

Curriculum Vitae of Mohammed Abdul Basith

CONTACT INFORMATION

Professor
Department of Physics,
Bangladesh University of Engineering and Technology (BUET),
Dhaka 1000; Bangladesh.
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Website: www.nanotechlabbuuet.com

EDUCATION

- **Doctor of Philosophy [Sep 2007 - Nov 2011]**
School of Physics and Astronomy, University of Glasgow, UK

Thesis: A TEM Investigation of Patterned Ferromagnetic Nanostructures by Lithographic Techniques

Website: <http://theses.gla.ac.uk/2962/>
- **Master of Philosophy [Sep 2002 - Jun 2005]**
Solid State Physics, Bangladesh University of Engineering and Technology (BUET), Dhaka -1000, Bangladesh

Dissertation: Investigation of the Magnetoresistive Properties in Double Layered Perovskite Manganites
- **Master of Science in Physics [Apr 1999 - Apr 2001]**
Shahjalal University of Sciences and Technology, Sylhet-3114, Bangladesh

Dissertation: A Study of the Shielding Effectiveness and Dose Deposition Profiles in Various Materials Using a Computer Simulation Program
- **Bachelor of Science with Honors in Physics [Apr 1994 - Apr 1999]**
Shahjalal University of Sciences and Technology, Sylhet-3114, Bangladesh

RECENT ACTIVITIES

Founder, Nanotechnology Research Laboratory: Built-up a research laboratory to conduct research in the field of Nanotechnology. Since its inception in April 2014, facilities for synthesis and investigations of advanced bulk and nanostructured materials are being developed under different research projects from home and abroad. The web address of this laboratory is: www.nanotechlabbuuet.com

President, NYAB: Contributing to the flourish of the National Young Academy of Bangladesh (NYAB) as its first President for the academic years 2019-2021.

Member, Board of Residence and Discipline, BUET: Working since May 2018 as a member of the Board of Residence and Discipline, BUET- the highest Body consisting of nine members chaired by the Vice-Chancellor for taking any disciplinary action

Member, Peer-Review Committee: Serving as a member of the peer review committee for providing grants from Ministry of Science and Technology for the academic years 2019-2020.

Organizing secretary, AGM 2019, NYAB: Played key role to organize Annual General Meeting (AGM) of the National Young Academy of Bangladesh (NYAB) at 2019.

Organizing secretary, ICNCMP Conference 2018: Organized an International Conference on Nanotechnology and Condensed Matter Physics (ICNCMP) on 11-12 January 2018. This conference was organized as a component of the Higher Education Quality Enhancement Project (HEQEP) Sub-Project CP-6038 in association with Department of Physics, BUET. HEQEP is funded by University Grants Commission of Bangladesh. The web address of this conference is: www.icncmp2018.com

Session chair: Worked as a session chair in the Technical Session 1A: Nanomaterials and Thin Films, on 2 March 2018 at the 4th International Conference on Structure, Processing and Properties of Materials, BUET, Dhaka.

RESEARCH GRANTS

(1) Title of the Project: Synthesis of MoS₂ incorporated GaFeO₃ nanocomposite and investigation of their structural and magnetoresistive properties along with photocatalytic dye degradation and hydrogen production ability

Amount: 20,00,000/- Bangladeshi Taka (23570.00 USD)

Funding organization: Ministry of Education, Bangladesh.

Year: 2019

Role: Principal Investigator

(2) Title of the Project: Synthesis and investigation of MoS₂ based nanocomposites for solar energy applications

Amount: 3,00,000/- Bangladeshi Taka (3750.00 USD)

Funding organization: Ministry of Science and Technology, Bangladesh.

Year: 2018

Role: Principal Investigator

(3) Title of the Project: Modernization of Teaching-Learning Facilities to Enhance the Quality of Undergraduate and Postgraduate Programs at the Department of Physics, BUET

Amount: 1,90,00,000/- Bangladeshi Taka (2,37,000.00 USD)

Funding organization: Bangladesh University Grants Commission (UGC), and Ministry of Education, Government of Bangladesh.

Year: 2017

Role: Sub-project Manager (Principal Investigator)

(4) Title of the Project: Feasibility Studies on Deploying a Self-contained Solar-hydraulic Pilot Power Plant in a Rural Area in Bangladesh

Amount: 3100 British Pound

Funding organization: Global Challenges Research Fund (GCRF), UK.

Year: 2018

Role: Academic Partner

(5) Title of the Project: Multiferroic properties of Li doped BiFeO₃ nanoparticles prepared by ultrasonication of their bulk material

Amount: 1,50,000/- Bangladeshi Taka (1875.00 USD)

Funding organization: University Grants Commission (UGC) of Bangladesh, Dhaka, Bangladesh.

