

# Md Abdullah Al Mamun

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## EDUCATION

**Bangladesh University of Engineering and Technology (BUET)** Dhaka, Bangladesh  
M.Sc. in Glass and Ceramic Engineering; Advisor: Professor Md. Fakhrul Islam. February 2020  
Thesis: Role of Oxygen Vacancies on Ferromagnetism in Oxide Dilute Magnetic Semiconductors: (CeO<sub>2</sub>/TiO<sub>2</sub>)  
B.Sc. in Materials and Metallurgical Engineering. February 2017  
Thesis: Hydrothermal Synthesis and Characterization of Pure and Doped BiVO<sub>4</sub> NPs

## RESEARCH INTERESTS

Emerging phenomena in 2D Materials, Complex Oxides, Organic-Inorganic Heterostructures and Strongly Correlated Materials; Advanced Spectroscopy Techniques, Synthesis, Growth & Fabrication of Nanoelectronics and Nanophotonic devices, Renewable Energy Storage and Conversion.

## AWARDS AND SCHOLARSHIPS

- Best Oral Presentation, 2<sup>nd</sup> Int. Conf. on Physics for Sustainable Development and Technology, 2017, Bangladesh.
- Dean's List Award, Faculty of Engineering for achieving *CGPA* > 3.75 in Junior Year of B.Sc., 2016
- University Merit Scholarship for outstanding academic results in junior year of B.Sc., 2016
- 19<sup>th</sup> at ACM – ICPC Semifinal (9<sup>th</sup> as ICPC Ranklist), Bangladesh Site, 2014.
- Honorable Mention, Inter University Programming Contest at Daffodil Uni., Bangladesh, 2014

## PUBLICATIONS

- [1] Manifa Noor\*, **Abdullah Al Mamun\***, A. K. M. Atique Ullah\*, A Matsuda, G. Kawamura, M. A. Hakim, M. F Islam, and M. A. Matin. Physics of  $ce^{3+} \leftrightarrow ce^{4+}$  electronic transition in phytosynthesized ceo<sub>2</sub>/cepo<sub>4</sub> nanocomposites and its antibacterial activities. (\* equal contribution) *Journal of Physics and Chemistry of Solids*, page 109751, 2020.
- [2] Abdullah Zubair, **Abdullah Al Mamun**, Karrina McNamara, Syed AM Tofail, Fakhrul Islam, and Vasily A Lebedev. Amorphous interface oxide formed due to high amount of sm doping (5-20 mol%) stabilizes finer size anatase and lowers indirect band gap. *Applied Surface Science*, page 146967, 2020.
- [3] MM Rhaman, MA Matin, **MA Al Mamun**, A Hussain, MN Hossain, BC Das, MA Hakim, and MF Islam. Enhanced electrical conductivity and multiferroic property of cobalt-doped bismuth ferrite nanoparticles. *Journal of Materials Science: Materials in Electronics*, 31:8727–8736, 2020.
- [4] **Md. Abdullah Al Mamun**, Manifa Noor, Muhammad Hasanuzzaman, and Mohamad S.J. Hashmi. Nano-porous materials for use in solar cells and fuel cells. In Saleem Hashmi and Imtiaz Ahmed Choudhury, editors, *Encyclopedia of Renewable and Sustainable Materials*, pages 549 – 560. Elsevier, Oxford, 2020.
- [5] Sapan Kumar Sen, Manifa Noor, **Md Abdullah Al Mamun**, MS Manir, MA Matin, MA Hakim, Salahuddin Nur, and Supria Dutta. An investigation of <sup>60</sup>Co gamma radiation-induced effects on the properties of nanostructured  $\alpha$ -moo<sub>3</sub> for the application in optoelectronic and photonic devices. *Optical and Quantum Electronics*, 51(3):82, 2019.
- [6] **Md Abdullah Al Mamun\***, Manifa Noor\*, AKM Atique Ullah, Md Sarowar Hossain, Matin Abdul, Fakhrul Islam, and MA. Hakim. Effect of cepo<sub>4</sub> on structural, magnetic and optical properties of ceria nanoparticles. (\* equal contribution) *Materials Research Express*, 6(1):016102, 2018.
- [7] Manifa Noor, **MA Al Mamun**, MA Matin, Md Fakhrul Islam, Saima Haque, Farabi Rahman, MN Hossain, and MA Hakim. Effect of ph variation on structural, optical and shape morphology of bivo<sub>4</sub> photocatalysts. In *2018 10th International Conference on Electrical and Computer Engineering (ICECE)*, pages 81–84. IEEE, 2018.

## RESEARCH EXPERIENCE

- Hands on experience in synthesis of multifunctional nanoparticles (TiO<sub>2</sub>, CeO<sub>2</sub>, BiFeO<sub>3</sub>, BiVO<sub>4</sub>) using solid state and different wet chemical routes such as sol-gel, hydrothermal, co-precipitation etc.
- Hands on experience in thin film deposition using spin coater (TiO<sub>2</sub> and CeO<sub>2</sub>) and thermal evaporator (ZnSe).
- Material Characterization Analysis: X-Ray Diffraction (XRD), Scanning Electron Microscopy (SEM), Transmission Electron Microscopy (TEM), Selective Area Electron Diffraction (SAED), UV-Visible and Photoluminescence Spectroscopy, X-Ray Photoelectron Spectroscopy (XPS).
- Electrical and Magnetic Characterization Analysis: Dielectric Properties such as resistance, reactance, AC conductivity, AC resistivity; Ferroelectric Properties (P-E hysteresis); Magnetic Properties (M-H hysteresis).

## TECHNICAL SKILLS

Programming: C, C++, Python, L<sup>A</sup>T<sub>E</sub>X; Scientific Computing Environment: MATLAB, Originpro.