

# Curriculum Vitae of Mohammed Abdul Basith

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## CONTACT INFORMATION

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## DATE OF BIRTH

- **05th March 1975**

## EDUCATION

- **Doctor of Philosophy**, School of Physics and Astronomy, University of Glasgow, UK, September 2007 - November 2011.
- **Master of Philosophy**, Solid State Physics, Bangladesh University of Engineering and Technology (BUET), Dhaka -1000, Bangladesh, September 2002 - June 2005.
- **Master of Science in Physics**, Shahjalal University of Sciences and Technology, Sylhet-3114, Bangladesh, April 1999 - April 2001.
- **Bachelor of Science with Honors in Physics**, Shahjalal University of Sciences and Technology, Sylhet-3114, Bangladesh, April 1994 - April 1999.

## PROFESSIONAL CAREER

- **Professor**, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, December 2017- Present.
- **Associate Professor**, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, March 2015 - December 2017.
- **Assistant Professor**, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Dec 2011 - Mar 2015.
- **Lecturer**, Department of Physics, Bangladesh University of Engineering and Technology, Dhaka, Mar 2005 - Dec 2011.
- **Teaching Assistant**, School of Physics and Astronomy, University of Glasgow, United Kingdom, September 2007 - May 2011.
- **Lecturer**, Department of Physics, Dhaka University of Engineering and Technology (DUET), Gazipur, October 2001 - March 2005.

## MEMBERSHIP

- **Fellow**, Institute of Physics (IOP), since October 2022 - Present (Id 80189193).
- **Founding member, National Young Academy of Bangladesh, June 2019-Present.**
- **Life Member Bangladesh Physical Society, 2001 - Present.**
- **Life Member Bangladesh Nano Society, 2020 - Present.**

## ADMINISTRATIVE AND OTHER EXPERIENCE

- **Founder and Principal Investigator**, Nanotechnology Research Laboratory, Department of Physics, BUET, Dhaka, Bangladesh, April 2014 - present.
- **Member**, Peer Review Committee, Engineering and Applied Sciences Division, Ministry of Science and Technology, Government of Bangladesh, 2019 - present.
- **International Expert Committee Member**, Global Energy Prize, 2022 - present.
- **Founder President**, National Young Academy of Bangladesh, June 2019 - 2022.
- **Executive Member**, Bangladesh Nano Society, December 2019 - present.

- **Executive Member**, Bangladesh Physical Society, Mar 2018 - Feb 2020.
- **Convener**, International Poster Presentation Competition (IPPC 2020), September-October 2020.
- **Organizing secretary**, International Conference on Nanotechnology and Condensed Matter Physics, 11-12 January 2018.
- **Provost**, Kazi Nazrul Islam Hall, BUET, Dhaka, Bangladesh, May 2018 - February 2021.
- **Member**, Board of Residence and Discipline, BUET, May 2018 - February 2021.

## RESEARCH GRANTS

1. **Title of the Project:** Increasing Awareness Against Predatory Academic Practices; **Funding organization:** The InterAcademy Partnership (IAP); **Amount:** USD 20,000, BDT 17,00,000/-; Role: Co-Investigator; Year: 2021.
2. **Title of the Project:** Synthesis of MoS<sub>2</sub> incorporated GaFeO<sub>3</sub> nanocomposite and investigation of their structural and magnetoresistive properties along with photocatalytic dye degradation and hydrogen production ability; **Funding organization:** Ministry of Education, Bangladesh; **Amount:** USD 23,570, BDT 20,00,000/-; Role: Principal Investigator; Year: 2019.
3. **Title of the Project:** Synthesis and investigation of MoS<sub>2</sub> based nanocomposites for solar energy applications; **Funding organization:** Ministry of Science and Technology, Bangladesh; **Amount:** USD 3,750, BDT 3,00,000/-; Role: Principal Investigator; Year: 2018.
4. **Title of the Project:** Modernization of Teaching-Learning Facilities to Enhance the Quality of Undergraduate and Postgraduate Programs at the Department of Physics, BUET; **Funding organization:** Bangladesh University Grants Commission (UGC), and Ministry of Education, Government of Bangladesh; **Amount:** USD 2,37,000, BDT 1,90,00,000/-; Role: Principal Investigator (Manager); Year: 2017.
5. **Title of the Project:** Feasibility Studies on Deploying a Self-contained Solar-hydraulic Pilot Power Plant in a Rural Area in Bangladesh  
**Funding organization:** Global Challenges Research Fund (GCRF), UK; **Amount:** GBP 3,100; Role: Academic Partner, Year: 2018.
6. **Title of the Project:** Multiferroic properties of Li doped BiFeO<sub>3</sub> nanoparticles prepared by ultrasonication of their bulk material; **Funding organization:** University Grants Commission (UGC) of Bangladesh, Dhaka, Bangladesh; **Amount:** USD 1,875, BDT 1,50,000/-; Role: Principal Investigator; Year: 2016.
7. **Title of the Project:** Solar hydrogen production via water splitting using locally synthesized nanoparticles as a photocatalyst; **Funding organization:** The Infrastructure Development Company Limited (IDCOL), Dhaka, Bangladesh; **Amount:** USD 93,750, BDT 75,00,000/-; Role: Principal Investigator; Year: 2015.
8. **Title of the Project:** Synthesis and characterization of multiferroic nanoparticles for energy applications; **Funding organization:** Ministry of Education, Government of Bangladesh; **Amount:** USD 30,487, BDT 24,50,000/-; Role: Principal Investigator; Year: 2016.
9. **Title of the Project:** Multiferroic properties of Gd and Ti co-doped bismuth ferrite ceramics; **Funding organization:** The World Academy of Science (TWAS), Grant No.: Ref.:14-066 RG/PHYS/AS-I; UNESCO FR: 324028567; **Amount:** USD 19,200; Role: Principal Investigator; Year: 2015.
10. **Title of the Project:** Synthesis and Investigation of Manganites And Multiferroic Nanoparticles for Energy Applications; **Funding organization:** Ministry of Science and Technology, Bangladesh; **Amount:** USD 12,500, BDT 10,00,000/-; Role: Principal Investigator; Year: 2015.
11. **Title of the Project:** Structural, dielectric and magnetic properties of Gd doped ABO<sub>3</sub> (A = Bi; B = Fe, Mn) multiferroics; **Funding organization:** University Grants Commission (UGC)

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of Bangladesh, Dhaka, Bangladesh; **Amount:** USD 1700, BDT 1,36,000/-; Role: Principal Investigator; Year: 2014.