Year: 2016
Role: Principal Investigator

(6) Title of the Project: Solar hydrogen production via water splitting using locally synthesized nanoparticles as a photocatalyst

Amount: 75,00,000/= Bangladeshi Taka (93,750.00 USD)

Funding organization: The Infrastructure Development Company Limited (IDCOL), Dhaka, Bangladesh

Year: 2015
Role: Principal Investigator

(7) Title of the Project: Synthesis and characterization of multiferroic nanoparticles for energy applications

Amount: 24,39,000/-Bangladeshi Taka (30,487.00 USD) -

Funding organization: Ministry of Education, Government of Bangladesh

Year: 2016
Role: Principal Investigator

(8) Title of the Project: Multiferroic properties of Gd and Ti co-doped bismuth ferrite ceramics

Amount: 19,200.00 US dollar (Nineteen thousand two hundred US Dollar) /-

Funding organization: The World Academy of Science (TWAS), Grant No. : Ref.:14-066 RG/PHYS/AS-I; UNESCO FR: 324028567

Year: 2015
Role: Principal Investigator

(9) Title of the Project: Synthesis and Investigation of Manganites And Multiferroic Nanoparticles for Energy Applications

Amount: 10,00,000/= Bangladeshi Taka (12,500.00 USD)

Funding organization: Ministry of Science and Technology, Bangladesh.

Year: 2015
Role: Principal Investigator

(10) Title of the Project: Structural, dielectric and magnetic properties of Gd doped ABO_3 (A = Bi; B = Fe, Mn) multiferroics

Amount: 1,36,000/-Bangladeshi Taka, (1700.00 USD)

Funding organization: University Grants Commission (UGC) of Bangladesh, Dhaka, Bangladesh.

Year: 2014
Role: Principal Investigator

NO. OF THE STUDENTS SUPERVISED	Master of Philosophy (M.Phil.) program	: Ten (10) students
	Master of Science (M.Sc.) program	: Eleven (11) students

NO. OF THE STUDENTS UNDER SUPERVISION	Doctor of Philosophy (Ph.D.) program	: Five (05) students
	Master of Philosophy (M.Phil.) program	: Five (05) students
	Master of Science (M.Sc.) program	: Six (06) students

CURRENT
RESEARCH
PROJECTS

1. MoS₂ based nanocomposites for solar energy applications.
2. Solar hydrogen production via water splitting.
3. Preparation of bismuth ferrite-reduced graphene oxide nanocomposites as efficient photocatalysts.
4. Structural, dielectric, ferroelectric and magnetic properties of rare earth doped multiferroics.
5. Tunable exchange bias effect in rare earth doped multiferroics.
6. Development of top-down preparation technique of multiferroic nanoparticles directly from bulk material.
7. Synthesis and characterization of multiferroic nanoparticles.
8. Synthesis and characterization of manganites nanoparticles
9. Micromagnetic simulations of the influence of edge profiles of ferromagnetic nanowires on the magnetic behavior of domain walls.
10. Understanding and controlling of domain wall behavior in ferromagnetic nanowires by ion irradiated pinning features using micromagnetic simulations.

INTERNATIONAL
RESEARCH
COLLABORATORS

- **Dr. Bashir Ahammad**
Graduate School of Science and Engineering,
Yamagata University,
4-3-16 Jonan, Yonezawa 992-8510, Japan.
Email: arima@yz.yamagata-u.ac.jp
Tel: +81 (0) 238 26 3309
- **Dr. Kristian Mølhave**
Technical University of Denmark, Kgs. Lyngby 2800,
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Tel.: +45 45 25 57 42
Email: Kristian.Molhave@nanotech.dtu.dk
- **Md. Sarowar Hossain**
S. N. Bose National Centre for Basic Sciences
Salt Lake City, Kolkata
West Bengal 700098, India
Tel.: +918697658825
Email: sakil-phy@yahoo.com
- **Dr. Stephen McVite**
School of Physics and Astronomy
University of Glasgow
Glasgow G12 8QQ
Tel: +44 (0) 141 330 6895
Email: stephen.mcvitie@glasgow.ac.uk

PEER REVIEW
EXPERIENCE**REVIEWER OF THE FOLLOWING JOURNALS:**

- Physical Review Applied (American Physical Society)
- Applied Physics Letters (American Institute of Physics)
- Scientific Reports (Nature Publishing Group)
- Journal of Applied Physics (American Institute of Physics)
- Journal of Materials Chemistry C (Royal Society of Chemistry)
- RSC Advances (Royal Society of Chemistry)
- Scientific Reports (Nature Publishing Group)

