

# CURRICULUM VITAE

## Dr. Md. Aftabuzzaman

Associate Professor  
Department of Physics  
Pabna University of Science and Technology  
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### Professional Experience:

**Associate Professor:** 05 July, 2019 – present  
Department of Physics  
Faculty of Science, Pabna University of Science and Technology, Pabna 6600, Bangladesh

**Assistant Professor:** 08 January, 2014 – 04 July, 2019  
Department of Physics  
Faculty of Science, Pabna University of Science and Technology, Pabna 6600, Bangladesh

**Lecturer:** 09 January, 2012 – 7 January, 2014  
Department of Physics  
Faculty of Science, Pabna University of Science and Technology, Pabna 6600, Bangladesh

### Educational Qualifications:

01 October, 2014 – 23 March, 2018  
**Ph.D., Result:** Successfully awarded  
**Thesis Title:** Effect of Electric Field on Relaxor Ferroelectrics Studied by Brillouin Scattering and Dielectric Spectroscopy  
University of Tsukuba, Japan

01 January, 2008 – 09 June, 2010  
**M.Sc. in Physics** (Thesis: Solid State Physics), **Result:** First Class (9<sup>th</sup> position)  
**Thesis Title:** A Study of Electronic Structure, Elastic Properties and Phonon Spectra of Iron-Based Layered Compound LaOFeAs  
University of Rajshahi, Rajshahi 6205, Bangladesh

01 February, 2003 – 29 November, 2007  
**B.Sc. Honours in Physics** (4 years Integrated), **Result:** First Class (1<sup>st</sup> position)  
University of Rajshahi, Rajshahi 6205, Bangladesh

01 September, 1998 – 06 September, 2001  
**H.S.C.** (Science Group), **Result:** First Division  
New Model Degree College, Mirpur Road, Dhaka 1215, Bangladesh

01 January, 1993 – 02 August, 1998  
**S.S.C.** (Science Group), **Result:** First Division  
Mahishbathan High School, Mohadevpur, Naogaon, Bangladesh.

### Research Experience:

**Experimental:** Brillouin scattering, Raman, and dielectric spectroscopies to study some lead based and lead free relaxor ferroelectric materials.

**Theoretical:** CASTEP and QUANTUM ESPRESSO Code to calculate electronic, elastic, thermodynamic, optical, and superconducting properties of materials.

### Research Interests:

Materials Science and Condensed Matter Physics

### External Affiliation:

**Life Member:** Bangladesh Physical Society (BPS).

**Graduate Student member:** (January, 2016 to December, 2017), The Japan Society of Applied Physics (Membership number: 0096892)

### Awards & Recognition:

1. Dean's Award 2018 by the Graduate School of Pure and Applied Sciences, University of Tsukuba, Japan for the best research in Materials Science.
2. Young Scientist Award-2017 of "Symposium on Ultrasonic Electronics, USE2017", Tagajo, Japan for the presentation of an outstanding research on ferroelectric materials.
3. IWP2015 Prize in "Tsukuba International Conference on Materials Science, IWP-2015", Tsukuba, Japan for the best presentation.
4. Japanese Government (Monbukagakusho) Scholarship awarded by The Ministry of Education, Culture, Sports, Science and Technology (MEXT) for pursuing doctoral degree in Japan. (Period: October, 2014 to March, 2018)
5. Professor Basak Award-2006 (Gold Medal) from the Department of Physics, University of Rajshahi for excellence in Physics (First Class 1st position) in B.Sc. Honours.
6. Shaheed Habibur Rahman Hall gold medal, University of Rajshahi for First Class in B.Sc. Honours in 2006.
7. Merit Scholarship-2006, from the University of Rajshahi for First Class in B.Sc. Honours.
8. Professor Basak Scholarship-2005 from the Department of Physics, University of Rajshahi.

