

CURRICULUM VITAE

MD. TOFAJJOL HOSSEN BHUIYAN

Contact Address:

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Career Objective

Keen to enrich my knowledge by doing original research work with world class researchers where success comes through creativity, hardworking and sincerity.

Academic Qualifications

Master of Science (M.S.):

- * Institute : Shahjalal University of Science and Technology, Sylhet
- * Department : Physics
- * Year of Passing : 2011 (session: 2007-2008)
- * Result : 3.99 out of 4.00 (1st position among all graduates of the University at the master level in the session of 2007-2008)

Bachelor of Science (B.Sc.):

- * Institute : Shahjalal University of Science and Technology, Sylhet
- * Department : Physics
- * Year of Passing : 2009 (session: 2003-2004)
- * Result : 3.82 out of 4.00 (2nd position among the 80 students of the batch)

Awards and Achievements

- * 2020 : **Chancellor's Gold Medal** (in recognition of the highest talent and achievement among all graduates of the University at the master level, session 2007-2008)
- * 2020 : **Vice-Chancellor's Award** (in recognition of 1st position in the Science Faculty and outstanding CGPA in M.S. degree)
- * 2011 : **Distinction Award** (in recognition of outstanding Results in M.S. degree)
- * 2009 : **Distinction Award** (in recognition of Excellent Results in B.Sc. (honor's) degree)

Scholarships

- * 2022 : **Monash Graduate Scholarship (MGS)** to pursue PhD degree from Monash University, Australia.
- * 2022 : **Monash International Tuition Scholarship (MITS)** to

- pursue PhD degree from Monash University, Australia.
- * 2019 : **Chinese Government Scholarship (CSC)** to pursue PhD degree from University of Science and Technology of China, China.
 - * 2011 : **SUST Merit Scholarship** for achieving outstanding result and top position in MS degree.
 - * 2009 : **SUST merit Scholarships**, for achieving excellent results and top position in B.Sc. (honors) exams.

Professional Experience

| Profession | Organization | Position | Experience |
|-------------------|---|---------------------|--------------------------------|
| Teaching | Dept. of Physics, Pabna University of Science and Technology | Assistant Professor | 25/11/2016 To date |
| Teaching | Dept. of Physics, Pabna University of Science and Technology | Lecturer | 25/11/2014 To 24/11/2016 |
| Research | DRiCM, Bangladesh council of Scientific and Industrial Research (BCSIR) | Scientific Officer | 06/12/2012 to 24/11/2014 |
| Teaching | Dept. of Basic Science, World University of Bangladesh, Dhaka. | Lecturer | 15/10/2012 To 05/12/2012 |

Areas of Research Interest

Condensed Matter Physics, Nanostructure & Nanoelectronics, and Quantum Electronics & Magnetism etc.

Research Experiences

I conduct both experimental and theoretical research. Firstly, I grow and characterize new materials using solid-state-reaction and other material growth techniques and then analyze and characterize them using a variety of microscopic, spectroscopic and imaging processes. Secondly, I use a simulation technique (CASTEP) based on density functional theory to characterize electronic, optical, elastic, thermodynamic, and superconducting properties of different materials. I also investigate the changes in the above mentioned characteristics due to doping and pressure variation. Moreover, I have experience of working in a UHV lab to develop SPM & AFM at extremely high magnetic fields and ultra-low temperatures at Hefei National Lab for Physical Sciences at the Microscale, China. I worked in that UHV lab with SPM & AFM to overcome the limitations on the way to achieve atomic resolution images at $\approx 45\text{T}$ magnetic fields and $\approx 2\text{mK}$ temperatures.






Supervision Experience (Bachelor's and Master's levels)

- * Successfully supervised a master's (thesis) research
- * Successfully supervised eighteen (18) undergraduate and Master's level research projects

Professional Training

- ✦ Successfully conducted a training program on Differential Scanning Calorimetry (DSC) as resource personnel organized by BCSIR and hosted by DRiCM.
- ✦ Successfully completed the training program on operating system and maintenance of Nuclear Magnetic Resonance Spectrometer (NMR).
- ✦ Successfully completed the training program on Laboratory Quality Management and assessment as per ISO/IEC 17025.
- ✦ Successfully completed the training program on Personal Computer Troubleshooting organized by National Academy for Planning and Development, Ministry of Planning.

Scientific Association

-  Bangladesh Physical Society (BPS): Lifetime member
-  Bangladesh Nano Society (BNS): Member
-  Google Scholar: <https://scholar.google.com/citations?hl=en&user=91A2kpYAAAAJ>
-  ResearchGate: <https://www.researchgate.net/profile/Md-Tofajjol-Bhuiyan>
-  ORCID: <https://orcid.org/0000-0002-7199-0158>

Publications

- ✦ Total Publications: 22
(Journal Articles: 21, Conference Abstract: 01)

Conference presentations (International and national)

- ✦ Presented one research work in International Conference on Physics-2016, organized by Bangladesh Physical Society (BPS) and hosted by Bangladesh Atomic Energy Commission (BAEC).