- Journal of Alloys and Compounds (Elsevier)
- Physica B: Condensed Matter Physics (Elsevier)
- Modern Physics Letters B (World Scientific)
- Journal of Magnetism and Magnetic Materials (Elsevier)
- Journal of Physics and Chemistry of Solids (Elsevier)
- Solid State Science (Elsevier)
- Phase Transitions (Taylor and Francis)
- Sensor and Actuators A

EXPERIENCE ON
EXPERIMENTAL
TECHNIQUE AND
SIMULATION

- **Bismuth ferrite-reduced graphene oxide based nanocomposites [Jan 2016 - Present]**
 1. Synthesis of Bismuth ferrite-reduced graphene oxide based nanocomposites using hydrothermal and ultrasonication techniques.
 2. Morphological studies using FESEM
 3. Photocatalytic experiments using a UVVis spectrophotometer and 500 W Xenon lamp as solar simulator
 4. Hydrogen production via water splitting by solar light irradiation
 5. Magnetization measurement using VSM and SQUID magnetometers
 6. XPS analysis
- **Multiferroic ceramics (bulk) [Jan 2013 - Present]**
 1. Synthesis and bulk polycrystalline multiferroic ceramics 2. using solid state reaction technique.
 2. Morphological studies using FESEM
 3. Dielectric measurements using an impedance analysis
 4. Magnetization measurement using VSM and SQUID magnetometers
 5. XPS analysis
- **Multiferroic Nanoparticles [Jan 2013 - Present]**
 1. Synthesis of multiferroic nanoparticles using sonication technique, Hydrothermal process, sol-gel technique and chemical co-precipitation technique
 2. Characterization of the synthesized nanoparticles using different ferroelectric and magnetic measurements techniques
 3. Investigation of the optical and photocatalytic properties of the synthesized nanoparticles
- **Patterned ferromagnetic nanostructures by lithographic technique for applications in spintronics and data storage -[Sep 2007 - Present]**
 1. Lithography (e-beam and photolithography), focused ion beam;
 2. Thin film deposition: magnetron sputtering, molecular beam epitaxy, thermal evaporation;
 3. TEM sample preparation by FIB milling;
 4. Materials characterization: SEM, TEM/STEM, Lorentz microscopy for magnetic imaging, AFM;
 5. Micromagnetic simulation using OOMMF package;
- **Magnetoresistive properties of perovskite manganites**
 1. Materials preparation by solid state reaction technique
 2. Magnetoresistance measurements by four probe technique

PROFESSIONAL
CAREER

- **Professor [Dec 2017- Present]**
Department of Physics, Bangladesh University of Engineering and Technology (BUET), Dhaka
- **Associate Professor [Mar 2015 - Dec 2017]**
Department of Physics, Bangladesh University of Engineering and Technology (BUET), Dhaka
- **Assistant Professor [Dec 2011 - Mar 2015]**
Department of Physics, Bangladesh University of Engineering and Technology (BUET), Dhaka
- **Lecturer [Mar 2005 - Dec 2011]**
Department of Physics, Bangladesh University of Engineering and Technology (BUET), Dhaka
- **Teaching Assistant [Sep 2007 - May 2011]**
School of Physics and Astronomy, University of Glasgow, United Kingdom
Instructor, Royal Society Edinburg Saturday morning master classes
Instructor, Physics Summer School
- **Lecturer [Oct 2001 - Mar 2005]**
Department of Physics, Dhaka University of Engineering and Technology (DUET), Gazipur

ADMINISTRATIVE
EXPERIENCE

- **Provost [May 2018 - Present]**
Kazi Nazrul Islam Hall, BUET, Dhaka, Bangladesh
- **Assistant Provost [Nov 2012 - Feb 2018]**
Suhrawardhy Hall, BUET, Dhaka, Bangladesh
- **Member [2014 - Present]**
Academic Council, BUET.
- **Member Secretary [Jun 2013 - Present]**
BUET market operation and development committee, BUET.
- **Executive Member [Mar 2018 - Present]**
Bangladesh Physical Society
- **Coordinator [Academic session 2015-2016 and 2016-2017]**
Undergraduate Admission Test, BUET
- **BIIS Secretary [Apr 2013-Oct 2017]**
Department of Physics, BUET
- **Postgraduate Tabulator [Apr 2013-Oct 2017]**
Department of Physics, BUET