### Research Grants Received:

1. Murata Foundation Grant, 2016, Japan
2. Marubun Research Promotion Foundation Grant, 2016, Japan

### List of Publications:

- [1] M. Shahin Alam, M. Atikur Rahman, M. Shahajan Ali, **M. Aftabuzzaman\***, "First-principles calculations to investigate structural and elastic properties of  $Y_2C_3$  under external pressure" Computational and Theoretical Chemistry, **1202** 113320 (1-9) (2021), ISSN: 2210-271X, (<https://doi.org/10.1016/j.comptc.2021.113320>) (Elsevier).
- [2] M. I. Kholil\*, M. T. H. Bhuiyan\*, M. Atikur Rahman, M. S. Ali, and **M. Aftabuzzaman\***, "Effects of Fe doping on the visible light absorption and bandgap tuning of lead-free ( $CsSnCl_3$ ) and lead halide ( $CsPbCl_3$ ) perovskites for optoelectronic applications" AIP Advances, **11**, 035229 (1-10) (2021), ISSN: 2158-3226, (<https://doi.org/10.1063/5.0042847>) (AIP Publishing).
- [3] M. I. Kholil\*, M. T. H. Bhuiyan\*, M. Atikur Rahman, M. S. Ali, and **M. Aftabuzzaman\***, "Influence of molybdenum and technetium doping on visible light absorption, optical and electronic properties of lead-free perovskite  $CsSnBr_3$  for optoelectronic applications" RSC Advances, **11**, 2405-2414 (2021), ISSN: 2046-2069, (<https://doi.org/10.1039/D0RA09853A>) (Royal Society of Chemistry).
- [4] M. Mozahar Ali\*, M. A. Hadi\*, M. L. Rahman, F. H. Haque, A. F. M. Y. Haider, and **M. Aftabuzzaman**, "DFT investigations into the physical properties of a MAB phase  $Cr_4AlB_4$ " Journal of Alloys and Compounds, **821**, 153547 (1-10) (2020), ISSN: 0925-8388, (<https://doi.org/10.1016/j.jallcom.2019.153547>) (Elsevier).
- [5] S. Kojima\*, **M. Aftabuzzaman**, J. Dec, and W. Kleemann, "Ferroelectric phase transitions of uniaxial  $Sr_{1-x}Ba_xNb_2O_6$  and their composition variation" Japanese Journal of Applied Physics, **58**, SLLA02 (1-5) (2019), ISSN: 1347-4065 (Online), ISSN: 0021-4922 (Print), (<https://doi.org/10.7567/1347-4065/ab362b>) (IOP Publishing).
- [6] **M. Aftabuzzaman\***, J. Dec, W. Kleemann, and S. Kojima, "Electric field effect on polar nanoregions of uniaxial ferroelectric  $Sr_xBa_{1-x}Nb_2O_6$  with weak random fields studied by Brillouin scattering" Japanese Journal of Applied Physics, **57**, 07LB11 (1-5) (2018), ISSN: 1347-4065 (Online), ISSN: 0021-4922 (Print), (<https://doi.org/10.7567/JJAP.57.07LB11>) (IOP Publishing).
- [7] M. I. Kholil, M. S. Ali\*, and **M. Aftabuzzaman**, "Structural, elastic, electronic and vibrational properties of  $BaRh_2P_2$  and  $SrIr_2As_2$  superconductors: A DFT study" Journal of Alloys and Compounds, **740**, 754-765 (2018), ISSN: 0925-8388, (<https://doi.org/10.1016/j.jallcom.2017.09.209>) (Elsevier).

