



Biography

Md. Sakib Hasan Khan

Assistant Professor

Research Area Solar-Reforming

Computational Condensed Matter

Photocatalytic Water Splitting Sensing in

Nano-structured Materials

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Education

PhD in Nanomaterial Engineering

Australian National University (ANU), Australia (August, 2024-Ongoing)

M.Sc. in Electrical and Electronic Engineering

Khulna University of Engineering & Technology, Bangladesh (July-2018-2020)

Thesis Title: [Investigation of Optoelectronic Properties of Two Dimensional GaN and it's Nanotube](#)

B. Sc in Electrical and Electronic Engineering

Khulna University of Engineering & Technology, Bangladesh. (24 April, 2014-2018), Bangladesh () Group: Electrical and Electronic Engineeri, Student Type: Regular, Merit Position: 2nd, Achievement: Deans Award

Higher Secondary Certificate

Cantonment College, Bangladesh, 2013 () Group: Science, Student Type: Regular, Achievement: Jessore Board Scholarship

Secondary School Certificate

Daud Public School, Bangladesh, 2011 () Group: Science, Student Type: Regular, Achievement: Jessore Board Scholarship

Service Records

- **Assistant Professor**

Department/Section: Electrical and Electronic Engineering (EEE)

Khulna University of Engineering & Technology (KUET) From 01-01-1970 to 01-01-1970

- **Lecturer**

Department/Section: Electrical and Electronic Engineering (EEE)

Khulna University of Engineering & Technology From 01-01-1970 to 01-01-1970

Research Interest

Solar-Reforming

Computational Condensed Matter

Revealing of structural, electronic and optical properties of condensed materials from bulk to nano, and from inorganic to organic from first-principles

Photocatalytic Water Splitting

Exploring novel potent nanostructured photocatalysts for Hydrogen fuel production using First-principles

Sensing in Nano-structured Materials

Unveiling the surface chemistry of nanostructured material from first-principles for toxic gas sensing, biomolecule sensing and CO2 reduction

Publication

Books

Journals

9. Barma, S., Khan, M. S. H., Islam, M. R. and Hasan, M. T. (2023), " Intralayer spatial carrier separation capability for visible light driven photocatalytic properties of SnGe2N4-layered nanostructure: A first-principles study, " **AIP**, AIP Advances, vol13, no.7

8. Khan, M. T. A. M. S. H., Kubra, K., Islam, M. R. and Hasan, M. T. (2023), " Tunable electronic and optical properties of GeC/PtO2 vdW hetero-bilayer using first-principles study, " **AIP Advances**, AIP, vol13, no. 065004

7. Islam, M. R., Khan, M. S. H., Mojumder, M. R. H. and Ahmad, S. (2023), " Excellent photocatalytic properties in 2D ZnO/SiC van der Waals hetero-bilayers: water-splitting H2-fuel production, " **RSC Advances**, Royal Society of Chemistry (RSC), vol13, pp.1943-1954

6. Alam, M., Khan, M. S. H., Islam, M. R. and Hasan, M. T. (September 09, 2022), " Bandgap engineering in BP/PtO2 van der Waals (vdW) hetero-bilayer using first-principles study, " **AIP Advance**, AIP, vol12, no.095312

5. Kubra,K. , Islam,M. R. , Khan,M. S. H. , Islam,M. S. and Hasan,M. T. (2022) , " Study of two-dimensional Janus WXY (XY= S, Se, Te) trilayer homostructures for photovoltaic applications using DFT screening of different stacking patterns," **ACS Omega**, American Chemical Society (ACS), vol7, no.15
4. Khan,M. S. H. , Islam,M. S. , Islam,M. R. , Iskanderani,A. I. M. , Mehedi,I. M. and Hasan,a. M. T. (2021) , " Potential Visible-light Driven PtO₂/GaN vdW Hetero-bilayer Photocatalysts for Water Splitting using First-principles," **IEEE Access**, IEEE, vol9, pp.109510 - 1
3. Mafi,E. , Patel,J. , Islam,M. S. , Khan,M. S. H. and Rana,a. M. (2020) , " Electro-optical properties of sputtered calcium lead titanate thin films for pyroelectric detection," **Micromachines**, MDPI, vol11, pp.1073
2. Khan,M. S. H. , Islam,M. R. , Islam,M. S. , Mehedi,I. M. and Hasan,a. M. T. (2020) , " Tunable Photocatalytic Properties of Planar GaN/GeC Hetero-bilayer: Production of H₂ Fuels," **IEEE Access**, IEEE
1. Khan,M. S. H. ,Islam,M. R. and Hasan,a. M. T. (2020) , " Strain-dependent electronic and optical properties of boron-phosphide and germanium-carbide hetero-bilayer: A first-principles study," **AIP Advances**, AIP, vol10, no.8, pp.085128

Conference

7. (17-19 Dec. 2021) , "Zn, O Co-doped 2D GaN for Visible Light-driven Photocatalytic Water Splitting using First-principles," **2021 5th International Conference on Electrical Information and Communication Technology (EICT)** , IEEE
6. Khan,M. S. H. and Hasan,M. R. I. a. M. T. (17-19 December, 2020) , "Electronic and Optical Properties of BeO Co-doped 2D GaN using First-principles," **11th International Conference on Electrical and Computer Engineering (ICECE)** , IEEE
5. Islam,J. , Khan,M. S. H. , Islam,M. R. and Islam,a. M. S. (19-20 December, 2020) , "Temperature Induced Anomalous Exciton Localization Dynamics of CH₃NH₃Pb(I_{1-x}Br_x)₃ Perovskite Material: A Monte Carlo Simulation," **2nd International Conference on Sustainable Technologies for Industry 4.0 (STI)** , IEEE
4. Khan,M. S. H. ,Mime,F. I. and Islam,M. R. (05-07 JUNE 2020) , "Electronic and Optical Properties of Sn Doped Hexagonal BN Monolayer: A First-principles Study," **IEEE TENSYP2020** , IEEE
3. Mime,F. I. , Khan,M. S. H. , Asaduzzaman,S. M. , Karim,N. and Islam,M. R. (05-07 JUNE 2020) , "Efficient Triple Junction Organic Solar Cell," **IEEE TENSYP 2020** , IEEE
2. Rifat,M. R. H. , Kaysir,M. R. , Khan,M. S. H. and Islam,a. M. R. (7-9 February, 2019) , "Effect of the electron blocking layer in dualwavelength emission of InGa_N/Ga_N MQW lightemitting diodes," **2nd International Conference on Electrical, Computer and Communication Engineering (ECCE)** , IEEE
1. Mondal,P. P. , Khan,M. S. H. , Kaysir,M. R. and Islam,a. M. R. (7-9 February, 2019) , "Performance Analysis of Perovskite Solar Cells with Different Structures," **2nd International Conference on Electrical, Computer and Communication Engineering (ECCE)** , IEEE