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**Dr. Md Saiduzzaman**
Assistant Professor
**Research Area**Physical Properties Investigations of Perovskites by First Principle Calculations Hydrothermal Synthesis of Inorganic Oxides Bismuth Based Oxides Photocatalysts and Superconductors

## Biography

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## Education

**Doctor of Philosophy (Engineering)**
University of Yamanashi,Japan(2016-2019)
**Thesis Title:** **Study on Preparation and Characterization of New Bismuth Oxides by Hydrothermal Reactions**
**Master of Science**
University of Rajshahi,Bangladesh(2010-2011)
**Thesis Title:** **Chemically Modified Jute Fabric Reinforced Polyester Composite**
**Bachelor of Science**
University of Rajshahi,Bangladesh(2006-2010)

## Service Records

- **Researcher**
  **Department/Section:** Center for Crystal Science and Technology (CCST)
  **University of Yamanashi** *From 01-01-1970 to 01-01-1970*
- **Assistant Professor**
  **Department/Section:** Materials Science and Engineering
  **Khulna University of Engineering and Technology** *From 01-01-1970 to 01-01-1970*
- **Production Officer**
  **Department/Section:** LRF
  **BSRM IRON and STEEL COMPANY LIMITED** *From 01-01-1970 to 01-01-1970*

## Research Interest

**Physical Properties Investigations of Perovskites by First Principle Calculations**

**Hydrothermal Synthesis of Inorganic Oxides**

**Bismuth Based Oxides Photocatalysts and Superconductors**

## Publication

**Books**

**Journals**

26. Rashid,M. A. , Saiduzzaman*,<. , Biswas,<. A. and Hossain*,K. M. (2022) , " First-principles calculations to explore the metallic behavior of semiconducting lead-free halide perovskites $RbSnX_3$ (X=Cl, Br) under pressure," ***The European Physical Journal Plus*** , **SPRINGERLINK**, vol137, pp.649

25. Alam,M. S. , Saiduzzaman*,<. , Biswas,<. A. , Ahmed,T. , Sultana,A. and Hossain*,K. M. (2022) , " Tuning band gap and enhancing optical functions of $AGeF_3$ (A=K, Rb) under pressure for improved optoelectronic applications.," ***Scientific Reports*** , **NATURE** , vol12, pp.8663

24. Mitro,S. K. , Saiduzzaman,<. , Asif,*. T. I. and Hossain*,K. M. (2022) , " Band gap engineering to stimulate the optoelectronic performance of lead-free halide perovskites $RbGeX_3$ (X=Cl, Br) under pressure," ***Journal of Materials Science: Materials in Electronics***, **SPRINGER LINK**, vol33, pp.13860

23. Mitro,S. K. , Saiduzzaman,<. , Biswas,*. A. , Sultana,A. and Hossain*,K. M. (2022) , " Electronic phase transition and enhanced optoelectronic performance of lead-free halide perovskites $AGeI_3$ (A = Rb, K) under pressure," ***Materials Today Communications***, **ELSEVIER**, vol31, pp.103532

22. Shuvo,I. K. , Saiduzzaman,<. , Asif,*. T. I. , Haq,M. A. and Hossain*,K. M. (2022) , " Band gap shifting of halide perovskite $CsCaBr_3$ from ultra-violet to visible region under pressure for photovoltaic applications," ***Materials Science and Engineering: B***, **ELSEVIER**, vol278, pp.115645

21. Hossain,K. M. , Saiduzzaman,<. S. , Kumada,N. , Takei,*. T. and Yamane,H. (2022) , " Hydrothermal synthesis and crystal structure of a novel

double-perovskite-type bismuth oxide with 3:1 ordering at the B-site ," ***New Journal of Chemistry*** , **Royal Society of Chemistry (RSC)**, vol46, no.08, pp.3595-3601

20. Molla,M. R. , ,<. S. <. , Asif,T. I. , Dujana,W. A. and Hossain*,K. M. (2022) , " Electronic phase transition from semiconducting to metallic in cubic halide $CsYbCl_3$ perovskite under hydrostatic pressure," ***Physica B: Condensed Matter*** , **ELSEVIER** , vol630, pp.413650

19. Biswas,A. , Alam,M. S. , Sultana,A. , Ahmed,T. , ,<. S. <. and Hossain*,K. M. (2021) , " Effects of Bi and Mn codoping on the physical properties of barium titanate: investigation via DFT method," ***Applied Physics A (Materials Science & Processing)*** , **SPRINGER LINK** , vol127, pp.939

18. (2021) , " Physical properties of rare earth perovskites $CeMO_3$ (M = Co, Cu) in the context of density functional theory," ***Materials Today Communications*** , **ELSEVIER** , vol29, pp.102973

17. Haq,M. A. , Saiduzzaman*,<. S. , Asif,T. I. , Shuvo,I. K. and Hossain*,K. M. (2021) , " Ultra-violet to visible band gap engineering of cubic halide $KCaCl_3$ perovskite under pressure for optoelectronic applications: insights from DFT ," ***RSC Advances*** , **Royal Society of Chemistry (RSC)**, vol11, no.58, pp.36367-3637

16. (2021) , " Structural, electronic, mechanical, thermal, and optical properties of $UIr_3$ under pressure: A comprehensive DFT study," ***AIP Advances***, **American Institute of Physics (AIP)**, vol11, pp.105205

