Department of Electrical and Electronic Engineering
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Abu Syed Md. Jannatul Islam
Assistant Professor
Research Area Nanotechnology, Nanomaterials, Nanomechanics, Monte Carlo Simulation, Molecular Dynamics Simulation, First Principles Calculation, Heterostructure Devices, Photovoltaic Solar Cell Materials, Nanoelectromechanical Systems(NEMS), Defect Engineering

Biography

Welcome to A.S.M. Jannatul's Homepage

Mr. A.S.M. Jannatul Islam was born in Rangpur, Bangladesh, and had his early education in Rangpur (The Cantonment Public School & College, Rangpur). He obtained his B.Sc.Eng. (EEE) degree in May 2016 and an M.Sc. Eng. (EEE) degree in January 2019 from Khulna University of Engineering & Technology (KUET), Bangladesh. After graduation, A.S.M Jannatul joined the KUET as a Lecturer in the Department of Electrical and Electronic Engineering in February 2017. He has been promoted to assistant professor in the EEE department using his prestigious MS degree. In his MS thesis, he worked on the thermal and mechanical properties of two-dimensional silicon carbide nanomaterial using molecular dynamics simulation. Four of his articles have been published in Nanotechnology (IOP), Materials Research Express (IOP), AIP Advances (AIP), and Physical Chemistry Chemical Physics (RSC). Moreover, he has expertise in analyzing the localized Exciton dynamics of organic-inorganic Perovskite material using Monte Carlo Simulation. Most recently, he has published a paper in AIP Advances (AIP). At his undergraduate level, he worked on the substrate effect on the DC performances of AlGaN/GaN high electron mobility transistors with Comsol Multiphysics Software. As an author, he has more than 24 high-impact (Peer-reviewed) journals published in IOP, RSC, Nature, ACS, Elsevier, AIP, and 13 IEEE conference papers. A.S.M. Jannatul has been actively involved in research activities related to Nanotechnology, Thermal, Mechanical, and Vibrational Properties of 2D Nanomaterials, Organic-inorganic Perovskite material, Nanoelectronic Devices, PV Solar Cell Material Properties and Exciton dynamics of different materials. Moreover, he can use various packages and software like Large Atomic Molecular/Massively Parallel Simulator (LAMMPS), Atlas Silvaco, Comsol Multiphysics, Quantum Espresso, FORCE2, Lumerical FDTD and MATLAB to explore the nanomaterials properties and nanoscale device characteristics. If you are interested to see his research profile, please go to the following web link: Researchgate Profile and Google Scholar Profile

Education

M.Sc. in Electrical & Electronic Engineering
Khulna University of Engineering & Technology, Khulna, Bangladesh,(2019)Student Type:Part Time,
Thesis Title: **Study on Thermal and Mechanical Properties of 2D Silicon Carbide using Molecular Dynamics Simulation**
Excellent
B.Sc. in Electrical & Electronic Engineering
Khulna University of Engineering & Technology, Khulna,Bangladesh(2016)Group: EEE,Student Type:Regular,Merit Position: Second,Achievement:1st Class 2nd
Higher Secondary School Certificate
Cantonment Public School & College, Rangpur,Bangladesh(2011)Group: Science,Student Type:Regular,
Secondary School Certificate
Haragach Multilateral High School,Bangladesh(2009)Group: Science,Student Type:Regular,

Service Records

- **Assistant Professor**
  Department/Section: EEE
  Khulna University of Engineering & Technology *From 01-01-1970 to 01-01-1970*
  Working Area:Khulna
- **Lecturer**
  Department/Section: EEE
  Khulna University of Engineering & Technology *From 01-01-1970 to 01-01-1970*
  Working Area:Khulna

Research Interest

Nanotechnology, Nanomaterials, Nanomechanics, Monte Carlo Simulation, Molecular Dynamics Simulation, First Principles Calculation, Heterostructure Devices, Photovoltaic Solar Cell Materials, Nanoelectromechanical Systems(NEMS), Defect Engineering

Publication

Books

Journals

28. J. R. Drubo, <. A. J. I. Islam, M. S. Islamand C. S. a. J. Park, "Side planes.....," ***ACS Omega*** , American Chemical Society , 2023 .

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24. <. S. M. J. I. Islam, M. S. Islam, M. S. Hasan, K. Hosen, M. AkbarA. Bhiyanand Park, "Anisotropic crystal orientations dependent mechanical properties and fracture mechanisms in zinc-blende ZnTe nanowires," ***RSC Advances*** , Royal Society of Chemistry (RSC) Publishing, 2023 .