SCHOLARSHIPS,
AWARDS AND
HONORS

- **University of Glasgow, UK - [Sep 2007 - Mar 2011]**
Glasgow University funded postgraduate scholarship
- **British Government - [Sep 2007 - Mar 2011]**
Overseas Research Student Award Scheme (ORSAS) by British Government

- **Berlin, Germany - [Jul 2007]**
Financial assistance provided by the organizing committee for joining in the International colloquium on thin magnetic films and surfaces
 - **Keio University, Japan - [Apr 2007]**
Selected for Japanese Government Monbu-Kagakusho Scholarship for PhD programme
 - **National Taiwan University, Taiwan - [Apr 2007]** Selected for Taiwan International Graduate Scholarship for PhD programme
 - **Jncasr, Bangalore, India and University Of California, Santa Barbara, USA - [Dec 2006]**
Financial assistance for joining in the JNCASR-ICMR Winter School on the Chemistry of Materials, JNCASR, Bangalore, INDIA. The finance was provided by the International Centre for Materials Research, University of California, Santa Barbara, USA.
 - **ICTP-NCNST-ICTS, China - [Aug 2006]**
Financial assistance from ICTP, Italy for joining in the ICTP-NCNST-ICTS Asian /Pacific Regional College on Science at the Nanoscale, Beijing, China.
 - **ICYS-ICMR and University of California, Santa Barbaba, USA - [Jul 2006]**
Financial assistance for joining in the ICYS ICMR Summer School 2006 on Nanomaterials, National Institute of Materials Science, Tsukuba, JAPAN. The finance was provided by the International Centre for Materials Research, University of California, Santa Barbara, USA
 - **ICTP, Italy - [Jan 2006]**
Financial assistance from ICTP, Italy for joining in the Advanced workshop on Recent Developments in Inorganic Materials, The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, ITALY.
 - **Ehime University, Japan - [Apr 2005]**
Selected for Japanese Government Monbu-Kagakusho Scholarship for PhD programme at Ehime University, Japan
 - **Norwegian University of Science and Technology, Norway - [Apr 2004]**
Selected for State Educational Fund for M.Sc programme from Norwegian University of Science and Technology, Norway.
 - **Ministry of Science and ICT, Govt. of Bangladesh - [Aug 2006]**
NST fellowship, Ministry of Science and ICT, Government of Bangladesh
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- TRAINING AND SCHOOL ATTENDANCE
- **London, UK - [2010]**
IOP magnetism group meeting on Current Research in Magnetism, London, UK.
 - **Berlin, Germany - [Jul 2009]**
International colloquium on thin magnetic films and surfaces, Berlin, Germany.
 - **London, UK - [Dec 2008]**
IOP magnetism group meeting on Current Research in Magnetism, London, UK.

- **Krakow, Poland - [Apr 2008]**
Spin Momentum Transfer workshop, Krakow, Poland.
- **University of Glasgow, UK - [Oct 2007]**
Residential and Frontier Science Course, Millport 10/2006, Scotland held by Faculty of Physical Sciences, University of Glasgow, UK
- **JNCASR-ICMR, India - [Dec 2006]**
JNCASR-ICMR Winter School on the Chemistry of Materials, JNCASR, Bangalore, INDIA.
- **ICTP-NCNST-ICTS, China - [Aug 2006]**
ICTP-NCNST-ICTS Asian /Pacific Regional College on Science at the Nanoscale, Beijing, China.
- **National Institute of Materials Science, Japan [Jul 2006]**
ICYS-ICMR Summer School 2006 on Nanomaterials, National Institute of Materials Science, Tsukuba, JAPAN.
- **ICTP, Italy - [Jan 2006]**
Advanced workshop on Recent Developments in Inorganic Materials, The Abdus Salam International Center for Theoretical Physics (ICTP), Trieste, ITALY.
- **Bangladesh University of Engineering and Technology (BUET), Bangladesh - [Feb 2005]**
Teachers Appreciation Workshop Bangladesh University of Engineering And Technology (BUET), Dhaka, Bangladesh.

PLENARY AND
INVITED TALKS

- **PLENARY TALK**

Title: Multiferroic ceramics for multifunctional applications

Venue: 15 Annual Conference of Bangladesh Ceramic Society, Dhaka, Bangladesh.

Date: 07 April 2017

- **INVITED TALKS**

1. *Title:* Research Article: Publication Process and Ethical Issues

Venue: North South University, Dhaka.

Date: 16 February 2020

2. *Title:* Nanotechnology Research Laboratory: A primary platform to train young academics in experimental research.

