

DR. ALTAF UR RAHMAN

M.Sc Physics, M.Phil Physics, PhD Physics

Department of Physics, Quaid -I - Azam University, Islamabad, Pakistan.
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OBJECTIVE

I believe in hard work and excellence in my job. Every project, that brings new challenges and new things to learn as well as the opportunities for expanding the spectrum of skills, motivates me. I like to work with a corporate environment that would enhance my skills and capabilities.

EDUCATION

2014-2018	PhD Physics (2014-2018) Research Field: Computational Condensed Matter Physics Quaid -I- Azam University, Islamabad.
2010- 2012	M. Phil Physics (2010-2012) Quaid -I- Azam University, Islamabad. Division 1 st
2007- 2009	M. Sc. Physics (2007-2009) Quaid -I- Azam University, Islamabad. Division 1 st
2004- 2006	B. Sc (Maths A + Math-B + Physics), University Of K.U.S.T (2004-2006) Division 1 st
2001- 2004	F. Sc. (Pre-Engineering), BISE Kohat (2001-2004) Division 2 nd
1999- 2001	S.S.C. (Science), (1999-2001) BISE, Peshawer Division 1 st
2004-2005	Certificate of Teaching AIOU Islamabad. (2005) Division 1 st
2006-2010	B.Ed (2009) AIOU Islamabad. Division 1 st

M.Phil FIELD OF RESEARCH:

Condensed Matter Physics (Theoretical).

M. PHIL THESIS RESEARCH TITLE:

“Optical Response of a Topological Insulator”.

Ph.D FIELD OF RESEARCH :

Computational Condensed Matter Physics

Ph.D THESIS RESEARCH TITLE:

“ First-Principles Study of Two Dimensional (2D) Materials”.

WORK EXPERIENCE

- Assistant Professor (IPFP) IIU Islamabad. (February 21, 2019, to till date.)
- HEC Research Associate (Ph.D.) (March, 2018 November 30, 2018)
- Six month Research Experience at University of Duisburg-Essen, Germany (under HEC IRSIP, government of Pakistan.)
- Visiting Lecturer Physics QAU Department of Geo Physics (2017)
- HEC Research Assistant (M.Phil)
- Contract Lecturer Physics UOW Taxila (2014-2015)
- Contract Lecturer Physics GPC Karak (2010)

ACHIEVEMENTS AND SCHOLARSHIPS

- IRSIP Award (2017)
- Merit Scholarship in Ph.D
- WFS Scholarship in PhD
- Merit Scholarship in M.Phil

COMPUTER SKILLS

1. Computer Hardware and Software Installation. Windows.
2. Latex, Scientific Workplace. Mathematica.
3. Ubuntu (Linux)
4. Code Siesta, Quantum Espresso, BoltzTrap, Phonopy, Phono3py, ShengBTE, Yambo.

EXPERTISE & RESEARCH INTERESTS:

My main field of research and expertise as “Computational Condensed Matter Physics (Theory & DFT)” especially my focus on computational condensed matter, applying state of the art first-principles calculations and statistical methods to the study of materials properties relevant for advanced applications such as electronic, optical, thermoelectrics and spintronics.

Main goal are:

1. Density functional theory for the investigation of materials properties.
2. Quantitative predictions of structural, magnetic and transport properties.
3. Simulation of excited electronic states using GW method and the YAMBO code.

RESEARCH VISIT:

1. Award of scholarship under International Research Support Initiative Program (IRSIP), HEC, government of Pakistan (six months). Department of Physics, University of Duisburg-Essen Germany. IRSIP period from: 5 September 2017 to 4 March 2018.

Teaching Courses Expertise.

1. Graduate Solid State Theory I, II.
2. Graduate Quantum Mechanics I,II.
3. Electromagnetism I, II.
4. Mechanics and Wave Motion.
5. Mathematical Method for Physics.

PERSONAL INFORMATION

Name: Altaf Ur Rahman S/O Gul Rahman, Nationality: Pakistani

Domicile: District, Karak.

DOB: 01 - 12 – 1984.

NIC #: 14202-1355156-3

PERMANENT ADDRESS

Village Katch Banda Karak. District , Tehsil , P/O, Karak.

MAILING ADDRESS

Department of Physics, Room # 20 (Computational Condensed Matter Physics Group) Quaid-i-Azam University, Islamabad.