CURRENT  
RESEARCH  
PROJECTS

1. Synthesis of metal halide perovskite for optoelectronic applications.
2. Tunable exchange bias effect in multiferroics.
3. MoS<sub>2</sub> based nanocomposites for energy applications.
4. Solar hydrogen production via water splitting.
5. Preparation of bismuth ferrite-2D materials based nanocomposites as efficient photocatalysts.
6. Structural, dielectric, ferroelectric and magnetic properties of multiferroic nanomaterials.
7. Development of top-down preparation technique for the synthesis of nanostructured materials.
8. Synthesis and characterization of manganites nanopartilces
9. Investigation of the phase stability and physical properties of double perovskites by first-principles DFT calculations.

KEYNOTE AND  
INVITED SPEECHES

1. **Title: *Tuning the physicochemical properties of nanostructured materials for industrial applications***, BRSIR Congress-2022, BCSIR, Dhaka, Bangladesh, 02 December 2022.
2. **Title: *Exploring Nanotechnology Research in Bangladesh for Environmental Remediation***, International Conference on 4IR for Emerging Future (4IREF 2022), Institute of Engineers, Dhaka, Bangladesh, 5 November 2022.
3. **Title: *Perovskite-Based Nanocomposites for Photodegradation of Industrial Dyes and Pharmaceutical Wastes***, 1st International Conference of Physical Sciences (ICPS), Shahjalal University of Science and Technology, Sylhet, 21-23 October 2022.
4. **Title: *Perovskite nanomaterials as next-generation photocatalysts to remediate environmental pollution***, International Conference on Environmental Protection for Sustainable Development, Dhaka, Bangladesh, 4 Sep., 2022.
5. **Title: *Perovskite Nanomaterials for Efficient Photodegradation and Solar H<sub>2</sub> Evolution***, 2nd International Conference on Renewable Energy (ICRE-2022), University of Rajasthan, Jaipur India, 27 February 2022.
6. **Title: *Perovskite Nanomaterials: Synthesis, Characterization, and Applications***, 4th International Conference on “Physics for Sustainable Development Technology (ICPSDT-2022), Chittagong University of Engineering and Technology (CUET), 22 January 2022.
7. **Title: *Perovskite Nanomaterials for Energy and Environmental Applications***, International webinar on physics, Department of Physics, Pabna University of Engineering and Technology (PUST), 04 May 2021.
8. **Title: *Perovskite Nanomaterials: Synthesis, Properties, and Applications***, International Conference on Science and Technology for Celebrating the Birth Centenary of Bangabandhu (ICSTB-2021), BCSIR, Dhaka, 13 March 2021.
9. **Title: *Locally Synthesized Nano-structured Materials for Energy Harvesting***, International Symposium on Nanotechnology 2020, Center for Nanotechnology Research at American International University -Bangladesh, Dhaka, 12 March 2020.
10. **Title: *Research Article: Publication Process and Ethical Issues***, North South University, Dhaka, 16 February 2020.

11. **Title: Nanotechnology Research Laboratory: A primary platform to train young academics in experimental research**, Annual general meeting of the National Young Academy of Bangladesh (NYAB) at the Centre for Advanced Research in Sciences (CARS), Dhaka University, 16 June 2019.
12. **Title: Nanomaterials: Synthesis techniques and their Properties**, Department of Mathematical and Physical Sciences, East West University, Dhaka, 14 March 2019.
13. **Title: Nanomaterials for Multifunctional Applications**, 1st Alumni Reunion and Scientific Meeting, Polymer Collides and Nanomaterials Group, University of Rajshahi, 12 February 2019.
14. **Title: How to get published in a peer reviewed journal**, BUET Career Club. BUET, 5 February 2019.
15. **Title: Synthesis of nanostructured materials and their multifunctional applications**, School of Engineering, University of Glasgow, UK, 4 January 2019.
16. **Title: Locally synthesized nanostructured materials and their multifunctional applications**, International Conference on Material Science and Semiconductor Devices, Department of Electrical and Electronic Engineering, University of Dhaka, 7 September 2018.
17. **Title: Nanostructured materials and their potential applications**, Department of EEE, University of Dhaka, 31st July 2018.
18. **Title: Nanomaterials and Their Multifunctional Applications**, Department of Physics, Shahjalal University of Science and Technology, 16 April 2018.
19. **Title: Multiferroic Nanomaterials for Multifunctional Applications**, International Conference on Physics – 2018, organized by Bangladesh Physical Society, Dhaka, Bangladesh, 09 March 2018.
20. **Title: Multiferroic ceramics for multifunctional applications**, 15 Annual Conference of Bangladesh Ceramic Society, Dhaka, Bangladesh, 07 April 2017.
21. **Title: Exploring Gd and Ti co-doped BiFeO<sub>3</sub> Multiferroics for Spintronic and Energy Applications**, International workshop on Energy devices and Nanotechnology, Yamagata University, Japan, 13-14 March 2014.

