

SUDIP DEY DIPTA

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EDUCATION:

Bachelor of Science in Materials Science and Engineering

01/2020-10/2025

Khulna University of Engineering and Technology, Khulna, Bangladesh

CGPA:3.54/4.00

RESEARCH INTEREST:

- **Scientific Approaches:** Perovskite, Semiconductor, Hydrogen storage, Additive Manufacturing, Solar Cell, Nanotechnology, Computational materials science, Atomistic Simulation
- **Techniques and Tools:** Molecular Dynamics (MD) simulation, Density Function Theory (DFT)

RESEARCH EXPERIENCE:

- **Materials Characterization Techniques:** Performed Metallographic, XRD, SEM, FTIR, and Mechanical testing in the lab during the lab courses and project works.
- **Materials Simulation Tools:** Analyzed perovskite materials properties by CASTEP and Quantum ESPRESSO simulation tools. Designed perovskite solar cells on SCAPS for analyzing their efficiency.

Journals

1. **Dipta, S.D.;** Rahman, M.M.; Ansari, M.J.; Uddin, M.N. A Comprehensive Review of Sustainable and Green Additive Manufacturing: Technologies, Practices, and Future Directions. *J. Manuf. Mater. Process.* 2025, 9, 269. <https://doi.org/10.3390/jmmp9080269>
2. Silvina Siddika Shifa, Md Mehedi Hasan Kanok, Mohammad Salman Haque, Tipu Sultan, Kanij Fatema Pritha, Mubasshira, Maruf Al Yeamin, **Sudip Dey Dipta**, Influence of heat treatment and water absorption on mechanical properties of cotton-glass fiber reinforced epoxy hybrid composites: An eco-friendly approach for industrial materials, *Hybrid Advances*, Volume 5, 2024,100181, ISSN 2773-207X, <https://doi.org/10.1016/j.hvbadv.2024.100181>
3. **Sudip Dey Dipta**, Md Mahbubur Rahman, Apurbo Roy, Riyad Kawsar, Md Rasidul Islam, First-Principles Investigation of fundamental Properties and AIMD calculation of Rb_3ZnX_3 ($X = \text{F, Cl, Br, I}$) halide perovskites. (**Under review, Materials Physics and Chemistry**)
4. **Sudip Dey Dipta**, Jahirul Islam, Md Shahid Ahmed, A Comprehensive DFT Study on physical properties of Lead-free $\text{Cs}_2\text{NaGaX}_6$ ($X=\text{F, Cl, Br}$) double perovskite for optoelectronic and photocatalytic applications (**Under review, Modelling and Simulation in Materials Science and Engineering**)
5. **Sudip Dey Dipta**, Tanwi Chakraborty, Anoy Chakraborty, Uddobob Banik, Md Rasidul Islam, Md Masud Rana, First-Principles and Machine Learning Insights into Physical and Photocatalytic Properties of Lead-Free Double Halide Perovskites Cs_2GeX_6 ($X = \text{F, Cl, Br, and I}$) for optoelectronics and photocatalytic applications. (**Under Review, Materials Science and Engineering: B**)
6. Apurbo Roy, **Sudip Dey Dipta**, Arpon Mozumdar, Md Rasidul Islam, Md Masud Rana, Exploring the Li-based hydride perovskites LiQH_3 ($Q = \text{Sc, Nb, Tc, Ru, and Rh}$) designed for efficient solid-state hydrogen storage capability: Findings from first principles DFT investigations (**Under review, ACS Omega**).
7. Apurbo Roy, **Sudip Dey Dipta**, Mustafa Bin Asad, Md Rasidul Islam, A DFT and AIMD approach to the comprehensive computational assessment and implementation of novel Na-based complex hydrides NaM_3H_8 ($M = \text{Ti, Cr, Mn, and Fe}$) for effective hydrogen storage. (**Under review, Journal of Energy Storage**)

Conferences

1. **Sudip Dey Dipta**, Wasif Abu Dujana, Jesia Alam Jui, Riyad Kawsar, Numerical Study of Rb and K-based Lead-Free Double Perovskite Solar Cell Using SCAPS-1D, ICMEAS-2025. (Registered)
2. **Sudip Dey Dipta**, Anoy Chakraborty, Tanwi Chakraborty, Md. Rasidul Islam, Comprehensive First-Principles Investigation of the Structural, Electronic, Phonon, and Optical Properties of Lead-Free Halide Double Perovskites Cs_2GeX_6 ($X=\text{F, Cl, Br, I}$), EICT 2025. (Accepted)

SKILLS:

Technical Skill: VESTA, Materials Studio, LAMMPS, OVITO, SOLIDWORKS, CES Edupack, AutoCAD, Microsoft Word, Microsoft PowerPoint, Microsoft Excel, SCAPS

COURSEWORKS:

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| • Mechanical Behavior of Materials | • Corrosion and Surface Engineering |
| • Materials Manufacturing Processes | • Computational Materials Science |
| • Physical Metallurgy of Materials | • Electronic, Magnetic and Optical properties of Materials |
| • Materials Characterization | • Semiconductor Materials and Devices |

KEY ACHIEVEMENTS:

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- **1st Runner Up** at poster presentation in Calibration 1.0 organized by Department of Mechatronics Engineering, KUET
 - **Finalist** at BizBash 2.0, organized by KUET Career Club
 - **Semi Finalist** at CaseSpecs 1.0, organized by Spectrum
 - **Semi Finalist** at CaseSpecs 2.0, organized by Spectrum
 - **Semi-Finalist** at the 4th JUSTDC Fundraiser Debate Tournament 2023
 - **Semi Finalist** at GRIPP DUDS South Asian Debating Championship 2022

PROFESSIONAL EXPERIENCE:

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- **KUET Career Club (KCC)** – Vice President (2024-2025)
Organized A National IDEA Case Competition “BizBattle” and some seminars on guidelines to higher studies named “From Undergraduate to Abroad: Mastering the Art of Funded Graduate studies” which were so engaging, and around 1000+ participants participated here. Managed sponsorship successfully, though faced many difficulties.
 - **KUET Debating Society (KDS)**- Vice President (2024-2025)
Arranged 10+ on-campus debating fest as an organizer and attended many national debate championships in the country and outside the country. Debated in “GRIPP DUDS South Asian Debate Championship” and ended the run as a semifinalist and won many national fests in the country, which helped me to grow critical thinking, analyzing power and leadership.
 - **Chittagong Association of KUET**- Vice President (2024-2025)
Gathered many students of the same origin on campus and made them feel comfortable with us to maintain our original vibes in our lives to heal about the family.
 - **Fazlul Haque Hall Committee**- Cultural Secretary (2024-2025)
Arranged an annual feast with a cultural program and controlled the hall dining as a dining manager in October 2024. Encouraged hall students to maintain the hall environment peaceful and study-friendly hall environment.
 - **MetaMaterials Club of KUET(MMCK)**- Head of Media (2024-2025)
Led the media team to make publication of the new club, and successfully organized an international event “MSE Cube Rush”, and organized many seminars related to core subject materials science.

REFERENCES:

Jahirul Islam

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Md. Rasidul Islam

Assistant Professor

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Dr. Md. Mahbubur Rahman

Associate Professor

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Khulna University of Engineering and Technology

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