Venue: Annual general meeting of the National Young Academy of Bangladesh (NYAB) at the Centre for Advanced Research in Sciences (CARS), Dhaka University

Date: 16 June 2019

3. *Title:* Nanomaterials: Synthesis, Properties and Applications.

Venue: Department of Mathematical and Physical Sciences, East West University, Dhaka

Date: 4 March 2019

4. *Title:* Nanomaterials for Multifunctional Applications.

Venue: 1st Alumni Reunion and Scientific Meeting, Polymer Collides and Nanomaterials Group, University of Rajshahi.

Date: 12 February 2019

5. **Title:** How to get published in a peer reviewed journal.

Venue: BUET Career Club. BUET

Date: 5 February 2019

6. **Title:** Locally synthesized nanostructured materials and their multifunctional applications.

Venue: School of Engineering, University of Glasgow, UK

Date: 4 January 2019

7. **Title:** Locally synthesized nanostructured materials and their multifunctional applications.

Venue: International Conference on Material Science and Semiconductor Devices, Department of Electrical and Electronic Engineering, University of Dhaka.

Date: 7 September 2018

8. **Title:** Locally synthesized nanostructured materials and their multifunctional applications.

Venue: Department of EEE, University of Dhaka.

Date: 31st July 2018

9. **Title:** Locally Synthesized Nanostructured Materials and Their Multifunctional Applications.

Venue: Department of Physics, Shahjalal University of Science and Technology.

Date: 16 April 2018

10. **Title:** Multiferroic Nanomaterials for Multifunctional Applications.

Venue: International Conference on Physics 2018, organized by Bangladesh Physical Society, Dhaka, Bangladesh.

Date: 09 March 2018

11. **Title:** Exploring Gd and Ti co-doped BiFeO₃ Multiferroics for Spintronic and Energy Applications .

Venue: International workshop on Energy devices and Nanotechnology, Yamagata University, Japan.

Date: 13-14 March 2014

PUBLICATIONS

• BOOK

Title: Ucchoshikkha O Gobeshona: Songkoter Shorup ebong Uttorone Koronio

Publisher: Samhati Prokashan

Year of publication: 2020

• PUBLISHED PAPERS IN PEER-REVIEWED JOURNALS

1. Angkita Mistry Tama*, Subrata Das*, Sagar Dutta, M. D. I. Bhuyan, M. N. Islam and M. A. Basith, MoS₂ nanosheets incorporated -Fe₂O₃/ZnO nanocomposite with enhanced photocatalytic dye degradation and hydrogen production ability, *RSC Advances (Publisher: Royal Society of Chemistry)*, 9, 40357-40367, 2019. *Equal contribution
2. Subrata Das, Angkita Mistry Tama, Sagar Dutta, Md. Shahjahan Ali and M. A. Basith, Facile high-yield synthesis of MoS₂ nanosheets with enhanced photocatalytic performance using ultrasound driven exfoliation technique, *Materials Research Express (Publisher: Institute of Physics, UK)*, 6, 125079, 2019.
3. Subrata Das, Irin Sultana, M. D. I. Bhuyan and M.A. Basith, Enhanced magnetic softness of double-layered perovskite manganite La_{1.7}Gd_{0.3}SrMn₂O₇ synthesized at inert atmosphere, *IEEE Magnetics Letters (Publisher: IEEE)*, 10 (1), 2503704, 2019.
4. 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 BiFeO₃ multiferroics, *Materials Research Bulletin (Publisher: Elsevier)* 111, 93-101, 2019.
5. M. A. Basith, Nilufar Yesmin and Rana Hossain, Low temperature synthesis of BiFeO₃ 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.
6. M. A. Basith, Ragib Ahsan, Ishrat Zerine, M A Jalil, Enhanced photocatalytic dye degradation and hydrogen production ability of Bi₂₅FeO₄₀-rGO nanocomposite and mechanism insight, *Scientific Reports (Publisher: Nature Publishing Group)*, 8, 11090, 2018.
7. Ragib Ahsan, Avijit Mitra, Saleh Omar, Md. Ziaur Rahman Khan, M. A. Basith, Sol-gel synthesis of DyCrO₃ and 10% Fe-doped DyCrO₃ nanoparticles with enhanced photocatalytic hydrogen production abilities, *RSC Advances (Publisher: Royal Society of Chemistry)* 8, 14258-14267, 2018.
8. M. S. Alam, Rana Hossain, M. A. Basith, Enhanced multiferroism in Gd-doped BiMn₂O₅ ceramics, *Ceramics International (Publisher: Elsevier)* 44, 1594-1602, 2018.
9. Ragib Ahsan, Md. Ziaur Rahman Khan, M. A. Basith, Determination of optical band gap of powder form nanomaterials with improved accuracy, *Journal of Nanophotonics* 11(4), 046016, 2017.
10. M. A. Jalil, Sayeed Shafayet Chowdhury, Mashnoon Sakib, S. M. Enamul Yousuf, Emran Ashik, Shakhawat Firoz, and M. A. Basith, Temperature-dependent phase transition and comparative investigation on enhanced magnetic and optical properties between silenite and perovskite bismuth ferrite-rGO nanocomposites, *Journal of Applied Physics*

