**Curriculum Vitae**

1. **Name and Affiliation:**

**Md. Ashraf Ali** (M.Phil. in Physics, CUET, Bangladesh)

Assistant Professor,

Department of Physics,

Chittagong University of Engineering and Technology (CUET),

Chittagong-4349, Bangladesh

### Cell: +8801710244220

### E-mail: ashrafphy31@gmail.com, ashrafphy31@cuet.ac.bd

Website: http://www.cuet.ac.bd/personal\_profile.php?user\_id=aali

### Address and Personal Information: *Name:* Md. Ashraf Ali, *Father’s name:* Md. Asgar Ali, *Village:* Brammongram, *P.O.:* Kakonhat, *Upa-Zilla:* Godagari, *District:* Rajshahi, Bangladesh; *Date of Birth*: 16-11-1986; *Marital status*: Married; *Religion*: Islam; *Nationality*: Bangladeshi.

1. **Career Objective:**

Teaching is a noble profession. It has the potential to have a great impact in the molding of the next generation. Definitely good teacher is necessary for the harmonious development of the students. Personally, I believe only education can help us to construct a better world and a better future that why I have decided to be a good teacher.

1. **Educational Qualification:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Degree** | **Group/ Subject** | **Passing Year** | **Institution** | **Grade/**  **Class** |
| S.S.C. | Science | 2002 | Pakri high school  (Rajshahi Board) | A |
| H.S.C. | Science | 2004 | Rajshahi Govt. City College  (Rajshahi Board) | A |
| B.Sc. (Hons)  (4 years Integrated) | Physics | 2008  (held in 2009) | Rajshahi University | First Class |
| M.Sc. (Solid State  Physics) | Physics | 2009  (held in 2010, Result-May, 2011) | Rajshahi University | First Class |
| M.Phil. | Physics | 2015 | Chittagong University of Engineering and Technology | A |

**5. Courses Taken During Graduate and Postgraduate Degree**

**a. Graduate Level Courses:**

1. Solid State Physics, 2. Quantum Mechanics and Relativity, 3. Vibration and Waves, 4. Mechanics, 5. Electricity & Magnetism, 6. Optics, 7. Computer fundamentals and Programming, 8. Heat and Thermodynamics, 9. Classical Mechanics, 10. Physical Chemistry, 11. Electrodynamics, 12. Inorganic and Organic Chemistry, 13. Atomic & Molecular Physics,14. Nuclear Physics, 15. Electronics, 16. Pulse and Digital Electronics, 17 Nuclear and Particle Physics, 18. Medical and Radiation Physics, 19. Reactor Physics, 20. Crystallography & Spectroscopy, etc.

**b. Postgraduate Level Courses:**

1. Advanced Solid State Physics, 2. Materials Science, 3. Electronic Communications, 4. Superconductivity, 5. Crystallography & Spectroscopy, 6. Nano Science, 7. Nanotechnology, 8. Magnetism, 9. Physics of deformed Solids, 10. Low temperature Physics, and 11. Experimental Techniques in Solid State Physics.

**6.**   **Language Proficiency:**

Considerably good both in written and spoken in English. The medium of instruction was English at the Bachelor of Science (Honors), the Master of Science and the Master of Philosophy levels.

**7. Teaching Experience:**

* **20.09.2015 to till date**

***Assistant Professor***, Department of Physics, Chittagong University of Engineering and Technology (CUET), Chittagong-4349, Bangladesh.

* **10.06.2012 to 19.09.2015**

***Lecturer***, Department of Physics, Chittagong University of Engineering and Technology (CUET), Chittagong-4349, Bangladesh.

