CURRICULUM VITAE

Dr. Md. Aftabuzzaman

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

Professor: 08 June, 2024 – present

Associate Professor: 05 July, 2019 – 07 June, 2024

Assistant Professor: 08 January, 2014 – 04 July, 2019

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 Group: Solid State Physics), **Result:** First Class (9th 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 (1st 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 structure (Band Structure, Density of States), elastic, thermodynamic, optical, and superconducting properties (electron-phonon coupling parameter, superconducting T_C) of materials.

Research Interests:

Materials Science and Condensed Matter Physics

External Affiliation:

Life Member: Physics Alumni Association, Rajshahi University (PAARU).
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. Honour received from Physics Association, Pabna University of Science and Technology, Pabna, Bangladesh for achieving Young Scientist Award 2017 of Japan.
2. Honour received from Physics Association, Pabna University of Science and Technology, Pabna, Bangladesh for achieving Doctor of Philosophy (PhD) Degree.
3. Dean's Award 2018 by the Graduate School of Pure and Applied Sciences, University of Tsukuba, Japan for the best research in Materials Science.
4. Young Scientist Award-2017 of "Symposium on Ultrasonic Electronics, USE2017", Tagajo, Japan for the presentation of an outstanding research on ferroelectric materials.
5. IWP2015 Prize in "Tsukuba International Conference on Materials Science, IWP-2015", Tsukuba, Japan for the best presentation.
6. 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).
7. 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.
8. Shaheed Habibur Rahman Hall gold medal, University of Rajshahi for First Class in B.Sc. Honours in 2006.
9. Merit Scholarship-2006, from the University of Rajshahi for First Class in B.Sc. Honours.
10. Professor Basak Scholarship-2005 from the Department of Physics, University of Rajshahi.

Research Grants Received:

1. Research grants received from Pabna University of Science and Technology (2019-2020, 2020-2021, 2021-2022, 2022-2023, and 2023-2024).
2. Murata Foundation Grant, 2016, Japan.
3. Marubun Research Promotion Foundation Grant, 2016, Japan.

List of Publications:

[1] S. Akter, S. A. Ramin, and **M. Aftabuzzaman***, "Effect of F^- doping on structural, elastic, and electronic properties of $SmO_{1-x}F_xBiS_2$: A first principles investigation" Physica B: Condensed Matter **685**, 416030 (1-15) (2024), ISSN: 1873-2135 (Online) ISSN: 0921-4526 (Print), (https://doi.org/10.1016/j.physb.2024.416030) (**Elsevier**).

[2] S. Kojima*, **M. Aftabuzzaman**, J. Dec, and W. Kleemann, "Brillouin scattering study of ferroelectric instability of calcium–strontium–barium niobate single crystals" Materials, **16**, 2502 (1-12) (2023), ISSN 1996-1944 (Online), (https://doi.org/10.3390/ma16062502) (**MDPI**).

[3] 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**).

[4] 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**).

[5] 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**).

[6] 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**).

[7] 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**).

[8] **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**).

[9] 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**).

[10] M. A. Helal*, **M. Aftabuzzaman**, and S. Kojima, "Stretched slowing down in high-PT content PMN-*x*PT 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**).

[11] **M. Aftabuzzaman***, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric field effect on elastic properties of uniaxial relaxor $Sr_xBa_{1-x}Nb_2O_6$ 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**).

[12] M. A. Helal*, **M. Aftabuzzaman**, S. Svirskas, J. Banys and S. Kojima*, "Temperature evolution of central peaks and effect of electric field in relaxor ferroelectric $0.83Pb(Mg_{1/3}Nb_{2/3})O_3 - 0.17PbTiO_3$ 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**).

[13] **M. Aftabuzzaman***, M. A. Helal, R. Paszkowski J. Dec, W. Kleemann, and S. Kojima*, "Electric field and aging effects of uniaxial ferroelectrics $Sr_xBa_{1-x}Nb_2O_6$ 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**).

[14] **M. Aftabuzzaman*** and S. Kojima, "Memory effects of relaxor ferroelectric $0.70Pb(Mg_{1/3}Nb_{2/3})O_3–0.30PbTiO_3$ 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**).

[15] 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 $(K_{1.00})(Ba_{1.00})_3(Bi_{0.89}Na_{0.11})_4O_{12}$ double perovskite superconductor" Computational Materials Science, **138**, 160-165 (2017), ISSN: 0927-0256, (https://doi.org/10.1016/j.commatsci.2017.06.030) (**Elsevier**).

[16] 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**).

[17] **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**).

[18] **M. Aftabuzzaman*** and S. Kojima*, "Electric field effect of relaxor ferroelectric $(1-x)Pb(Mg_{1/3}Nb_{2/3})O_3$-$xPbTiO_3$ 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**).

[19] 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 $(Na_{0.25}K_{0.45})Ba_3Bi_4O_{12}$: 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**).

[20] M. A. Hadi*, M. Roknuzzaman, F. Parvin, S. H. Naqib, A. K. M. A. Islam, and **M. Aftabuzzaman**, "New MAX phase superconductor Ti_2GeC: 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).

[21] **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**).

[22] **M. Aftabuzzaman**, A. K. M. A. Islam*, and S. H. Naqib, "Emergence of superconductivity in 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).

[23] M. M. Ali, A. K. M. A. Islam*, **M. Aftabuzzaman**, and F. Parvin, "Superconductivity in diamond-like BC_3 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).