23. <. S. M. J. I. Islam, M. S. Hasan, M. S. Islam, A. G. Bhuiyan, C. Stampfland a. J. Park, "Crystal orientation-dependent tensile mechanical behavior and deformation mechanisms of zinc-blende ZnSe nanowires," ***Scientific Reports*** , Nature Publishing, vol. 13, pp.3532, 2023 .

22. M. R. Islam, R. H. Majumdar and <. J. I. a. M. J. Alom, "Strain-driven tunability of the optical, electronic, and mechanical properties of lead-free inorganic CsGeCl3 perovskites," ***Physica Scripta*** , IOP Publishing, 2022 .

21. A. Arafat, M. S. Islam, N. Ferdous, <. J. I. Islam, M. H. SarkerC. Stampfland Park, "Atomistic Reaction Mechanism of CVD Grown MoS2 through MoO3 and H2S Precursors," ***Scientific Reports*** , Nature Publishing, 2022 .

20. M. R. Islam, S. Islam, R. H. Mojumder, Z. Khan, H. Mollah<. J. I. Islamand Park, "Tuning the electronic, phonon, and optical properties of monolayer BX (X=P and As) through the strain effect ," ***Materials Today Communications*** , Elsevier, 2022 .

19. M. R. Islam and <. J. I. e. al., "Influence of spin-orbit coupling and biaxial strain on the inorganic lead iodide perovskites APbI3 (A= K, Rb, and Cs)," ***J of Phys and Chem of Solids*** , Elsevier, vol. Accepted, 2022 .

17. M. R. Islam, <. J. I. Islam, K. Liu, Z. Wang, S. Quaand a. Z. Wang, "Strain-induced tunability of the optoelectronic properties of inorganic lead iodide perovskites APbI3 (A= Rb and Cs)," ***Physica B: Condensed Matter*** , Elsevier, vol. 638, pp.413960, 2022 .

16. M. H. Sarker, M. S. Islam, A. Arafat, <. J. I. Islam, N. FerdousM. T. Rahman, Sohag, M. A. I. Fahim, C. Stampfl, and J. Park, "Effects of Substrate Structure on the CVD Growth of Two-dimensional Hexagonal Boron Nitride (h-BN)," ***The Journal of Physical Chemistry C*** , American Chemical Society (ACS) Publication, vol. Accepted, In press, 2022 .

16. <. J. I. Islam, M. S. Islam, M. S. Hasan, M. S. Akbarand J. Park, "Tensile mechanical behavior and fracture mechanism in monolayer group-III nitrides XN (X= Ga, In): Effect of temperature and point vacancy," ***ACS Omega*** , American Chemical Society (ACS) Publication, vol. Accepted, In press, 2022 .

15. M. R. Islam, R. Mojumder, <. J. I. Islam, B. K. M. M. R. M. A. Kumar, A. Shihavuddinand R. H. Ashique, "Impact of strain on the electronic, phonon, and optical properties of monolayer transition metal dichalcogenides XTe2 (Xâ€‰=â€‰Mo and W)," ***Physica Scripta*** , IOP Publishing, vol. 97 , no.4, pp.045806, 2022 .

14. M. R. Islam, M. R. H. Mojumder, R. Moshwan, <. J. I. Islam, M. A. IslamM. S. Rahmanand Kabir, "Strain-driven optical, electronic, and mechanical properties of inorganic halide perovskite CsGeBr3," ***ECS J Solid State Sci*** , IOP Publishing, vol. 11, no.3, pp.033001, 2022 .

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10. M. R. Islam, <. J. I. Islam, K. Liu, Z. Wang, S. Quaand a. Z. Wang, "Strain Engineering on the Electronic, Phonon, and Optical Properties of

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8. <. J. I. Islam, M. S. Akbar, M. S. Islamand J. Park, "Temperature- and defect-induced uniaxial tensile mechanical behaviors and fracture mechanism of two-dimensional silicon germanide," ***ACS Omega*** , American Chemical Society (ACS) Publication, vol. 6, no.34, pp.2470-1343, 2021 .

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7. <. J. I. Islam, M. S. Islam, M. R. Islamand C. S. a. J. Park, "Thermal transport in monolayer zinc-sulfide: effects of length, temperature and vacancy defects," ***Nanotechnology*** , IOP Publishing, vol. 32, no.43, 2021 .