* **Main Topics Taught**:

**Physical Optics**: Interference of light, Diffraction of light, Polarization of light

**Properties of Matter**: Elaticity, Surface Tension, Hydrodynamics, Viscosity

**Modern Physics**: Relativity, Photo electric effect, Compton effect, de Broglie wave, Bohr’s postulates.

**Nuclear Physics**: Radioactivity, Nuclear reactions, Reactor Physics, etc.

**Waves and Oscillation**: Vibrations, Forced vibration, Damped vibration, Wave motion, Sound waves, Acoustics.

**Heat and Thermodynamics**: Heat, Hygrometry, Heat Radiation, Measurement of temperatures, Transmission of heat, Laws of thermodynamics.

**Solid State Physics:** States of matter, Crystallography, X-rays, Crystal defects, Band theory, Magnetism.

**8. Research Experience**

* **Jan 2010 to March 2011**

M. Sc.thesis work - for partial fulfilment of Master dergree.

* **March 2011 to May 2012**

As a Research Assistant at Condensed Matter Physics Lab, Dept. of Physics, R.U.

* **May 2012 to till date**

As a Faculty member of the Dept. of Physics, CUET.

* **June 2013 to August 2015**

M. Phil.thesis work - for partial fulfilment of M.Phil. dergree.

* **Research Keywords**

Computational Materials Science (CASTEP Code); Magnetic Materials (Synthesis and Characterizations).

* **Field of Interest**

I have completed the Honours (B.Sc.), Master (M.Sc.) and M. Phil. degrees in physics with a specialization in Condensed Matter Physics. As a fulfillment of Master degree I carried out a research work (Computational) on the properties of some materials of interest (SnO and SnO2). Moreover, as a fulfillment of Master of Philosophy degree I carried out a research work (Experimental) on synthesis and characterization of Sn substituted Ni-Zn ferrites. some of my research works have already been **published** in this time & some of my articles have been **accepted** as well as **submitted.** My current research interest involves:

1. First-Principles Study of Materials of Interest (Computational Materials Science).

2. Synthesis and Characterization of Magnetic Materials.

3. Synthesis and Characterization of Thin Films.

**9. Publication (unpublished and published):**

1. **Thesis:**
2. **M. Sc. Thesis entitled**

**“*First principles study of tin oxides SnO*2 *and SnO*”** submitted to the Department of Physics, Rajshahi University - work done as a partial fulfillment of Master degree.

1. **M. Phil. Thesis entitled**

***“Study of the structural, magnetic and electrical properties of Sn-substituted Ni-Zn ferrites”*** submitted to the Department of Physics, CUET - work done as a partial fulfillment of Master of Philosophy degree.