(*Publisher: American Institute of Physics*), 122, 084902, 2017.

11. Brajalal Sinha, Rubayet Tanveer, Sri Ramulu Torati, M Ziaul Ahsan, M Rahman Shah, and M. A. Basith, Simple sonofragmentation approach for synthesis of NiFe nanoalloy with tunable magnetization, *IEEE Magnetics Letters (Publisher: IEEE)*, 8, 4108404, 2017.
12. Sayeed Shafayet Chowdhury, Abu Hena Mostafa Kamal, Rana Hossain, Mehedi Hasan, Md. Fakhrul Islam, Bashir Ahmmad, and M. A. Basith, Dy doped BiFeO₃: A bulk ceramic with improved multiferroic properties compared to nano counterparts, *Ceramics International (Publisher: Elsevier)*, 43, 9191-9199, 2017.
13. M. A. Basith, M. A. Islam, Bashir Ahmmad, Md. Sarowar Hossain, K. Mølhave, Preparation of high crystalline nanoparticles of rare-earth based complex perovskites and comparison of their structural and magnetic properties with bulk counterparts, *Materials Research Express (Publisher: Institute of Physics, UK)*, 4, 075012, 2017.
14. Syeda Karimunnesa, Bashir Ahmmad and M. A. Basith, Effect of Strontium substitution on the structural and magnetic properties of La_{1.8}Sr_{0.2}MMnO₆ (M = Ni, Co) layered manganites, *Phase Transitions (Publisher: Taylor and Francis)*, 90, 677-686, 2017.
15. M. A. Basith, Areef Billah, M. A. Jalil, Nilufar Yesmin, Mashnoon Alam Sakib, Emran Khan Ashik, S.M. Enamul Hoque Yousuf, Sayeed Shafayet Chowdhury, Md. Sarowar Hossain, Md. Sarowar Hossain, Shakhawat H. Firoyz, Bashir Ahmmad, The 10% Gd and Ti co-doped BiFeO₃: A promising multiferroic material, *Journal of Alloys and Compounds (Publisher: Elsevier)*, 694, 792-799, 2017.
16. Mehedi Hasan, M. A. Basith, M. A. Zubair, Md. Sarowar Hossain, Rubayyat Mahbub, M. A. Hakim and Md. Fakhrul Islam, Saturation magnetization and band gap tuning in BiFeO₃ nanoparticles via co-substitution of Gd and Mn, *Journal of Alloys and Compounds (Publisher: Elsevier)*, 687, 701-706, 2016.
17. Bashir Ahmmad, Kensaku Kanomata, Kunihiko Koike, Shigeru Kubota, Hiroaki Kato, Fumihiko Hirose, Areef Billah, M. A. Jalil, and M. A. Basith, Large difference between the magnetic properties of Ba and Ti co-doped BiFeO₃ bulk materials and their corresponding nanoparticles prepared by ultrasonication, *Journal of Physics D: Applied Physics (Publisher: IOP Science, UK)*, 49, 265003, 2016.
18. Mehedi Hasan, M. A. Hakim, M. A. Basith, Md. Sarowar Hossain, Bashir Ahmmad, M. A. Zubair, A. Hussain and Md. Fakhrul Islam, Size dependent magnetic and electrical properties of Ba-doped nanocrystalline BiFeO₃, *AIP Advances (Publisher: American Institute of Physics)*, 6, 035314, 2016.
19. Bashir Ahmmad, M. Z. Islam, Areef Billah and M. A. Basith, Anomalous coercivity enhancement with temperature and tunable exchange bias in Gd and Ti co-doped BiFeO₃ multiferroics, *Journal of Physics D: Applied Physics (Publisher: IOP Science, UK)*, 49, 095001, 2016.
20. M. A. Basith, S. McVitie, T. Strache, M. Fritzsche, A. Muecklich, J. McCord and J. Fassbender, Lorentz TEM imaging of magnetic hybrid structures embedded in a soft magnetic matrix, *Physical Review Applied, (Publisher: American Physical Society)*, 4, 034012,

2015.