- [8] M. A. Helal\*, **M. Aftabuzzaman**, and S. Kojima, “Stretched slowing down in high-PT content PMN-xPT single crystals probed by Brillouin scattering” *Ferroelectrics*, **519**, 109-114 (2017), ISSN: 1563-5112 (Online), ISSN: 0015-0193 (Print), (<https://doi.org/10.1080/00150193.2017.1361217>) (Taylor & Francis).
- [9] **M. Aftabuzzaman**\*, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, “Electric field effect on elastic properties of uniaxial relaxor  $\text{Sr}_x\text{Ba}_{1-x}\text{Nb}_2\text{O}_6$  single crystals with strong random fields” *Japanese Journal of Applied Physics*, **56**, 10PC06 (1-6) (2017), ISSN: 1347-4065 (Online), ISSN: 0021-4922 (Print), (<https://doi.org/10.7567/JJAP.56.10PC06>) (IOP Publishing).
- [10] M. A. Helal\*, **M. Aftabuzzaman**, S. Svirskas, J. Banyas and S. Kojima\*, “Temperature evolution of central peaks and effect of electric field in relaxor ferroelectric  $0.83\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3 - 0.17\text{PbTiO}_3$  single crystals” *Japanese Journal of Applied Physics*, **56**, 10PB03 (1-4) (2017), ISSN: 1347-4065 (Online), ISSN: 0021-4922 (Print), (<https://doi.org/10.7567/JJAP.56.10PB03>) (IOP Publishing).
- [11] **M. Aftabuzzaman**\*, M. A. Helal, R. Paszkowski J. Dec, W. Kleemann, and S. Kojima\*, “Electric field and aging effects of uniaxial ferroelectrics  $\text{Sr}_x\text{Ba}_{1-x}\text{Nb}_2\text{O}_6$  probed by Brillouin scattering” *Scientific Reports*, **7**, 11615 (1-9) (2017), ISSN: 2045-2322 (Online), (<http://doi.org/10.1038/s41598-017-10985-9>) (Springer Nature).
- [12] **M. Aftabuzzaman**\* and S. Kojima, “Memory effects of relaxor ferroelectric  $0.70\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3 - 0.30\text{PbTiO}_3$  single crystals studied by dielectric spectroscopy” *Ferroelectrics*, **513**, 38-43 (2017), ISSN: 1563-5112 (Online), ISSN: 0015-0193 (Print), (<http://dx.doi.org/10.1080/00150193.2017.1350074>) (Taylor & Francis).
- [13] M. H. K. Rubel, M. A. Hadi\*, M. M. Rahaman, M. S. Ali, **M. Aftabuzzaman**, R. Parvin, A.K.M.A. Islam, and N. Kumada, “Density functional theory study of a new Bi-based  $(\text{K}_{1.00})(\text{Ba}_{1.00})_3(\text{Bi}_{0.89}\text{Na}_{0.11})_4\text{O}_{12}$  double perovskite superconductor” *Computational Materials Science*, **138**, 160-165 (2017), ISSN: 0927-0256, (<https://doi.org/10.1016/j.commatsci.2017.06.030>) (Elsevier).
- [14] M. A. Helal\*, **M. Aftabuzzaman**, S. Tsukada, and S. Kojima\*, “Role of polar nanoregions with weak random fields in Pb-based perovskite ferroelectrics” *Scientific Reports*, **7**, 44448 (1-11) (2017), ISSN: 2045-2322 (Online), (<http://doi.org/10.1038/srep44448>) (Springer Nature).
- [15] **M. Aftabuzzaman**\*, J. Dec, W. Kleemann, and S. Kojima, “Field dependent elastic anomaly in uniaxial tungsten bronze relaxors” *Japanese Journal of Applied Physics*, **55**, 10TC01 (1-5) (2016), ISSN: 1347-4065 (Online), ISSN: 0021-4922 (Print), (<http://doi.org/10.7567/JJAP.55.10TC01>) (IOP Publishing).
- [16] **M. Aftabuzzaman**\* and S. Kojima\*, “Electric field effect of relaxor ferroelectric  $(1-x)\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3 - x\text{PbTiO}_3$  crystals near morphotropic phase boundary composition probed by Brillouin scattering” *Japanese Journal of Applied Physics*, **55**, 07KB03 (1-6) (2016), ISSN: 1347-4065 (Online), ISSN: 0021-4922 (Print), (<http://doi.org/10.7567/JJAP.55.07KB03>) (IOP Publishing).
- [17] M. S. Ali, **M. Aftabuzzaman**, M. Roknuzzaman, M. A. Rayhan, F. Parvin, M. M. Ali, M. H. K. Rubel, and A. K. M. A. Islam\*, “New superconductor  $(\text{Na}_{0.25}\text{K}_{0.45})\text{Ba}_3\text{Bi}_4\text{O}_{12}$ : A first-principles study” *Physica C: Superconductivity and its Applications*, **506**, 53-58 (2014), ISSN: 0921-4534, (<https://doi.org/10.1016/j.physc.2014.08.010>) (Elsevier).
- [18] M. A. Hadi\*, M. Roknuzzaman, F. Parvin, S. H. Naqib, A. K. M. A. Islam, and **M. Aftabuzzaman**, “New MAX phase superconductor  $\text{Ti}_2\text{GeC}$ : A first-principles study” *Journal of Scientific Research*, **6** (1), 11-27 (2014), ISSN: 2070-0245 (Online), ISSN: 2070-0237 (Print), (<http://dx.doi.org/10.3329/jsr.v6i1.16604>).
- [19] **M. Aftabuzzaman** and A. K. M. A. Islam\*, “A high pressure Ca-VI phase between 158 and 180 GPa: stability, electronic structure and superconductivity” *Journal of Physics: Condensed Matter*, **23**, 105701 (1-5) (2011), ISSN: 1361-648X (Online), ISSN: 0953-8984 (Print), (<https://doi.org/10.1088/0953-8984/23/10/105701>) (IOP Publishing).
- [20] **M. Aftabuzzaman**, A. K. M. A. Islam\*, and S. H. Naqib, “Emergence of superconductivity in  $\text{LaOFeAs}$ : Electronic structure and lattice dynamics” *Journal of Scientific Research*, **3** (1), 1-11 (2011), ISSN: 2070-0245 (Online), ISSN: 2070-0237 (Print), (<http://dx.doi.org/10.3329/jsr.v3i1.6211>).