**b. Research Articles: [Citations-93, Total Impact Factor~26]**

1. M.A. Ali, M. A. Hossain, M. A. Rayhan, M. M. Hossain, M. M. Uddin, M. Roknuzzaman, K. Ostrikov, A. K. M. A. Islam, S. H. Naqib*; Elastic, electronic, optical and thermoelectric properties of K2Cu2GeS4 : a new chalcogenide material,* Submitted.
2. **M. A. Ali**, M. M. Hossain, M. T. Nasir, M. M. Uddin, M. Z. Hasan, S. H. Naqib, A. K. M. A. Islam; *Effects of M mixing on physical properties of recently synthesized MAX phase (Zr1-xTix)2AlC (0 ≤ x ≤ 1) solid solutions: A first principles calculations;* (**accepted in** Journal of Alloys and Compounds-2018).
3. **M A Ali**,M. M. Uddin, M. N. I. Khan, F -U -Z Chowdhury, D. K. Saha, S. M. Hoque, S. I. Liba, and S. Akhter; *Effect of sintering temperature on structural and magnetic properties of Ni0.6Zn0.4Fe2O4 ferrite: synthesized from nanocrystalline powders*; (**accepted in** J. Phys. Conf. Series, 2017) **[1]**.
4. M. R. Khatun, **M. A. Ali**, F. Pervin, A. K. M. A. Islam; Elastic, *Thermodynamic and Optical Behavior of V2AC (A=Al, Ga) MAX Phases*; Results in Physics 7 (2017) 3634-3639. https://doi.org/10.1016/j.rinp.2017.09.043.
5. A. Chowdhury, **M. A. Ali**, M. M. Hossain, M. M. Uddin, S. H. Naqib, A. K. M. A. Islam; *Predicted MAX phase Sc2InC: dynamical stability, vibrational and optical properties*; Physica Status Solidi B (2017) 1700235; DOI: 10.1002/pssb.201700235.
6. M. T. Nasir, M. A. Hadi, M. A. Rayhan, **M. A. Ali**, M. M. Hossain, M. Roknuzzaman, S. H. Naqib, A. K. M. A. Islam, M. M. Uddin, K. Ostrikov; *First-principles study of superconducting ScRhP and ScIrP pnictides;* Physica Status Solidi B (2017) 1700336. DOI: 10.1002/pssb.201700336.
7. M. Roknuzzaman, M. A. Hadi, **M. A. Ali**, M. M. Hossain, M. M. Uddin, J.A. Alarco, K. Ostrikov; *First hafnium-based MAX phase in the 312 family, Hf3AlC2: A first-principles study*; Journal of Alloys and Compounds 727 (2017) 616-626 **[1]**.
8. **M. A. Ali**, M. M. Uddin, M.N.I. Khan, F.-U.-Z. Chowdhury, S.M. Hoque, S.I. Liba; *Magnetic properties of Sn-substituted Ni-Zn ferrite: synthesized from nano-sized powders of NiO, ZnO, Fe2O3 and SnO2*; Chinese Physics B 26 (2017) 077501.
9. **M. A. Ali**, M. A. Hadi, M. M. Hossain, S. H Naqib, A.K.M. A. Islam; *Theoretical investigation of structural, elastic and electronic properties of ternary boride MoAlB;* Physica Status Solidi B 254 (2017) 1700010. **[5]**
10. **M. A. Ali**, M. M. Hossain, N. Jahan, S. H. Naqib, A. K. M. A. Islam; *Newly synthesized Zr2(Al0.58Bi0.42)C, Zr2(Al0.2Sn0.8)C, and Zr2(Al0.3Sb0.7)C MAX phases: A first-principles study;* Comp. Mater. Science, 131 (2017) 139-145. **[10]**
11. **M. A. Ali**, M. R. Khatun, N. Jahan, M. M. Hossain;*Comparative study of Mo2Ga2C with superconducting MAX phase Mo2GaC: A first-principles calculations*; Chinese Physics B 26 (2017) 033102. **[2]**
12. **M. A. Ali**, M. M. Uddin, M. N. I. Khan, F.-U.-Z. Chowdhury, S. M. Hoque; *Structural, morphological and electrical properties of Sn-substituted Ni-Zn ferrites synthesized by double sintering technique*; J. Magn. Magn. Mater. 424 (2017) 148-154. [**7**]
13. **M. A. Ali**, M. T. Nasir, M. R. Khatun, A. K. M. A. Islam, S. H. Naqib; *Ab initio Investigation of Vibrational, Thermodynamic, and Optical properties of Sc2AlC MAX compound*; Chinese Physics B 25 (2016) 103102. **[8]**
14. **M. A. Ali**, A.K.M.A. Islam, N. Jahan, S. Karimunnesa; *First Principles Study of SnO Under High Pressure*; International Journal of Modern Physics B 30 (2016) 1650228. **[2]**
15. **M. A. Ali**, M.S. Ali, M. M. Uddin; *First-principles study of elastic, electronic and optical properties of metastable Ti5SiC4*; Indian Journal of Pure and Applied Physics 54 (2016) 386. **[4]**
16. M. S. Ali, M. A. Rayhan, **M. A. Ali**, R. Parvin, A. K. M. A. Islam; *New MAX Phase Compound Mo2TiAlC2: First-principles Study*; Journal of Scientific Research 8 (2016) 109. **[5]**
17. **M. A. Ali**, M. Roknuzzaman, M. T. Nasir, S. H. Naqib, A. K. M. A. Islam; *Structural, elastic, electronic and optical properties of Cu3MTe4 (M=Nb, Ta) sulvanites: An ab initio study;* International Journal of Modern Physics B 30 (2016) 1650089.
18. M. A. Rayhan, **M. A. Ali**, S. H. Naqib, A. K. M. A. Islam; *First-principles study of Vickers hardness and thermodynamic properties of Ti3SnC2 polymorphs;* Journal of Scientific Research 7 (2015) 53-64. **[6]**
19. **M. A. Ali**, M. N. I. Khan, F.-U.-Z. Chowdhury, S. Akhter, and M. M. Uddin; *Structural Properties, Impedance Spectroscopy and Dielectric Spin Relaxation of Ni-Zn Ferrite Synthesized by Double Sintering Technique*; 7 (2015) 65-75. **[12]**
20. N. Jahan, **M. A. Ali**; *A theoretical study of elastic, electronic, optical and thermodynamic properties of AlB2 and TaB2*; Bangladesh Journal of Physics 15 (2014) 93-103. **[1]**
21. **M. A. Ali**, N. Jahan, A. K. M. A. Islam; *Sulvanite compounds Cu3TMS4 (TM= V, Nb and Ta): Elastic, electronic, optical and thermal properties using first-principles method*; Journal of Scientific Research 6 (2014) 407-419. **[12]**
22. **M. A. Ali**, A. K. M. A. Islam; M. S. Ali; *Ni-rich nitrides ANNi3 (A = Pt, Ag, Pd) in comparison with superconducting ZnNNi3*; Journal of Scientific Research 4 (2012) 1-10. **[14]**
23. **M. A. Ali**, A. K. M. A. Islam; *Sn1-xBixO2 and Sn1-xTaxO2 (0 ≤ x ≤ 0.75): A first-principles study*; Physica B 407(2012) 1020-1026. **[5]**