15. Hossain,K. M. , Saiduzzaman,<. M. S. , Kumada,N. , Takei,*. T. , Yamane,H. and Rubel,M. H. K. (2021) , " Hydrothermal synthesis and crystal structure of a novel bismuth oxide: $(K_{0.2}Sr_{0.8})(Na_{0.01}Ca_{0.25}Bi_{0.74})O_3$," ***ACS Omega*** , **American Chemical Society (ACS)**, vol06, no.24, pp.15975â€“80

14. Saiduzzaman,<. S. ,Takei,T. and Kumada*,a. N. (2021.) , " Hydrothermal Magic for the Synthesis of New Bismuth Oxides," ***Inorganic Chemistry Frontiers***, **Royal Society of Chemistry (RSC)** , vol8, pp.2918-2938

13. Saiduzzaman,<. S. , Tsuchioka,N. , Noritake,F. , Kumada,N. and Takei,*. T. (2021.) , " Photocatalytic activity of $RBi_2O_4NO_3$ (R: Tb, Dy, Er, Gd, and Ho) for phenol degradation under visible light irradiation," ***Journal of the Ceramic Society of Japan***, **The Ceramic Society of Japan**, vol129, pp.181-186

12. (2020.) , " Hydrothermal synthesis and crystal structure of a mixed-valence pyrochlore-type strontium bismuthate, $(Sr_{0.75}Bi_{0.25})_2Bi_2O_{6.83}$," ***Journal of the Ceramic Society of Japan***, **The Ceramic Society of Japan**, vol128, no.9, pp.660-663

11. (2020.) , " Newly synthesized A-site ordered cubic-perovskite superconductor $(Ba_{0.54}K_{0.46})_4Bi_4O_{12}$ : A DFT investigation," ***Physica C: Superconductivity and its Applications***, **ELSEVIER**, vol574, pp.1353669

10. (2020. ) , " Hydrothermal Synthesis and Crystal Structure of a Mixed-Valence Bismuthate, $Na_3Bi_3O_8$," ***Inorganic Chemistry***, **American Chemical Society (ACS)**, vol59, no.7, pp.4950-4960

9. Saiduzzaman,<. S. , Yanagida,S. , Takei,T. and Kumada*,N. (2019. ) , " Hydrothermal synthesis and crystal structure of a fluorite-type $Pb_{0.35}Bi_{0.65}O_{1.59}$ compound with photocatalytic activity," ***Materials Letters***, **ELSEVIER**, vol257, pp.126688

8. (2019. ) , " Synthesis and crystal structure of a new bismuth tin titanate with the pyrochlore-type structure," ***Journal of the Ceramic Society of Japan***, **The Ceramic Society of Japan**, vol127, no.12, pp.952-957

7. (2019.) , " Hydrothermal Synthesis and Crystal Structure of a $(Ba_{0.54}K_{0.46})_4Bi_4O_{12}$ Double-Perovskite Superconductor with Onset of the Transition Tc âˆ¼ 30 K," ***Inorganic Chemistry***, **American Chemical Society (ACS)**, vol58, no.18, pp.11997-1200

6. (2019.) , " Hydrothermal Synthesis of Pyrochlore-Type Pentavalent Bismuthates $Ca_2Bi_2O_7$ and $Sr_2Bi_2O_7$," ***Inorganic Chemistry***, **American Chemical Society (ACS)**, vol58, no.3, pp.1759-1763

5. (2018.) , " Crystal Structure, Thermal Behavior, and Photocatalytic Activity of $NaBiO_3Â·nH_2O$," ***Inorganic Chemistry***, **American Chemical Society (ACS)**, vol57, no.15, pp.8903-8908

4. Saiduzzaman,<. S. , Yanagida,S. , Takei,T. , Moriyoshi,C. , Kuroiwa,Y. and Kumada*,N. (2017. ) , " Hydrothermal Synthesis, Crystal Structure, and Visibleâ€Region Photocatalytic Activity of $BaBi_2O_6$," ***ChemistrySelect***, **WILEY-VCH Verlag GmbH & Co. KGaA, Weinheim**, vol2, no.17, pp.4843-4846

3. Hoque,M. A. , Bhuiya,M. A. K. , Saiduzzaman,<. S. , Islam,M. A. and Khan,M. A. (2017.) , " Effect of Î³ (gamma)-radiation on mechanical properties of raw and polyethylene glycol-modified bleached jute reinforced polyester composite," ***World Journal of Engineering***, **Emerald**, vol14 , no.2, pp.108-113

2. Hoque,M. A. , Saiduzzaman,<. S. , Faruqui,A. N. and Islam,M. A. (2016.) , " Tenacity and colorfastness properties of chemically modified jute fibres dyed with Reactive Orange 14 and Basic Violet 14," ***Research Journal of Textile and Apparel***, **Emerald**, vol20, no.2, pp.102-111

1. Hoque,M. A. , Mondal,M. I. H. , Saiduzzaman,<. S. and Paul,U. K. (2016.) , " Effects of $SnCl_4$ weighting of silk fibre on direct dyes uptake and physico-chemical properties," ***Research Journal of Textile and Apparel***, **Emerald**, vol20, no. 1, pp.14-23

**Conference**