- [21] M. M. Ali, A. K. M. A. Islam\*, **M. Aftabuzzaman**, and F. Parvin, "Superconductivity in diamond-like BC<sub>3</sub> phase" *Journal of Scientific Research*, **2** (2), 203-213 (2010), ISSN: 2070-0245 (Online), ISSN: 2070-0237 (Print), (<http://dx.doi.org/10.3329/jsr.v2i2.2638>).
- [22] **M. Aftabuzzaman** and A. K. M. A. Islam, "New superconducting RbFe<sub>2</sub>As<sub>2</sub>: A first-principles investigation" *Physica C: Superconductivity and its Applications*, **470**, 202-205 (2010), ISSN: 0921-4534, (<https://doi.org/10.1016/j.physc.2009.12.040>) (Elsevier).

### Conference and Seminar Attended:

- [1] Attended at the International Conference on Physics-2020, Bangladesh Physical Society (BPS), Atomic Energy Centre, Dhaka, Bangladesh, March 5-7, (2020).
- [2] **M. Aftabuzzaman** and S. Kojima, "Effect of electric field on uniaxial relaxor ferroelectric Sr<sub>x</sub>Ba<sub>1-x</sub>Nb<sub>2</sub>O<sub>6</sub> with intermediate random fields studied by Brillouin scattering" The 39<sup>th</sup> Symposium on Ultrasonic Electronics (USE 2018), Doshisha University, Kyoto, Japan, October 29-31, (2018), 2E1-1. (Oral presentation)
- [3] **M. Aftabuzzaman** and S. Kojima, "Electric field and memory effects of relaxor ferroelectric 0.70Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-0.30PbTiO<sub>3</sub> single crystal studied by Brillouin scattering and dielectric spectroscopy" Tsukuba Workshop on Ferroelectrics 2017, Tsukuba International Conference Center (EPOCHAL), Tsukuba, Japan, November 29, (2017). (Oral presentation)
- [4] **M. Aftabuzzaman**, J. Dec, W. Kleemann, and S. Kojima, "Electric field effect on polar nanoregions of uniaxial ferroelectric Sr<sub>x</sub>Ba<sub>1-x</sub>Nb<sub>2</sub>O<sub>6</sub> with weak random fields studied by Brillouin scattering" The 38<sup>th</sup> Symposium on Ultrasonic Electronics (USE 2017), Tagajo, Japan, October 25-27, (2017), 3P1-5. (Poster Presentation)
- [5] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Effect of electric field on 180° domain switching in uniaxial Ca<sub>0.30</sub>Ba<sub>0.70</sub>Nb<sub>2</sub>O<sub>6</sub> crystals studied by Brillouin scattering" The 14<sup>th</sup> International Meeting on Ferroelectricity (IMF2017), San Antonio, TX, USA, September 4-8, (2017), Tu-S28-P-35. (Poster Presentation)
- [6] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric Field Induced Elastic Anomaly in Uniaxial Relaxor Sr<sub>0.70</sub>Ba<sub>0.30</sub>Nb<sub>2</sub>O<sub>6</sub> Single Crystals" The 34<sup>th</sup> Meeting on Ferroelectric Materials and Their Applications (FMA34), 2017, Kyoto, Japan, May 31-June 3, (2017), 01-F-03. (Oral presentation)
- [7] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric Field Induced Elastic Anomaly in Uniaxial Relaxor Ferroelectric Ca<sub>x</sub>Ba<sub>1-x</sub>Nb<sub>2</sub>O<sub>6</sub> Single Crystals Studied by Broadband Brillouin Scattering Spectroscopy" The 64<sup>th</sup> JSAP Spring Meeting, 2017, The Japan Society of Applied Physics, Yokohama, Japan, March 14-17, (2017), 14p-421-3. (Oral presentation)
- [8] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric Field Effect on Lead Free Uniaxial Relaxor Sr<sub>0.4</sub>Ba<sub>0.6</sub>Nb<sub>2</sub>O<sub>6</sub> Single Crystal Studied by Brillouin Scattering" Fundamental Physics of Ferroelectrics and related materials 2017 (Ferro2017), Colonial Williamsburg, VA, USA, January 29-February 1, (2017). (Poster Presentation)
- [9] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric Field Effect on Lead Free Relaxor Ferroelectrics with Uniaxial Tungsten Bronze Structure" International Conference on Technologically Advanced Materials and Asian Meeting on Ferroelectricity (ICTAM-AMF10), 2016, New Delhi, India, November 7-11, (2016), OL-30. (Oral presentation)
- [10] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric field dependent elastic anomaly in uniaxial tungsten bronze relaxor ferroelectric Ca<sub>0.30</sub>Ba<sub>0.70</sub>Nb<sub>2</sub>O<sub>6</sub> single crystals studied by Brillouin scattering spectroscopy" The 8<sup>th</sup> Japan-China Symposium on Ferroelectric Materials and Their Applications (JCFMA8), 2016, Tsukuba, Japan, September 29-October 2, (2016), PO-01. (Poster Presentation)
- [11] **M. Aftabuzzaman** and S. Kojima, "Memory Effects of Relaxor Ferroelectric 0.70Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-0.30PbTiO<sub>3</sub> Single Crystals Studied by Dielectric Spectroscopy" 13<sup>th</sup> Russia/CIS/Baltic/Japan Symposium on Ferroelectricity (RCBJSF) and International Workshop on Relaxor Ferroelectrics (IWRP), 2016, Matsue, Japan, June 19-23, (2016), P-24. (Poster Presentation)