NO. OF THE STUDENTS SUPERVISED	Doctor of Philosophy (Ph.D.)	: One (01)
	Master of Philosophy (M.Phil.)	: Nine (09)
	Master of Science (M.Sc.)	: Seventeen (17)

NO. OF THE STUDENTS UNDER SUPERVISION	Doctor of Philosophy (Ph.D.)	: Five (05)
	Master of Philosophy (M.Phil.)	: Three (03)
	Master of Science (M.Sc.)	: Three (03)

AWARDS AND RECOGNITION BY STUDENTS UNDER SUPERVISION

1. **Best Oral Presentation Award**, Fahmida Sharmin and M. A. Basith, Sillenite-type bismuth ferrite photocatalysts towards efficient removal of organic pollutants from wastewater, International Colloquium on Authentic Scientific Publications-2022, Organized by National Young Academy of Bangladesh, 14-15 July, 2022.
2. **Best Poster Presentation Award**, Fahmida Sharmin, Ferdous Ara and M. A. Basith, Comparative investigation on the structural, optical, and magnetic properties of Dy doped bismuth ferrite nanoparticles prepared by sol-gel and hydrothermal methods, International Colloquium on Authentic Scientific Publications-2022, Organized by National Young Academy of Bangladesh, 14-15 July, 2022.

3. **Best Poster Presentation Award**, Fahmida Sharmin and M. A. Basith, Facile Synthesis and characterization of  $\text{Bi}_{0.9}\text{Gd}_{0.1}\text{FeO}_3$  nanoparticles for solar light-driven photocatalytic degradation of toxic pollutants, International Symposium of Nanotechnology-2022, Organized by Centre for Nanotechnology Research, American International University-Bangladesh (AIUB), January 2022.
4. **Best Poster Presentation Award**, Yasir Fatha Abed, Susmita Das, Md. Shahjahan Ali, Zuel Rana and M. A. Basith, Nanostructured reduced graphene oxide (rGO) incorporated  $\text{DyCrO}_3$ -rGO nanocomposites: A potential photocatalyst, International Symposium of Nanotechnology-2022, Organized by Centre for Nanotechnology Research, American International University-Bangladesh (AIUB), January 2022.
5. **Best Poster Presentation Award**, Yasir Fatha Abed, Md. Shahjahan Ali, Subrata Das and M. A. Basith,  $\text{CsSnCl}_3$  nanocrystals as efficient lead-free perovskite: A combined experimental and theoretical study, 4th International Conference on Physics for Sustainable Development Technology (ICPSDT-2022), Organized by Department of Physics, Chittagong University of Engineering and Technology (CUET), January 2022.
6. **Best Oral Presentation Award**, Fahmida Sharmin, Ferdous Ara, Rana Hossain, Subrata Das, M.D.I Bhuyan and M. A. Basith, Insight into the exchange bias and magnetization reversal in  $\text{Nd}_2\text{FeCrO}_6$  double perovskite, 4th International Conference on “Physics for Sustainable Development Technology (ICPSDT-2022), Organized by Department of Physics, Chittagong University of Engineering and Technology (CUET), January 2022.
7. **Best Poster Presentation Award**, Md. Shahjahan Ali, Yasir Fatha Abed, Subrata Das and M. A. Basith, DFT Based First-principles calculation of Lead-free  $\text{CsSnCl}_3$  Perovskite: A “GGA+U” Approach, , National Conference on Physics-2021, Organized by Bangladesh Physical Society, August 2021.
8. **Best Oral Presentation Award**, Sajjad Hasan, Subrata Das, Akter H. Reaz, Chanchal Kumar Roy and M. A. Basith, Investigation of  $\text{CuCo}_2\text{S}_4$ - $\text{MoS}_2$  Nanocomposite as Electrode Material for Supercapacitor, National Conference on Physics-2021, Organized by Bangladesh Physical Society, August 2021.
9. **Best Poster Presentation Award**, Subrata Das, Sagar Dutta, Angkita Mistry Tama and M. A. Basith, Enhanced photocatalytic activity of Z-scheme  $\text{LaFeO}_3$ - $\text{MoS}_2$  nanocomposite for aquatic pollutants degradation and hydrogen evolution, International Poster Presentation Competition (IPPC)-2020, Organized by National Young Academy of Bangladesh (NYAB), Indian National Young Academy of Sciences (INIAS), Thai Young Scientists Academy (TYSA), and Sri Lankan Academy of Young Scientists (SLAYS), October 2020.
10. **Best Poster Presentation Award**, Subrata Das and M. A. Basith, Temperature effect on the crystallographic and magnetic properties of  $\text{Nd}_{0.7}\text{Sr}_{0.3}\text{MnO}_3$  nanoparticles, International Conference on Physics-2020, Organized by Bangladesh Physical Society, March 2020.
11. **Outstanding Publication Award**, M. A. Basith, A. Quader, M. A. Rahman, B. L. Sinha, Simple top-down preparation of magnetic  $\text{Bi}_{0.9}\text{Gd}_{0.1}\text{Fe}_{1-x}\text{Ti}_x\text{O}_3$  nanoparticles by ultrasonication of multiferroic bulk material, United Group, April 2019.
12. **Best Poster Presentation Award**, Ragib Ahsan, Saleh Omar, Avijit Mitra, Md. Ziaur Rahman Khan and M. A. Basith, Effect of 10% Fe-doping on the Photocatalytic Hydrogen Production Ability of Sol-gel Synthesized  $\text{DyCrO}_3$  Nanoparticles, International Conference on Nanotechnology and Condensed Matter Physics 2018, Organized by Bangladesh University of Engineering and Technology (BUET), January 2018.
13. **Best Poster Presentation Award**, M. S. Alam and M. A. Basith, Improved Morphology and Enhanced Multiferroicity in Gd-doped  $\text{BiMn}_2\text{O}_5$  Ceramics, International Conference on Nanotechnology and Condensed Matter Physics 2018, Organized by Bangladesh University of Engineering and Technology (BUET), January 2018.

