



Department of Materials Science and Engineering
Khulna University of Engineering & Technology
Khulna - 9203, Tel: 041-769471 (191); Fax : 041-774403



Pranti Saha
Lecturer

Research Area

Biography

I am a lecturer of Material Science and Engineering (MSE) Department, in Khulna University of Engineering & Technology (KUET), Bangladesh. As a faculty, I am responsible for teaching and mentoring undergraduate students, offering theory and lab courses, as well as providing guidance to their research and thesis initiatives.

My current research interests include -

- Material simulation and exploration using density functional theory (DFT)
 - Electronic, mechanical and Optical properties of inorganic halide perovskites
 - Band dispersion and band alignment of 2D heterostructure
 - Phonon and thermal properties of quasi-1D materials
- Numerical and mathematical modeling of composite-based pressure vessel using finite element simulation (Abaqus)

Education

- Education Level: B. Sc.

Degree Title: Bachelor of Science in Materials Science and Engineering,
Khulna University of Engineering & Technology, Khulna, 2017 - 2023.

CGPA: 3.91 out of 4.00

Merit Position: 2

Thesis: Modeling and Stress Analysis of Pressure Vessels Made of Kevlar/Natural Fiber and Hybrid Composites

Achievement: Dean's list award for excellent academic performance, 2018 - 2023.

- Education Level: HSC

Degree Title: Higher Secondary Certificate (HSC) Exam
Chuadanga Govt. College, Group: Science, Jashore Board, Bangladesh, 2015 - 2017.

CGPA: 5.00 out of 5.00

Achievement: HSC Board Merit Scholarship

- Education Level: SSC

Degree Title: Secondary School Certificate (SSC) Exam
Chuadanga Govt. Girls' High School, Group: Science, Jashore Board, Bangladesh, 2015.

CGPA: 5.00 out of 5.00

Service Records

- **Lecturer**
Department/Section: Dept. of Material Science and Engineering
Khulna University of Engineering & Technology (KUET) From 2023-03-23 00:00:00 to 1970-01-01 06:00:00

Research Interest

Ab initio simulation of inorganic halide perovskite materials

- **Simulation of the structural, mechanical, elastic, electrical and optical properties of new perovskites using the density functional theory.**
 - **Extraction of the band properties of perovskites using PBE, PBE+SOC and HSE level of theory.**
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Design optimization of multi-layer kevlar composite pressure vessel

- **Developed multi-ply Kevlar reinforced Epoxy pressure vessels analyzed by finite element method (FEM) In Abaqus.**
 - **Optimized the pressure vessel design which improved the stress performance while minimizing the number of costly Kevlar fiber layers.**
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Finite element modeling of alternative fiber-reinforced composite pressure vessel

- **Developed and simulated composite overwrapped pressure vessel using ABAQUS finite element simulations.**
 - **Extracted the burst pressure of pressure vessel made of different combinations of natural and synthetic fibers (Jute, Kevlar, Glass and Aluminum foil).**
 - **Jute and Kevlar hybrid pressure vessel is found to have significant strength improvement over pure jute pressure vessel.**
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