- [12] **M. Aftabuzzaman**, J. Dec, W. Kleemann, and S. Kojima, "Field Dependent Elastic Anomaly in Uniaxial Tungsten Bronze Relaxors" The 33<sup>rd</sup> Meeting on Ferroelectric Materials and Their Applications (FMA33), 2016, Kyoto, Japan, May 25-28, (2016), 27-B-10. (Oral presentation)
- [13] **M. Aftabuzzaman** and S. Kojima, "Electric Field Effect of Relaxor Ferroelectric  $0.7\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ - $0.3\text{PbTiO}_3$  Single Crystals Studied by Micro-Brillouin Scattering" The 63<sup>rd</sup> JSAP Spring Meeting, 2016, The Japan Society of Applied Physics, Tokyo, Japan, March 19-22, (2016), 20a-W833-4. (Oral presentation)
- [14] **M. Aftabuzzaman** and S. Kojima, "Electric field effect of relaxor ferroelectric  $(1-x)\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ - $x\text{PbTiO}_3$  crystals near MPB composition probed by Brillouin scattering" The 36<sup>th</sup> Symposium on Ultrasonic Electronics, USE 2015, Tsukuba, Japan, November 5-7, (2015), 3P1-5. (Poster Presentation)
- [15] **M. Aftabuzzaman** and S. Kojima, "Effect of electric field on phase transition temperature in a  $0.7\text{Pb}(\text{Mg}_{1/3}\text{Nb}_{2/3})\text{O}_3$ - $0.3\text{PbTiO}_3$  single crystal" Tsukuba International Conference on Materials Science, IWP-2015, Tsukuba, Japan, September 4, (2015). (Oral presentation)

### Personal Profile:

<b>Name</b>	: Md. Aftabuzzaman
<b>Father's Name</b>	: Md. Khalilur Rahman
<b>Mother's Name</b>	: Zobeda Rahman
<b>Permanent Address</b>	: Village- Mohadevpur, P.O.- Mohadevpur, P.S.- Mohadevpur, Dist- Naogaon, Post Code: 6530, Bangladesh
<b>Mailing Address</b>	: Department of Physics, Pabna University of Science and Technology, Pabna, Post Code: 6600, Bangladesh
<b>Date of Birth</b>	: 25 December, 1982
<b>Sex</b>	: Male
<b>Marital Status</b>	: Married
<b>Religion</b>	: Islam
<b>Nationality</b>	: Bangladeshi (by birth)
<b>Blood Group</b>	: O <sup>+</sup>

I do hereby declare that all the above information is true and correctly describes my qualifications and myself to the best of my knowledge.

**Md. Aftabuzzaman, Pabna, Bangladesh**