14. **Best Poster Presentation Award**, M A Jalil and M. A. Basith, A Comparative Investigation on Enriched Photocatalytic Properties between Sillenite and PerovskiteBismuth Ferrite-rGO Nanocomposites, International Conference on Nanotechnology and Condensed Matter Physics 2018, Organized by Bangladesh University of Engineering and Technology (BUET), January 2018.
15. **Best Poster Presentation Award**, Mashnoon Alam Sakib, Emran Khan Ashik, S.M.Enamul Hoque Yousuf, Sayeed Shafayet Chowdhury, M A Jalil, Bashir Ahmmad and M. A. Basith, A Promising Bulk Multiferroic Material: The 10% Gd And Ti Co-Doped BiFeO<sub>3</sub>, National Conference on Physics-2017, Organized by Bangladesh Physical Society, January 2017.
16. **Best Poster Presentation Award**, M. A. Jalil, Sayeed S. Chowdhury, Mashnoon Alam Sakib, Emran Khan Ashik, S.M.Enamul Hoque Yousuf, Shakhawat H. Firoz and M. A. Basith, Preparation of Bi<sub>25</sub>FeO<sub>40</sub>-RGO nanocomposites via a facile hydrothermal route and investigation of their magnetic and optical properties, National Conference on Physics-2017, Organized by Bangladesh Physical Society, January 2017.
17. **Best Poster Presentation Award**, N. Yesmin and M. A. Basith, Effect of synthesis route on the structural, magnetic and optical properties of BiFeO<sub>3</sub>: a comparative study between solid state and hydrothermal methods, National Conference on Physics-2017, Organized by Bangladesh Physical Society, January 2017. Dy doped BiFeO<sub>3</sub>: A multiferroic with bulk structural and ferroelectric properties comparable with nano counterparts, 9th International Conference on Electrical and Computer Engineering, December 2016.
18. **Best Poster Presentation Award**, Syeda Karimunnesa, Bashir Ahmmad and M. A. Basith, Preparation and Investigation of the Structural and Magnetic properties of perovskite manganites La<sub>1.8</sub>Sr<sub>0.2</sub>CoMnO<sub>6</sub>, National Conference on Physics research and education in Bangladesh, Organized by Bangladesh Physical Society, April 2015.
19. **Best Poster Presentation Award**, M. S. Alam, M. A. Rahman, B. L. Sinha, Bashir Ahmad, M. R. Karim and M. A. Basith, Temperature-dependent dielectric and magnetic properties of Bi<sub>1-x</sub>Gd<sub>x</sub>MnO<sub>3</sub> ceramics, International Conference on Physics for Energy and Environment, Organized by Bangladesh Physical Society, March 2014.

SCHOLARSHIPS,  
AWARDS AND  
HONORS

- **Overseas Research Student Award Scheme (ORSAS)** Sep 2007 - Mar 2011.
- **Glasgow University, UK funded postgraduate scholarship**, Sep 2007 - Mar 2011.
- **Best Alumni Award** on the occasion of the 30 years celebration of the Department of Physics, Shahjalal University of Science and Technology, Sylhet, Feb 2020.
- **Selected for Japanese Government Monbu-Kagakusho Scholarship** from Keio University, Japan for PhD programme in April 2007.
- **Fellowship from ICTP, Italy** for joining in the Advanced workshop on Recent Developments in Inorganic Materials, Jan 2006.
- **Fellowship from University of California, Santa Barbaba, USA** for joining in the ICYS ICMR Summer School 2006 on Nanomaterials, National Institute of Materials Science, Tsukuba, JAPAN, July 2006.
- **Fellowship from ICTP Italy** for joining in the ICTP-NCNST-ICTS Asian /Pacific Regional College on Science at the Nanoscale, Beijing, China, August 2006.
- **Fellowship from JNCASR, Bangalore, India and University of California, Santa Barbara, USA** for in the JNCASR-ICMR Winter School on the Chemistry of Materials, JNCASR, Bangalore, INDIA, December 2006.
- **National Science and Technology fellowship**, Ministry of Science and Technology, Government of Bangladesh, Aug 2000.

EDITORIAL  
EXPERIENCE

- **Editorial Board Member, MIST International Journal of Science and Technology, ISSN 2224-2007.**

PEER REVIEW  
EXPERIENCE

- Physical Review Applied (American Physical Society)
- Applied Physics Letters (American Institute of Physics)
- Journal of Materials Chemistry C (Royal Society of Chemistry)
- ACS Applied Nanomaterials (American Chemical Society)
- Journal of Alloys and Compounds (Elsevier)
- Scientific Reports (Nature Publishing Group)
- Journal of Applied Physics (American Institute of Physics)
- RSC Advances (Royal Society of Chemistry)
- Physica B: Condensed Matter Physics (Elsevier)
- Chemical Physics Letters (Elsevier)
- Journal of Magnetism and Magnetic Materials (Elsevier)
- Ecotoxicology and Environmental Safety (Elsevier)
- Solid State Science (Elsevier)
- Current Applied Physics (Elsevier)
- Sensors and Actuators A: Physical (Elsevier)