**c. Published as an abstract in Conferences and Presented (Oral/Poster):**

# First-Principles Study of Tin Oxides; National Conference on Physics for Development, Organized by the Bangladesh Physical Society, At Bangladesh University of Engineering and Technology (BUET), February 10, 2011.

1. A theoretical study of elastic, electronic and optical properties of AlB2 and TaB2; National Conference on Physics for Energy and Development, Organized by the Bangladesh Physical Society, At Atomic Energy Center, Dhaka; December 27-28, 2012.
2. Sulvanite Compounds Cu3TMS4 (TM = V, Nb and Ta): Elastic, Electronic, Optical and Thermal Properties using First-principles Method; International Conference on Physics for Energy and Environment, Organized by the Bangladesh Physical Society, At Atomic Energy Center, Dhaka; March 6-8, 2014.
3. Sintering Temperature Dependence of Structural and Magnetic Properties of Ni0.6Zn0.4Fe2O4 Ferrite; International Conference on Advances in Physics (ICAP-2-15), Organized by the Department of Physics, At Rajshahi University, Bangladesh, April 3-4, 2015.
4. Effect of sintering temperature on dielectric loss, conductivity relaxation process and activation energy in Ni0.6Zn0.4Fe2O4 ferrite; National Conference on Physics Research and Education in Bangladesh, Organized by the Bangladesh Physical Society, At Atomic Energy Center, Dhaka, April 19-20, 2015.
5. First Principles Study of Structural, Electronic and Optical Properties of Cu3TaTe4; International Conference on Physics for Sustainable Development & Technology (ICPSDT-2015), Organized by the Department of Physics, At Chittagong University of Engineering & Technology (CUET), Bangladesh. August 19-20, 2015.
6. Studies on structural, electrical, and magnetic properties of double sintering technique derived Ni0.6-x/2Zn0.4-x/2SnxFe2O4; International Conference on Nanoscience, Nanotechnology & Advanced Materials (NANOS 2015), Organized by the Department Of Chemistry, At Gitam University, Gandhinagar Campus, Rushikonda Visakhapatnam-530 045, A.P., India.
7. Structural, elastic, electronic and optical properties of Mo2Ga2C: A first-principles study. International conference of Physics-2016, Organized by Bangladesh Physical Society, At Atomic Energy Center, Dhaka, March 10-12, 2016.
8. First-principles calculations of structural, elastic and electronic properties of MoAlB.