6. <. J. I. Islam, M. S. Islam, N. Ferdousand J. P. a. A. Hashimoto, "Vacancy induced thermal transport in two-dimensional silicon carbide: a reverse non-equilibrium molecular dynamics study," ***Physical Chemistry Chemical Physics*** , Royal Society of Chemistry (RSC) Publishing, vol. 22, no.24, pp.13592-1360, 2020 .

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4. M. S. Islam, S. Sadman, <. J. I. Islamand J. Park, "HfO2/TiO2/HfO2 tri-layer high-K gate oxide based MoS2 negative capacitance FET with steep subthreshold swing," ***AIP Advances*** , American Institute of Physics (AIP) Publishing, vol. 10, no.3, pp.035202, 2020 .

3. M. S. Islam, B. Dey, M. M. Rana, <. J. I. Islamand J. P. a. T. Makino, "Temperature-induced localized exciton dynamics in mixed Leadâ€“ Tin based CH3NH3Pb1-xSnxI3 Perovskite materials," ***AIP Advances*** , American Institute of Physics (AIP) Publishing, vol. 10, no.6, pp. 065331 , 2020 .

2. <. J. I. Islam, M. S. Islam, N. Ferdous, J. Park, A. Bhuiyanand A. Hashimoto, "Anisotropic Mechanical Behavior of Two Dimensional Silicon Carbide: Effect of Temperature and Vacancy Defects," ***Materials Research Express*** , Institute of Physics (IOPSCIENCE) Publishing, vol. 6, no.12, pp.125073, 2019 .

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Conference

14. <. J. I. Islam and M. S. I. a. A. G. Bhuiyan, "Phonon Properties of Armchair and Zigzag Edged GaN Nanoribbon," ***4th International Conference on Electrical Information and Communication Technology (EICT) 2019***, IEEE, KUET, 20-22 December, 2019 .

13. H. M. R. Faruque, K. Hosen, <. J. I. Islamand M. S. Islam, "Halogen Doped Electronic Properties of 2D ZnO: A First Principles Study," ***ICAEE 2019***, IEEE, 26â€“28 September 2019 .

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11. M. S. Islam, J. D. Sarker, <. J. I. Islam, A. G. Bhuiyan, T. Makinoand A. Hashomoto, "Tunable electronic properties in bismuthene and two dimensional SiC van der Waals heterobilayer," ***EM-NANO-2019***, June 19-22, 2019 Nagano Japan, pp. 35, 2019 .

10. M. R. Islam and <. J. I. a. M. S. Islam, "Vacancy Induced Electronic Properties of Two Dimensional Silicon Carbide: A First Principle Calculation," ***International Conference on Computer, Communication, Chemical, Materials and Electronic Engineering (IC4ME2-2019)***, IEEE, July 11-12, 2019 .

9. A. H. Howlader and M. S. I. a. <. J. I. Islam, "Study on Phonon Transmission of (10,0) Silicon Nanotube with Atomic Vacancies," ***The 21st International Conference on Computer and Information Technology(ICCIT 2018)***, IEEE,United International University, 21-23 December, 2018 .

8. K. Hosen, B. Kabir and <. J. I. a. M. S. Islam, "Vacancy Induced Electron-Phonon Interaction of Single Layer Graphene," ***The 21st International Conference on Computer and Information Technology(ICCIT 2018)***, IEEE,United International University, 21-23 December, 2018 .

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5. M. R. Islam, M. M. Rana and <. J. I. Islam, "Electronic and Vibrational Properties of Single Layer Transition Metal Dichalcogenides (TMDC)," ***2nd International Conference on Electrical & Electronic Engineering ICEEE 2017***, 27-29 December, 2017, RUET, Rajshahi, Bangladesh .

4. A. K. Podder, <. J. I. Islam, S. Hasanuzzamanand M. S. I. a. A. Bhuiyan, "Substrate Effects on Channel Temperature Distribution of AlGaN/GaN HEMT," ***3rd International Conference on Electrical Information and Communication Technology (EICT) 2017, IEEE, KUET,***, Khulna, Bangladesh, 7-9 December, 2017 .

3. <. J. I. Islam, M. R. Islam, M. S. Islamand A. Bhuiyan, "Numerical Simulation of Vibrational Properties of AGNR with Vacancy and Stone Wales Defects," ***3rd International Conference on Electrical Information and Communication Technology (EICT) 2017***, 7-9 December, 2017 .

2. M. Islam, C. Mondal, M. Azamand <. J. I. Islam, "Text detection and recognition using enhanced MSER detection and a novel OCR technique," ***5th International Conferrence on Informatics, Electronics and Vision (ICIEV), 2016 , IEEE,***, 13-14 May, 2016 .

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