SELECTED EVENT  
ORGANIZATION

- **International Conference on Nanotechnology and Condensed Matter Physics-2018**, Organized by Bangladesh University of Engineering and Technology, 11-12 January 2018. Role: Conference Secretary
- **International Poster Presentation Competition (IPPC-2020)**, Sep-October 2020, Organized by NYAB, INYAS, TYSA, and SLAYS, October 2020. Role: Convener and key organizer
- **International Colloquium on Authentic Scientific Publications**, 14-15 July 2022, organized by NYAB . Role: Chair and key organizer
- **Summer School on Skills Development for Scientific Writing**, 13-15 September 2022, organized by NYAB . Role: Chair and key organizer
- **National workshop on Increasing Awareness against Predatory Academic Practices**, 22 Feb. 2022, organized by NYAB and InterAcademy Partnership (IAP). Role: Chair and key organizer
- **International workshop on Increasing Awareness against Predatory Academic Practices**, 31 March 2022, organized by NYAB and IAP. Role: Chair and key organizer

INTERNATIONAL  
RESEARCH  
COLLABORATORS

- **Dr. Kristian Mølhave**  
Technical University of Denmark  
Kgs. Lyngby 2800, Denmark  
Tel.: +45 45 25 57 42, Email: Kristian.Molhave@nanotech.dtu.dk
- **Professor Tadahiyo Komeda**  
Institute of Multidisciplinary Research of Advanced Materials  
Tohoku University  
2-1-1, Katahira, Aoba-ku, Sendai 980-0877, Japan.  
Email: tadahiyo.komeda.a1@tohoku.ac.jp
- **Dr. Ferdous Ara**  
Institute of Multidisciplinary Research of Advanced Materials,  
Tohoku University, 2-1-1, Katahira, Aoba-ku, Sendai 980-0877, Japan.  
Email: ara.ferdous.c8@tohoku.ac.jp

## BOOK

**Title:** Ucchoshikkha O Gobeshona: Songkoter Shorup ebong Uttorone Koronio  
**Publisher:** Samhati Prokashan  
**Year of publication:** 2020

## ● PUBLISHED PAPERS IN PEER-REVIEWED JOURNALS

1. M. A. Islam, T. Sato, F. Ara and M. A. Basith, Sol-Gel based synthesis to explore structure, magnetic and optical properties of double perovskite  $\text{Y}_2\text{FeCrO}_6$  nanoparticles, *Journal of Alloys and Compounds (Publisher: Elsevier)*, 944, 169066, 2023.
2. Fahmida Sharmin, Ferdous Ara and M. A. Basith, Comparison of the structure-property relationships between sillenite and perovskite phases of  $\text{Bi}_{0.9}\text{Dy}_{0.1}\text{FeO}_3$  nanostructures, *New J. Chem. (Publisher: Royal Society of Chemistry)*, 47, 4707–4719, 2023.
3. Fahmida Sharmin and M. A. Basith, A simple low temperature technique to synthesize sillenite bismuth ferrite with promising photocatalytic performance, *ACS Omega (Publisher: American Chemical Society)*, 7, 39, 34901–349, 2022.
4. Tarique Hasan, Arnab Saha, M. N. I. Khan, R. Rashid, M. A. Basith, Muhammad Shahriar Bashar, and Imtiaz Ahmed, Structural, electrical, and magnetic properties of Ce and Fe doped  $\text{SrTiO}_3$ , *AIP Advances (Publisher: American Institute of Physics)*, 12, 095003, 2022.
5. Sajjad Hasan, Akter Hossain Reaz, Subrata Das, Chanchal Kumar Roy, and M. A. Basith,  $\text{CuCo}_2\text{S}_4\text{-MoS}_2$  nanocomposite: A novel electrode for high-performance supercapacitors, *Journal of Materials Chemistry C (Publisher: Royal Society of Chemistry)*, 10, 7980–7996, 2022.
6. Y. F. Abed, S. Das, M.S. Ali, Z. Rana, and M. A. Basith, Nanostructured  $\text{DyCrO}_3\text{-rGO}$  for efficient photocatalytic dye degradation and hydrogen generation, *Materials Letters (Publisher: Elsevier)*, 163604, 2022.
7. Fahmida Sharmin, and M. A. Basith, Highly efficient photocatalytic degradation of hazardous industrial and pharmaceutical pollutants using gadolinium doped  $\text{BiFeO}_3$  nanoparticles, *Journal of Alloys and Compounds (Publisher: Elsevier)*, 163604, 2022.
8. Manifa Noor, Fahmida Sharmin, M. A. Al Mamun, Sajjad Hasan, M. A. Hakim, and M. A. Basith, Effect of Gd and Y co-doping in  $\text{BiVO}_4$  photocatalyst for enhanced degradation of methylene blue dye, *Journal of Alloys and Compounds (Publisher: Elsevier)*, 895, 162639, 2022.
9. M. D. I. Bhuyan, Rana Hossain, Ferdous Ara, and M. A. Basith, A first-principles study on the phase stability and physical properties of a B-site ordered  $\text{Nd}_2\text{CrFeO}_6$  double perovskite, *Physical Chemistry Chemical Physics (Publisher: Royal Society of Chemistry)* 24, no. 3, 1569-1579, 2022.
10. Md Shahjahan Ali, Subrata Das, Yasir Fatha Abed, and M. A. Basith, Lead-free  $\text{CsSnCl}_3$  perovskite nanocrystals: rapid synthesis, experimental characterization and DFT simulations, *Physical Chemistry Chemical Physics (Publisher: Royal Society of Chemistry)*, 23, no. 38, 22184-22198, 2021.
11. Fahmida Sharmin, Dayal Chandra Roy, and M. A. Basith, Photocatalytic water splitting ability of  $\text{Fe/MgO-rGO}$  nanocomposites towards hydrogen evolution, *International Journal of Hydrogen Energy (Publisher: Elsevier)* 46, no. 77, 38232-38246, 2021.
12. Md Sarowar Hossain, Sankar Kumar Das, Md Moniruzzaman, M. A. Hakim, and M. A. Basith,