21. M. A. Basith, F. A. Khan, Bashir Ahammad, Shigeru Kubota, Fumihiko Hirose, D. T. -Ngo, Q.-H. Tran, K. Mølhave, Tunable exchange bias effect in magnetic $\text{Bi}_{0.9}\text{Gd}_{0.1}\text{Fe}_{0.9}\text{Ti}_{0.1}\text{O}_3$ nanoparticles at temperatures up to 250 K, *Journal of Applied Physics (Publisher: American Institute of Physics)*, 118, 023901 (2015).
22. M.J. Benitez, M. A. Basith, D. McGrouther, S. McFadzean, D. A. MacLaren, A. Hrabec, R. J. Lamb, C. H. Marrows, S. McVitie, Engineering magnetic domain-wall structure in permalloy nanowires, *Physical Review Applied, (Publisher: American Physical Society)*, 03, 034008 (2015).
23. M. A. Basith, D.-T. Ngo, A. Quader, M. A. Rahman, B. L. Sinha, Bashir Ahmmad, Fumihiko Hirose, K. Mølhave, 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, *Nanoscale (Publisher: Royal Society of Chemistry, UK)*, 6, 14336, 2014.
24. M. A. Basith, O. Kurni, M. S. Alam, B. L. Sinha and Bashir Ahammad, Room temperature dielectric and magnetic properties of Gd and Ti co-doped BiFeO_3 ceramics, *Journal of Applied Physics (Publisher: American Institute of Physics)*, 115, 024102, 2014.
25. M. A. Basith, S. McVitie, D. McGrouther and J.N. Chapman, Reproducible domain wall pinning by linear non-topographic features in a ferromagnetic nanowire, *Applied Physics Letters (Publisher: American Institute of Physics)*, vol. 100, 232402, 2012.
This paper has also been published in the June 18, 2012 issue of Virtual Journal of Nanoscale Science And Technology. The Virtual Journal, which is published by the American Institute of Physics and the American Physical Society in cooperation with numerous other societies and publishers, is an edited compilation of links to articles from participating publishers, covering a focused area of frontier research.
26. M. A. Basith, S. McVitie, D. McGrouther, J.N. Chapman and J.M.R. Weaver, Direct comparison of domain wall behavior in Permalloy nanowires patterned by electron beam lithography and focused ion beam milling, *Journal of Applied Physics (Publisher: American Institute of Physics)*, vol. 110, 083904, 2011.
27. Duc-The Ngo, Hong-Gam Duong, Hoang-Hai Nguyen, Chau Nguyen, Mohammed Basith and Duc-Quang Hoang, The microstructure, high performance magnetic hardness and magnetic after-effect of an - $\text{FeCo}/\text{Pr}_2\text{Fe}_{14}\text{B}$ nanocomposite magnet with low Pr concentration, *Nanotechnology (Publisher: Institute of Physics, UK)*, Volume 20, Number 16, 165707- 165713, 2009.
28. M. A. Basith, Sk. Manjura Hoque, Md. Shahparan, M.A Hakim and M Huq, Temperature features of magnetoresistance of layered manganite $\text{La}_2\text{Sm}_{0.4}\text{Sr}_{0.6}\text{Mn}_2\text{O}_7$, *Physica B: Physics of Condensed Matter (Publisher: Elsevier)*, Vol. 395, Issues. 1-2, 126-129, 2007.
29. M N I Khan, M. A. Basith, M Huq and S Mollah Effect of MnO_2 layers on the transport properties of $\text{La}_{n-nx}\text{Ca}_{1+nx}\text{Mn}_{n-y}\text{Cr}_y\text{O}_{3n+1}$ ($n = 2, 3$; $x = 0.3$; $y = 0.075, 0.15, 0.3$), *Journal of Physics and Chemistry of Solids (Publisher: Elsevier)* Vol. 68, 2332-2336,

2007.