[24] **M. Aftabuzzaman** and A. K. M. A. Islam, "New superconducting $RbFe_2As_2$: 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 Conference on Computational Physics and Materials Science, Condensed Matter Physics Lab Alumni, Department of Physics, University of Rajshahi, Bangladesh, April 20, (2025).

[2] **M. Aftabuzzaman**, "Effect of external pressure on different properties of LaCoSi: In-depth investigation using DFT" National Conference on Physics-2025, Bangladesh Physical Society (BPS), University of Rajshahi, Bangladesh, February 06-07, (2025), IVA-IT1. (Invited Talk)

[3] Attended at the International Conference on Physics-2020, Bangladesh Physical Society (BPS), Atomic Energy Centre, Dhaka, Bangladesh, March 5-7, (2020).

[4] **M. Aftabuzzaman** and and S. Kojima, "Effect of electric field on uniaxial relaxor ferroelectric $Sr_xBa_{1-x}Nb_2O_6$ with intermediate random fields studied by Brillouin scattering" The 39th Symposium on Ultrasonic Electronics (USE 2018), Doshisha University, Kyoto, Japan, October 29-31, (2018), 2E1-1. (Oral presentation)

[5] **M. Aftabuzzaman** and S. Kojima, "Electric field and memory effects of relaxor ferroelectric $0.70Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.30PbTiO_3$ 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)

[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" The 38th Symposium on Ultrasonic Electronics (USE 2017), Tagajo, Japan, October 25-27, (2017), 3P1-5. (Poster Presentation)

[7] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Effect of electric field on 180° domain switching in uniaxial $Ca_{0.30}Ba_{0.70}Nb_2O_6$ crystals studied by Brillouin scattering" The 14th International Meeting on Ferroelectricity (IMF2017), San Antonio, TX, USA, September 4-8, (2017), Tu-S28-P-35. (Poster Presentation)

[8] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric Field Induced Elastic Anomaly in Uniaxial Relaxor $Sr_{0.70}Ba_{0.30}Nb_2O_6$ Single Crystals" The 34th Meeting on Ferroelectric Materials and Their Applications (FMA34), 2017, Kyoto, Japan, May 31-June 3, (2017), 01-F-03. (Oral presentation)

[9] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric Field Induced Elastic Anomaly in Uniaxial Relaxor Ferroelectric $Ca_xBa_{1-x}Nb_2O_6$ Single Crystals Studied by Broadband Brillouin Scattering Spectroscopy" The 64th JSAP Spring Meeting, 2017, The Japan Society of Applied Physics, Yokohama, Japan, March 14-17, (2017), 14p-421-3. (Oral presentation)

[10] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric Field Effect on Lead Free Uniaxial Relaxor $Sr_{0.4}Ba_{0.6}Nb_2O_6$ 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)

[11] **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)

[12] **M. Aftabuzzaman**, M. A. Helal, J. Dec, W. Kleemann, and S. Kojima, "Electric field dependent elastic anomaly in uniaxial tungsten bronze relaxor ferroelectric $Ca_{0.30}Ba_{0.70}Nb_2O_6$ single crystals studied by Brillouin scattering spectroscopy" The 8th Japan-China Symposium on Ferroelectric Materials and Their Applications (JCFMA8), 2016, Tsukuba, Japan, September 29-October 2, (2016), PO-01. (Poster Presentation)

[13] **M. Aftabuzzaman** and S. Kojima, "Memory Effects of Relaxor Ferroelectric $0.70Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.30PbTiO_3$ Single Crystals Studied by Dielectric Spectroscopy" 13th Russia/CIS/Baltic/Japan Symposium on Ferroelectricity (RCBJSF) and International Workshop on Relaxor Ferroelectrics (IWRF), 2016, Matsue, Japan, June 19-23, (2016), P-24. (Poster Presentation)

[14] **M. Aftabuzzaman**, J. Dec, W. Kleemann, and S. Kojima, "Field Dependent Elastic Anomaly in Uniaxial Tungsten Bronze Relaxors" The 33rd Meeting on Ferroelectric Materials and Their Applications (FMA33), 2016, Kyoto, Japan, May 25-28, (2016), 27-B-10. (Oral presentation)

[15] **M. Aftabuzzaman** and S. Kojima, "Electric Field Effect of Relaxor Ferroelectric $0.7Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.3PbTiO_3$ Single Crystals Studied by Micro-Brillouin Scattering" The 63rd JSAP Spring Meeting, 2016, The Japan Society of Applied Physics, Tokyo, Japan, March 19-22, (2016), 20a-W833-4. (Oral presentation)

[16] **M. Aftabuzzaman** and S. Kojima, "Electric field effect of relaxor ferroelectric $(1-x)Pb(Mg_{1/3}Nb_{2/3})O_3$-$xPbTiO_3$ crystals near MPB composition probed by Brillouin scattering" The 36th Symposium on Ultrasonic Electronics, USE 2015, Tsukuba, Japan, November 5-7, (2015), 3P1-5. (Poster Presentation)

[17] **M. Aftabuzzaman** and S. Kojima, "Effect of electric field on phase transition temperature in a $0.7Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.3PbTiO_3$ single crystal" Tsukuba International Conference on Materials Science, IWP-2015, Tsukuba, Japan, September 4, (2015). (Oral presentation)

Administrative and Other Experience:

1. Convener, Seat plan and venue management committee, Admission Test 2019-2020, Pabna University of Science and Technology, Pabna, Bangladesh.
2. Member, Project evaluation sub-committee, National Science and Technology Week Celebration and Science Fair at district level, District administration, Pabna. (2018– present).

Personal Profile:

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

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