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- Frequency and temperature dependent electric polarization, relaxation, and transport properties of Mo and W doped BaTiO<sub>3</sub>, *Results in Physics (Publisher: Elsevier)*, 30, 104873, 2021.
13. Subrata Das, M. D. I. Bhuyan, and M. A. Basith, First-principles calculation of the electronic and optical properties of Gd<sub>2</sub>FeCrO<sub>6</sub> double perovskite: Effect of Hubbard U parameter, *Journal of Materials Research and Technology (Publisher: Elsevier)* 13, 2408-2418, 2021.
  14. Shahran Ahmed, AKM Sarwar Hossain Faysal, M. N. I. Khan, M. A. Basith, Muhammad Shahriar Bashar, H. N. Das, Tarique Hasan, and Imtiaz Ahmed, Room temperature ferroic orders in Zr and (Zr, Ni) doped SrTiO<sub>3</sub>, *Results in Physics (Publisher: Elsevier)* 31, 104940, 2021.
  15. Subrata Das, Sagar Dutta, Angkita Mistry Tama, and M. A. Basith, Nanostructured LaFeO<sub>3</sub>-MoS<sub>2</sub> for efficient photodegradation and photocatalytic hydrogen evolution, *Materials Science and Engineering: B (Publisher: Elsevier)* 271, 115295, 2021.
  16. M. D. I. Bhuyan, Subrata Das, and M. A. Basith, Sol-gel synthesized double perovskite Gd<sub>2</sub>FeCrO<sub>6</sub> nanoparticles: Structural, magnetic and optical properties, *Journal of Alloys and Compounds (Publisher: Elsevier)* 878, 160389, 2021.
  17. Subrata Das, Bashir Ahmmad and M. A. Basith, Thermal stability of the crystallographic structure of nanocrystalline Nd<sub>0.7</sub>Sr<sub>0.3</sub>MnO<sub>3</sub> manganite with enhanced magnetic properties, *AIP Advances (Publisher: American Institute of Physics)*, 10, 095135, 2020.
  18. Angkita Mistry Tama\*, Subrata Das\*, Sagar Dutta, M. D. I. Bhuyan, M. N. Islam and M. A. Basith, MoS<sub>2</sub> nanosheets incorporated -Fe<sub>2</sub>O<sub>3</sub>/ZnO nanocomposite with enhanced photocatalytic dye degradation and hydrogen production ability, *RSC Advances (Publisher: Royal Society of Chemistry)*, 9, 40357-40367, 2019. \*Equal contribution
  19. Subrata Das, Angkita Mistry Tama, Sagar Dutta, Md. Shahjahan Ali and M. A. Basith, Facile high-yield synthesis of MoS<sub>2</sub> nanosheets with enhanced photocatalytic performance using ultrasound driven exfoliation technique, *Materials Research Express (Publisher: Institute of Physics, UK)*, 6, 125079, 2019.
  20. Subrata Das, Irin Sultana, M. D. I. Bhuyan and M.A. Basith, Enhanced magnetic softness of double-layered perovskite manganite La<sub>1.7</sub>Gd<sub>0.3</sub>SrMn<sub>2</sub>O<sub>7</sub> synthesized at inert atmosphere, *IEEE Magnetics Letters(Publisher: IEEE)*, 10 (1), 2503704, 2019.
  21. Armin Anwar, M.A. Basith, Shamima Choudhury, From bulk to nano: A comparative investigation of structural, ferroelectric and magnetic properties of Sm and Ti co-doped BiFeO<sub>3</sub> multiferroics, *Materials Research Bulletin (Publisher: Elsevier)* 111, 93-101, 2019.
  22. M. A. Basith, Nilufar Yesmin and Rana Hossain, Low temperature synthesis of BiFeO<sub>3</sub> nanoparticles with enhanced magnetization and promising photocatalytic performance in dye degradation and hydrogen evolution, *RSC Advances (Publisher: Royal Society of Chemistry)* 8, 29613-29627, 2018.
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#### • CONFERENCE PROCEEDINGS / PRESENTATION

1. F. Sharmin and M. A. Basith, Exploring the differences between sillenite and perovskite phases of bismuth ferrite nanostructures, 1st International Dhaka Science Conference for Women (IWC 2023), Organized by- Dhaka Nanomaterials Group and ISP Uppsala University Sweden, Dhaka, Bangladesh, 15-16 February 2023.
2. S. Das, Y. F. Abed, M. S. Ali, Z. Rana and M. A. Basith, Effect of reduced graphene oxide (rGO) in  $\text{DyCrO}_4$ -rGO nanocomposite system: A photocatalytic perspective, 4th International Conference on Physics for Sustainable Development and Technology (ICPSDT-2022), organized by Department of Physics, CUET, Bangladesh, January 22-23. 2022.
3. Mohasin Tarek, M. A. Basith, “Tuning  $\text{MoS}_2$  nanosheet impacts on structural and electrochemical properties of  $\text{CuCo}_2\text{S}_4/\text{MoS}_2$  nanocomposite for energy storage devices”, 5th Young Scientist Congress, organized by Bangladesh Academy of Sciences, 25-27 November, 2022.
4. M. A. Islam and M. A. Basith, “ $\text{Y}_2\text{FeCrO}_6$  double perovskite nanoparticles: Synthesis, structural, magnetic and optical properties”, 2ND International Symposium on Nanotechnology, Poster presentation, 24 January, 2022, AIUB, Dhaka, Bangladesh.
5. Y. F. Abed, S. Das, M. S. Ali, Z. Rana and M. A. Basith, Nanostructured reduced graphene oxide (rGO) incorporated  $\text{DyCrO}_3$ -rGO nanocomposites: A potential photocatalyst, 2nd International Symposium on Nanotechnology ISN - 2022, organized by Center for Nanotechnology

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Research (CNR), AIUB, Bangladesh, January 24. 2022.