30. M. A. Basith, Sk. Manjura Hoque, Md. Shahparan, M.A Hakim and M Huq, Observation of high Tc in the bi-layered $\text{La}_2\text{Sm}_x\text{Sr}_{1-x}\text{Mn}_2\text{O}_7$ perovskite, *Modern Physics Letters B (Publisher: World Scientific), Vol. 21, No. 23, 1569-1577*, 2007.
31. Mohammad Asadul Haque, M. A. Basith, Zahid Hasan Mahmood, Jalalur Rahman and M. Huq, A study on the Carrier Recombination in the Back Surface for the Performance of Crystalline Si-Solar Cell, *Dhaka Univ. J. Sci. 56(2): 143-146*, 2008.
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• CONFERENCE PROCEEDINGS / PRESENTATION

1. Sayeed Shafayet Chowdhury, Rana Hossain, Mehedi Hasan, Md. Fakhurul Islam and Mohammed Basith, Dy doped BiFeO_3 : A promising destination in the quest of a ceramic with improved bulk multiferroic properties compared to those of its corresponding nanoparticles. National Conference on Physics-2017, Atomic Energy Centre, Dhaka, Bangladesh, 05-07 January, 2017.
2. R. Karim, A. Billah, H. M. Usama and M. A. Basith, Enhanced Multiferroism in Li-doped Bismuth Ferrite, National Conference on Physics-2017, Atomic Energy Centre, Dhaka, Bangladesh, 05-07 January, 2017.
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5. M. R. Azad, Areef Billah, Md. Sarowar Hossain, Bashir Ahmmad, M. A. Basith, Multiferroic properties of Gd Doped BiFeO₃ Nanoparticles Prepared By Sol-Gel Method, National Conference on Physics-2017, Atomic Energy Centre, Dhaka, Bangladesh, 05-07 January, 2017.
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8. 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 BiFeO₃, National Conference on Physics-2017, Atomic Energy Centre, Dhaka, Bangladesh, 05-07 January, 2017.
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47. Mohammad Hamidur Rahman Khan, M. A. Basith and M Huq, Magnetoresistive Properties of $\text{La}_{2-x}\text{Pb}_x\text{SrMn}_2\text{O}_7$ Perovskite, Annual Conference of Bangladesh Physical Society, May 04-05, 2007.
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59. M. A. Basith, and M.Huq, Magnetoresistive Properties of $\text{R}_{2-2x}\text{Sr}_{1+2x}\text{Mn}_2\text{O}_7$ Manganites, International Conference on Physics for Understanding and Applications, 22- 24 February 2004, Organized By Bangladesh Physical Society, Bangladesh.

THESES AND
REPORTS

• THESES

1. ***Title of the Thesis:*** Synthesis of MoS₂ 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.
Year: 2019
2. ***Title of the Thesis:*** Preparation of Gd doped $La_2SrMn_2O_7$ 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.
Year: 2019
3. ***Title of the Thesis:*** Investigation of multiferroic and photocatalytic properties of $Bi_{0.9}Y_{0.1}FeO_3$ nanoparticles
Name of the Student: Md. Masud Parvez
Name of the Degree Awarded: M.Phil.
Year: 2019
4. ***Title of the Thesis:*** Synthesis and investigation of Fe-Ni and Fe-Co binary nanoalloy
Name of the Student: Rubayet Tanveer
Name of the Degree Awarded: M.Phil.
Year: 2019
5. ***Title of the Thesis:*** Synthesis and characterization of structural, magnetic and optical properties $Dy_2BB'CrO_6$ ($B' = Fe, Ne$) perovskites
Name of the Student: Md. Rana Hossain
Name of the Degree Awarded: M.Sc.
Year: 2018
6. ***Title of the Thesis:*** Investigation of structural, photocatalytic and magnetic properties of Dy doped $CoFe_2O_4$ nanoparticles prepared by hydrothermal method
Name of the Student: Kowser Pervin
Name of the Degree Awarded: M.Sc.
Year: 2018
7. ***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.
Year: 2017
8. ***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.
Year: 2017

9. **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.
Year: 2017
10. **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.
Year: 2016
11. **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.
Year: 2016
12. **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.
Year: 2016
13. **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.
Year: 2016
14. **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
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Year: 2016
15. **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.
Year: 2016
16. **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.Sc.
Year: 2016
17. **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.
Year: 2015

18. **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.
Year: 2015

19. **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 Ashraf Islam
Name of the Degree Awarded: M.Phil.
Year: 2015

20. **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.Sc.
Year: 2015

21. **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.
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• REPORTS

1. **Title:** Synthesis and investigation of MoS_2 based nanocomposites for solar energy applications

Submitted to: Ministry of Science and Technology, Bangladesh.
Year: 2018.

2. **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.
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Submitted to: The Infrastructure Development Company Limited (IDCOL), Dhaka, Bangladesh
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7. **Title:** Synthesis and Investigation of Manganites And Multiferroic Nanoparticles for Energy Applications
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Year: 2015.
8. **Title:** Structural, dielectric and magnetic properties of Gd doped ABO_3 (A = Bi; B = Fe, Mn) multiferroics
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