacturing**
3D printing

3D printing of Negative stiffness honeycomb structure along with comparison with ABAQUS.

Studying the effect of time in the layer to layer adhesion in 3D printing

**First-principle Method**
Density Functional Theory

Finding the opto-electronic properties of various perovskite materials under normal conditions and hydrostatic pressure

**Solar energy**
Perovskite Solar cell, Tandem Solar cell

Development of a hybrid solar cell using organic and inorganic perovskite (Theoretical study)

Study of tandem solar cell along with its optimization for better performances.

Optimization of various perovskite solar cells for better performances.

**Nanoparticles**
Synthesis of codoped CuO nanoparticles

Synthesis of codoped CuO nanoparticles for photocatalytic activity and antibacterial activity

## Publication

**Books**

**Journals**

4. F. -Zahra, M. M. Islam, M. M. Hasan, M. R. Islamand S. Ahmad, "DFT insights into the pressure-induced ultraviolet to visible band gap engineering of TlMgF3 cubic halide perovskites for optoelectronic applications," ***Journal of Physics and Chemistry of Solids*** , Elsevier BV, DOI:https://doi.org/10.1016/j.jpcs.2024.112037, 2024 .

3. M. T. Hossain, M. M. Hasan, F. Zahra, S. Swargo, R. A. DhrooboM. R. A. Amin, Sieam, S. T. Disha, M. R. Islam, "A comprehensive DFT investigation of inorganic halide perovskites GaXCl3 (X = Ca, Sr, and Ba) for optoelectronics application," ***Physica B: Condensed Matter*** , Elsevier BV, DOI:https://doi.org/10.1016/j.physb.2024.416131, 2024 .

2. M. T. Hossain, F. Zahra, M. M. Hasan, S. Swargo, R. A. DhrooboM. R. A. Amin, Sieam, S. T. Disha, M. R. Islam, "First-principles insights into the structural, mechanical, electronic, optical, and thermophysical properties of XSrBr3 (X = Na, Ga, and Tl) perovskites: Implications for optoelectronic applications," ***Materials Science in Semiconductor Processing*** , Elsevier BV, DOI:https://doi.org/10.1016/j.mssp.2024.108694, 2024 .

1. F. Zahra, M. M. Hasan, M. B. Hossenand M. R. Islam, "Deep insights into the optoelectronic properties of AgCdF3-based perovskite solar cell using the combination of DFT and SCAPS-1D simulation," ***Heliyon*** , Elsevier BV, DOI:https://doi.org/10.1016/j.heliyon.2024.e33096, 2024 .

**Conference**

2. M. N. R. Antu, M. M. Hasan and M. S. Islam, "Effect of Temperature on the Tensile Properties of Adhesively Bonded Single Lap Joint," ***International Conference on Mechanical, Industrial and Materials Engineering 2022 (ICMIME2022)***, 2022 .

1. M. M. Hasan, M. N. R. Antu and M. S. Islam, "Numerical Study of Negative Stiffness Honeycomb Structure for energy absorption applications," ***International Conference on Mechanical, Industrial and Materials Engineering 2022 (ICMIME2022)***, 2022 .