Md. Mahamudujjaman

University of Rajshahi

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Education

- M.Sc. in Physics, 2019 (held in 2021), CGPA 3.83/4.00, ranked 4 in my class, department of Physics, University of Rajshahi, Bangladesh.
- B.Sc. Hons in Physics, 2018, CGPA 3.62/4.00, ranked 6 in my class, department of Physics, University of Rajshahi, Bangladesh.
- HSC, 2013, GPA 5.0, Rangpur Government College, Rangpur, Bangladesh.
- SSC, 2011, GPA 5.0, Police Lines School and College, Rangpur, Bangladesh.

Tutoring Experience

- Tutoring algebra, arithmetic, geometry, differential calculus, integral calculus, Newtonian mechanics, thermodynamics, electricity, optics, introduction to nuclear physics, etc. of middle and high school students, 2015 to present.

Research Interest

- Theoretical and Experimental Condensed Matter Physics, Semiconductor Physics, Photovoltaic Materials, Material Characterization, Thin Films, Optoelectronic Properties, Elastic Properties, Thermo-physical Properties, Superconductivity, Magnetism.

Research Experience

- Research assistant, Condensed Matter Physics lab, department of Physics, University of Rajshahi, 2019 to present.
- M.Sc research experience

  (Thesis Title: Physical properties of binary transition metal dichalcogenides ZrX_2 (X = S, Se, Te) compounds: an ab-initio study)

  In this thesis, a broad investigation on structural, optoelectronic, optical, bonding, thermo-dynamical, and lattice dynamical properties of ZrX_2 have been done. Here, density functional theory-based CASTEP code has been utilized to explore these properties.

Research Publications (accepted/submitted)

1. M. Mahamudujjaman, M. A. Afzal, R. S. Islam, S. H. Naqib, First-principles insights into mechanical, optoelectronic, and thermophysical properties of transition metal dichalcogenides ZrX_2 (X = S, Se, Te), AIP Advances **12**, 025011 (2022) https://doi.org/10.1063/5.0073631
2. M.I. Naher, M. Mahamudujjaman, A. Tasnim, R.S. Islam, S.H. Naqib, Ab-initio insights into the elastic, bonding, phonon, optoelectronic, and thermophysical properties of $SnTaS_2$, submitted to Solid State Sciences.

On-going Research Projects

1. First-principles insights of pressure dependent elastic, electronic, optical and thermophysical properties of SnS superconductor.
2. Investigation of pressure dependent mechanical, optoelectronic, and thermophysical properties of binary Sb_2S_3 compound.

Conference/ Presentation

- Oral Presentation

  M. Mahamudujjaman, M. A. Afzal, R. S. Islam, S. H. Naqib, Physical properties of transition metal dichalcogenides ZrX_2 (X = S, Se, Te): First-principles insights

  International e-Conference on Physics 2021, Organized by Department of Physics, University of Dhaka, Bangladesh, held on 9-11 July 2021.
- Poster Presentation

  Structural, elastic, bonding, optoelectronic, and some thermophysical properties of transition metal dichalcogenides Zr***X***2 (***X*** = S, Se, Te): Insights from ab-initio calculations

  International Poster Presentation Competition (IPPC 2020).

Scholarships/ Awards/ Grants

- Research Fellow of Science and Technology Ministry (NST Fellowship), People's Republic of Bangladesh (2020-2021).
- General scholarship of Faculty of Science, University of Rajshahi (2019-2020).
- 'Basak Scholarship' provided by the Department of Physics in 2017.

Computer Skills

- First principles simulation software (based on CASTEP code): MATERIALS STUDIO 2017
- Data plotting software: SIGMA PLOT 12.5, ORIGIN

Workshop/ Extra Curricular Activities

- Participant, 'SAKURA SCIENCE Exchange Program' administered by Japan Science and Technology Agency at Kyushu Institute of Technology, Japan from September 16 to September 25 in 2019
- Workshop on "Advanced Research Methodology" at the University of Rajshahi, Bangladesh 2019.
- Member of Sakura Science Club, Japan since 2019.
- Actively involved in an organization named "USHA" in my former school conducted by ex-students and some teachers, which distributes foods and winter clothes among the poor.
- Former member of Rajshahi University Science Club.

References

Professor Dr. Arun KumarBasak
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Professor Dr. Saleh Hasan Naqib
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