6. Md Asif Adib, M. A. Basith, “Bismuth doped CsSnBr<sub>3</sub> nanocrystals: Synthesis and characterizations for environmental remediation”, 5th Young Scientist Congress, organized by Bangladesh Academy of Sciences, 25-27 November, 2022.
7. M. A. Islam and M. A. Basith, “Room temperature multiferroic and optical properties of Y<sub>2</sub>FeCrO<sub>6</sub> double perovskite nanoparticles”, 1st International Conference on Frontier in Sciences, Oral presentation, 11-12 November, 2022, Faculty of Science, BUET, Dhaka, Bangladesh.
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10. M. A. Islam and M. A. Basith, “Reversal magnetization and tunable exchange bias effect in Y<sub>2</sub>FeCrO<sub>6</sub> double perovskite nanoparticles”, BCSIR Congress-2022, Oral presentation, 1-3 December, 2022, BCSIR, Dhaka, Bangladesh.
11. Md Asif Adib, M. A. Basith, “Synthesis of bismuth-doped CsSnBr<sub>3</sub> nanocrystals for photodegradation of a textile contaminant”, International Conference on Frontier in Sciences, organized by Faculty of Science, BUET, 11-12 November 2022.
12. Mohammad Jubaer Hosen, M. D. I. Bhuyan, M. A. Basith, and Ishtiaque M. Syed, Structure-property correlation of Gd<sub>2</sub>CoCrO<sub>6</sub> double perovskite synthesized by sol-gel method, Research Publication Fair – 2022, organized by the University of Dhaka, October 22-23, 2022.
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## THESES

1. **Title of the Thesis:** Experimental and theoretical investigation of structural, magnetic and optical properties of  $\text{Nd}_2\text{FeCrO}_6$  and  $\text{Gd}_2\text{FeCrO}_6$  perovskites synthesized by sol-gel technique  
**Name of the Student:** Md. Didaru Islam Bhuyan  
**Name of the Degree Awarded:** PhD, 2022.
2. **Title of the Thesis:** Synthesis of Bi doped  $\text{CsSnBr}_3$  nanocrystals and investigation of their photocatalytic performance  
**Name of the Student:** Md. Asif Adib  
**Name of the Degree Awarded:** M.Sc., 2023.
3. **Title of the Thesis:** Synthesis of  $\text{MoS}_2$  incorporated copper cobalt sulphide nanocomposites and investigation of their structural and electrochemical properties  
**Name of the Student:** Sajjad Hasan  
**Name of the Degree Awarded:** M.Sc., 2022.
4. **Title of the Thesis:** Synthesis of dysprosium chromite-reduced graphene oxide nanocomposites by hydrothermal process and study of their photocatalytic activity  
**Name of the Student:** Md. Zuel Rana  
**Name of the Degree Awarded:** MSc, 2021.
5. **Title of the Thesis:** Synthesis and optoelectronic Characterizations of cesium tin chloride perovskite nanocrystals  
**Name of the Student:** Md. Shahjahan Ali  
**Name of the Degree Awarded:** M.Sc., 2021.
6. **Title of the Thesis:** Synthesis of  $\text{MoS}_2$  Incorporated Iron-Zinc Oxide Nanocomposites and Investigation of Their Photoluminescence and Photocatalytic Properties  
**Name of the Student:** Angkita Mistry Tama  
**Name of the Degree Awarded:** M.Sc., 2019.
7. **Title of the Thesis:** Preparation of Gd doped  $\text{La}_2\text{SrMn}_2\text{O}_7$  layered manganites at inert atmosphere and investigation of their structural and magnetic properties  
**Name of the Student:** Irin Sultana  
**Name of the Degree Awarded:** M.Phil., 2019.
8. **Title of the Thesis:** Investigation of multiferroic and photocatalytic properties of  $\text{Bi}_{0.9}\text{Y}_{0.1}\text{FeO}_3$  nanoparticles  
**Name of the Student:** Md. Masud Parvez  
**Name of the Degree Awarded:** M.Phil., 2019.
9. **Title of the Thesis:** Synthesis and investigation of Fe-Ni and Fe-Co binary nano-alloy  
**Name of the Student:** Rubayet Tanveer  
**Name of the Degree Awarded:** M.Phil., 2019.
10. **Title of the Thesis:** Synthesis and characterization of structural, magnetic and optical properties  $\text{Dy}_2\text{BB}'\text{CrO}_6$  ( $B' = \text{Fe, Ne}$ ) perovskites  
**Name of the Student:** Md. Rana Hossain  
**Name of the Degree Awarded:** M.Sc., 2018.
11. **Title of the Thesis:** Investigation of structural, photocatalytic and magnetic properties of Dy doped  $\text{CoFe}_2\text{O}_4$  nanoparticles prepared by hydrothermal method  
**Name of the Student:** Kowser Pervin  
**Name of the Degree Awarded:** M.Sc., 2018.
12. **Title of the Thesis:** Preparation of iron-magnesium oxide-reduced graphene oxide nanocomposite and investigation of its applicability for solar hydrogen production through water splitting  
**Name of the Student:** Dayal Chandra Roy  
**Name of the Degree Awarded:** M.Sc., 2017.