**REFERENCE 1: Dr. Kashif Sabeeh (M.Phil Supervisor)
(Professor)**

Department of Physics
Quaid -I - Azam University, Islamabad
Ph. No. +92-051 9064-2115
E-mail: ksabeeh@qau.edu.pk

**REFERENCE 2: Dr. Gul Rahman (PhD supervisor)
(Associate Professor)**

Department of Physics
Quaid -I - Azam University, Islamabad
Ph. No. +92-051 9064-2031
E-mail: gulrahman@qau.edu.pk

**REFERENCE 3: Prof. Dr. Peter Kratzer ((PhD co-supervisor)
(Professor)**

Department of Physics
University of Duisburg-Essen, Germany.
E-mail: Peter.Kratzer@uni-due.de
Phone: +49-(0)203-379-3313

HEC Research Project (under supervision)

Title: Engineering the electronic and thermoelectric properties of Hetero-structures using MoX₂ (X; S, Se, Te) and group-III nitrides: For Energy Applications

List of Research papers (published):

1. Development of spontaneous magnetism and half-metallicity in monolayer MoS₂.

Altaf Ur Rahman, Gul Rahman, Víctor M. García-Suárez.

[Journal of Magnetism and Magnetic Materials](#) **443**, (2017) 343–351

2. Thermoelectric properties of n and p-type cubic and tetragonal XTiO₃ (X = Ba,Pb): A density functional theory study,

Gul Rahman , **Altaf Ur Rahman**, [Physica B](#) **526**, (2017) 122–126

3. Magnetic monolayer Li₂N: Density Functional Theory calculations

Gul Rahman , **Altaf Ur Rahman** , Saima Kanwal and Peter Kratzer.

[EPL](#) **119**, (2017) 57002

4. Enhanced electronic and magnetic properties by functionalization of monolayer GaS via substitutional doping and adsorption,

Altaf Ur Rahman, Gul Rahman and Peter Kratzer.

[J. Phys.: Condens. Matter](#) **30**, (2018) 195805.

5. Commensurate versus incommensurate heterostructures of group-III monochalcogenides,

Altaf Ur Rahman, Juliana M. Morbec, Gul Rahman, and Peter Kratzer.

[Phys. Rev. Materials](#) **2**, 094002 (2018).

6. Oxygen Vacancy Revived Phonon-Glass Electron-Crystal in SrTiO₃
Jamil Ur Rahman, Woo Hyun Nam, Nguyen Van Du, Gul Rahman, **Altaf Ur Rahman**, Weon Ho Shin, Won Seo Saw, Myong Ho Kim.
[Journal of the European Ceramic Society](#) **39**, (2019) 358–365
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Submitted and Research Papers in Progress:

7. **Altaf Ur Rahman, et. al.**, Robust ferromagnetism and half-metallicity in hydrogenated monolayer-CdS (submitted to Current Applied Physics)
8. Thermoelectric properties of KCaF₃, Asad Ali, **Altaf Ur Rahman**, and Gul Rahman
[Physica B](#). (accepted)
9. **Altaf Ur Rahman, et. al.**, Thermoelectric properties of van der Waals Heterostructure. (under preparation)
10. **Altaf Ur Rahman, et. al.**, First-Principles Study of 2D Ferromagnetic Monolayer Adsorbed on Au(111) Surfaces. (under preparation)
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PRESENTATIONS

1. Enhanced electronic and magnetic properties by functionalization of monolayer GaS via substitutional doping and adsorption.
Department of Physics, University of Duisburg-Essen Germany. (22 December 2017).
2. Commensurate versus incommensurate heterostructures of group-III mono-chalcogenides.
Department of Physics, University of Duisburg-Essen Germany. (02 March, 2017).
3. Enhanced electronic and magnetic properties by functionalization of monolayer GaS via substitutional doping and adsorption.
Department of Physics, Quaid-i-Azam University, Islamabad (27 June 2018).
4. Commensurate versus incommensurate heterostructures of group-III mono-chalcogenides.
Department of Physics, Quaid-i-Azam University, Islamabad (29 November, 2018).
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Poster Presentation

1. Enhanced electronic and magnetic properties by functionalization of monolayer GaS via substitutional doping and adsorption. MiFun-2017,
International Conference at University of Duisburg-Essen Germany.