National conference of Physics-2017, Organized by Bangladesh Physical Society, At Atomic energy Center, Dhaka, January 5-7, 2017.

1. Newly synthesized Zr2AlC, Zr2(Al0.58Bi0.42)C, Zr2(Al0.2Sn0.8)C, and Zr2(Al0.3Sb0.7)C MAX phases: A DFT based first-principles study.

National conference of Physics-2017, Organized by Bangladesh Physical Society, At Atomic energy Center, Dhaka, January 5-7, 2017.

1. First-Principles Study of Newly Synthesized Quaternary Chalcogenide BaLa2In2Se7.

National conference of Physics-2017, Organized by Bangladesh Physical Society, At Atomic energy Center, Dhaka, January 5-7, 2017.

1. Structural, Elastic, Electronic and Optical Properties of Quaternary Chalcogenides BaLa2In2S7: First Principle Study.

National conference of Physics-2017, Organized by Bangladesh Physical Society, At Atomic energy Center, Dhaka, January 5-7, 2017.

1. Comparative study of Mo2Ga2C with superconducting MAX phase Mo2GaC: A first-principles calculations.

National conference of Physics-2017, Organized by Bangladesh Physical Society, At Atomic energy Center, Dhaka, January 5-7, 2017.

**10.** **Experimental Skills:** (i)Sample preparation techniques: Solid state Reaction techniques and Sol-gel process; (ii) Measurement Techniques: Structural, Electrical and Magnetic Properties.

**11. Analysis Techniques and Computer Software:**

WINDOWS based application software's like MS-Word, excel, WordStar, Power point, Microsoft word-2007; Plotting software: Sigma Plot and Origin Lab; Simulation software: CASTEP code; Data analysis: XRD, VSM, Permeability.

**12. Reviewer:**

* 1. Journal of Physics and Chemistry of Solids (Elsevier).
  2. Chinese Physics B (IOP Science).
  3. Journal of Nanoelectronics and Optoelectronics.

**13**. **Awards and Honors:**

* MEXT-2012: Ministry of Education, Culture, Sports, Science and Technology, Japan. (Ph.D. Scholarship).
* Awarded a research fellowship of National Science and Technology (NST) by Ministry of NST, Bangladesh from the solid state Physics group, Dept. of Physics, Rajshahi University, for the period of 2010-2011.
* Awarded University Scholarship (General) on the basis of B.Sc. (Hons.) result.
* Awarded Rajshahi Board Scholarship (General) on the basis of H.S.C. result.
* Awarded local MP’s Scholarship (General) on the basis of S.S.C. result.

**14. Administrative Experience**

### 1. From 10.11.2014 to 31.12.2016, Assistant Provost, **Shaheed Tareq Huda Hall, CUET.**

2. From 27.02.2017 to till date, Assistant Provost, **Bangabandhu Hall, CUET.**

**15. Notable Professional Society Involvements**

1. Life Member, Bangladesh Physical Society.

#### 16. Reference:

1**. Prof. Dr. Saleh Hasan Naqib**

Department of Physics, Rajshahi University, Bangladesh.

Tel.: +88 01718595223

salehnaqib@yahoo.com

2**. Dr. Mohi Uddin**

**Associate Professor**

Department of Physics, CUET, Chittagong-4349, Bangladesh

Tel.: +8801857873871

E-mail: mohi\_cuet@yahoo.com

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

U-002

Date: 23 January, 2018

(Md. Ashraf Ali)