13. **Title of the Thesis:** Investigation of structural, magnetic and photocatalytic properties of Gd doped bismuth ferrite-reduced graphene oxide nanocomposites  
**Name of the Student:** Md. Abdul Jalil  
**Name of the Degree Awarded:** M.Sc., 2017.
14. **Title of the Thesis:** Investigation of multiferroic and photocatalytic properties of Gd doped  $BiFeO_3$  prepared by hydrothermal technique  
**Name of the Student:** Nilufar Yesmin  
**Name of the Degree Awarded:** M.Sc., 2017.
15. **Title of the Thesis:** Investigation of multiferroic and photocatalytic properties of Gd and Mn co-doped  $BiFeO_3$   
**Name of the Student:** Md. Anisur Rahman  
**Name of the Degree Awarded:** M. Phil., 2016.
16. **Title of the Thesis:** Synthesis and characterization of  $Bi_{1-x}Dy_xFeO_3$  nanoparticles using ultrasonication technique  
**Name of the Student:** Abu Hena Mostafa Kamal  
**Name of the Degree Awarded:** M.Sc., 2016.
17. **Title of the Thesis:** Investigation of multiferroic and photocatalytic properties of Li doped  $BiFeO_3$  nanoparticles prepared by ultrasonication  
**Name of the Student:** A H M Areef Billah  
**Name of the Degree Awarded:** M.Sc., 2016.
18. **Title of the Thesis:** Investigation of structural, ferroelectric and magnetic properties of Gd doped  $BiFeO_3$  nanoparticles prepared by Sol-Gel method  
**Name of the Student:** Md. Rafiq Azad  
**Name of the Degree Awarded:** M.Sc., 2016.
19. **Title of the Thesis:** Temperature dependent dielectric and magnetic properties of Gd and Ti co-doped  $BiFeO_3$  multiferroics  
**Name of the Student:** Md. Zahirul Islam  
**Name of the Degree Awarded:** M.Phil., 2016.
20. **Title of the Thesis:** Effect of strontium substitution on the structural and magnetic properties of  $La_{1.8}Sr_{0.2}MMnO_6$  (M = Ni, Co) layered manganites  
**Name of the Student:** Syeda Karimunnesa  
**Name of the Degree Awarded:** M.Phil., 2016.
21. **Title of the Thesis:** Synthesis and comparative study of structural, electrical and magnetic properties of Sm doped and Sm-Ti co-doped  $BiFeO_3$  ceramics and their corresponding nanoparticles  
**Name of the Student:** Armin Anwar  
**Name of the Degree Awarded:** M.S., 2016.
22. **Title of the Thesis:** Microstructure, dielectric and magnetic properties of  $Bi_{1-x}Gd_xMnO_3$  ceramics  
**Name of the Student:** Md. Saiful Alam  
**Name of the Degree Awarded:** M.Phil., 2015.
23. **Title of the Thesis:** Structural, dielectric and magnetic properties of Gd and Ti co-doped  $BiFeO_3$  multiferroics at room temperature  
**Name of the Student:** Md. Oyes Kurni  
**Name of the Degree Awarded:** M.Phil., 2015.
24. **Title of the Thesis:** Direct comparison of the magnetic properties of  $Gd_{0.7}Sr_{0.3}MnO_3$  nanoparticles with bulk counterparts  
**Name of the Student:** Mohammad Ashraful Islam  
**Name of the Degree Awarded:** M.Phil., 2015.
25. **Title of the Thesis:** Structural, dielectric and magnetic properties of Co and Nd co-doped  $BiFeO_3$  multiferroics at room temperature  
**Name of the Student:** Tamanna Mariam  
**Name of the Degree Awarded:** M.S., 2015.

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26. **Title of the Thesis:** Study of the influence of edge profiles of permalloy ( $Ni_{80}Fe_{20}$ ) nanowires on the magnetic behavior of domain walls using micromagnetic simulations  
**Name of the Student:** Syed Hasibur Rahman  
**Name of the Degree Awarded:** M.Phil., 2014.

## REPORTS

1. **Title:** Synthesis of  $MoS_2$  incorporated  $GaFeO_3$  nanocomposites and investigation of their structural and magnetoresistive properties along with photocatalytic dye degradation and hydrogen production ability  
**Submitted to:** Ministry of Education, Bangladesh, 2022.
2. **Title:** Synthesis and investigation of  $MoS_2$  based nanocomposites for solar energy applications  
**Submitted to:** Ministry of Science and Technology, Bangladesh, 2018.
3. **Title:** Modernization of Teaching-Learning Facilities to Enhance the Quality of Undergraduate and Postgraduate Programs at the Department of Physics, BUET  
**Submitted to:** Bangladesh University Grants Commission (UGC), and Ministry of Education, Government of Bangladesh, 2017.
4. **Title:** Multiferroic properties of Li doped  $BiFeO_3$  nanoparticles prepared by ultrasonication of their bulk material.  
**Submitted to:** University Grants Commission (UGC) of Bangladesh, Dhaka, Bangladesh, 2016.
5. **Title:** Solar hydrogen production via water splitting using locally synthesized nanoparticles as a photocatalyst.  
**Submitted to:** The Infrastructure Development Company Limited (IDCOL), Dhaka, Bangladesh, 2015.
6. **Title:** Synthesis and characterization of multiferroic nanoparticles for energy applications.  
**Submitted to:** Ministry of Education, Government of Bangladesh, 2016.
7. **Title:** Multiferroic properties of Gd and Ti co-doped bismuth ferrite ceramics.  
**Submitted to:** The World Academy of Science (TWAS), 2015.
8. **Title:** Synthesis and Investigation of Manganites And Multiferroic Nanoparticles for Energy Applications  
**Submitted to:** Ministry of Science and Technology, Bangladesh, 2015.
9. **Title:** Structural, dielectric and magnetic properties of Gd doped  $ABO_3$  ( $A = Bi$ ;  $B = Fe, Mn$ ) multiferroics  
**Submitted to:** University Grants Commission (UGC) of Bangladesh, Dhaka, Bangladesh, 2014.