Research Scores and Citation

- ✦ Google Scholar : Citations # 100, h-index # 6, i10-index # 2
- ✦ Research Gate : Citations # 76, h-index # 5, RG score # 14.48

Other Skills:

- ✦ Analytical Tools (Experimental): SEM, XRD, UV-Visible Spectrophotometer, Precision Impedance Analyzer, Four Probe Technique, TGA, DSC and Bomb calorimeter.
- ✦ Analytical Tools (Simulation): CASTEP code
- ✦ 3D modeling using CAD (SOLIDWORKS) software
- ✦ C/C++ and FORTRAN programming language
- ✦ Sigma Plot, MS Word, MS Excel, MS PowerPoint, GRADS

List of My Selected Publications:

1. *Synthesis and characterization of high quality cobalt vanadate crystals and their applications in Lithium ion batteries*, **M.T.H. Bhuiyan**, Md. Afjalur Rahman, Md. Atikur Rahman, Rajia Sultana, Md. Rakib Mostafa, Asmaul Husna Tania, Md. Abdur Razzaque Sarker, Bhuiyan et al., *Cogent Physics (OAPH)*, DOI:

10.1080/23311940.2016.1265778.

2. *Effects of Fe doping on the visible light absorption and band gap tuning of lead-free($CsSnCl_3$) and lead halide ($CsPbCl_3$) perovskites for optoelectronic applications*, M. I. Kholil, **M. T. H. Bhuiyan**, M. Atikur Rahman, M. S. Ali and M. Aftabuzzaman, AIP Advances
3. *Effects of pressure on narrowing the band gap, visible light absorption, and semi-metallic transition of lead-free perovskite $CsSnBr_3$ for optoelectronic applications*, M. I. Kholil, **M. T. H. Bhuiyan**, Journal of Physics and Chemistry of Solids, <https://doi.org/10.1016/j.jpcs.2021.110083>
4. *Influence of molybdenum and technetium doping on visible light absorption, optical and electronic properties of lead-free perovskite $CsSnBr_3$ for optoelectronic applications*, M. I. Kholil, **M. T. H. Bhuiyan**, M. Atikur Rahman, M. S. Ali and M. Aftabuzzaman, RSC Advances, DOI: 10.1039/d0ra09853a
5. *Effects of Cr- and Mn-alloying on the band gap tuning, and optical and electronic properties of lead-free $CsSnBr_3$ perovskites for optoelectronic applications*, Md Ibrahim Kholil and **Md Tofajjol Hossen Bhuiyan**, RSC Advances, DOI: 10.1039/d0ra09270c

List of Selected supervised thesis and projects (Bachelor's and Master's levels)

1. Physical properties of spinel-type superconductors $CuRh_2S_4$ and $CuRh_2Se_4$: A DFT study.
2. The difficulties in solar cell technology on the way to achieving high efficiency.
3. Structural, Elastic, Electronic and Optical Properties of Intermetallic Compound $NpRu_2Si_2$: A First Principle Investigation.
4. Recent advancement in carbon nano composite/Graphene and their characteristics properties and applications.
5. Comparative study of the properties of different photo sensitive nanomaterials in solar cell technology and their performance.

Core Courses

Bachelor of Science (B.Sc.)

Mechanics, Electromagnetism, Properties of Matter Waves & Vibration, Heat & Thermodynamics, Optics, Classical Mechanics, Elementary Quantum Theory, Quantum Mechanics, Classical Electrodynamics, Atomic & Molecular Physics, Basic Electronics, Relativity: Special & General, Nuclear Physics, Mathematical physics, Solid State physics, Radiation & Statistical Mechanics, Digital Electronics, Reactor Physics, Medical physics.

Master of Science (M.S.)

Non-linear Optics, Nano-Structure Physics and Nano-Electronics-I, Advance Reactor Physics, Nano-Structure Physics and Nano-Electronics-II, Nuclear Reactor System

Course Taught

Quantum Physics, Elementary Quantum Theory, Nuclear Physics and Particle Physics, Computational Physics, Relativity: General and Special, Reactor Physics, Radiation & Statistical Physics, Heat & Thermodynamics, Physics-I and Physics-II (Architecture dept.), Heat & Thermodynamics, Mechanics, wave (Chemistry dept.).

Administrative work

Besides teaching I have also worked as an administrator in different sectors (such as chairman of the examination committee of first year 1st semester exam 2018 and member of several examination committees, syllabus committee and academic committee of the department of Physics, PUST). During my stay in the DRiCM, BCSIR as a scientific officer, I have prepared ISO/IEC 17025 calibration documents for accreditation and I have successfully conducted a training program on Differential Scanning Calorimetry (DSC) as resource personnel organized by BCSIR and hosted by DRiCM.

Language proficiency

Good reading, writing and speaking skill in both Bangla & English.

Personal Details

- * Father's Name : Md. Abdul Baten Bhuiyan.
- * Mother's name : Khairun Nahar.
- * Date of Birth : 19th October, 1986
- * Sex : Male
- * Marital Status : Married
- * Nationality : Bangladeshi by birth
- * Height : 5'-6"
- * Permanent address : Village+ Post Office: Sayadabad, Police Station: Kasba, District: Brahmanbaria, Country: Bangladesh.

References

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| Prof. Dr. Syed Badiuzzaman Faruque Professor, Department of Physics Shahjalal University of Science & Technology, Sylhet-3114, Bangladesh. Mobile: +8801912711594 E-mail: awsb62@yahoo.com | Prof. Dr. Md. Abdur Razzaque Sarkar Professor, Department of Physics, University of Rajshahi, Rajshahi, Bangladesh. Mobile: +8801914254278 E-mail: razzaque_ru2000@yahoo.com | Prof. Dr. M. Habibul Ahsan. Professor, Department of Physics, Shahjalal University of Science and Technology, Sylhet-3114, Bangladesh. Mobile: +8801712530871 E-mail: h.ahsan@yahoo.com |
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I hereby declare that the information given above is correct to the best of my knowledge.

Sincerely yours,

MD. TOFAJJOL HOSSEN BHUIYAN

Date: 18/06/2022