

Muhammad Haseeb

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Objective

I feel pleasure to work in a dynamic research-oriented institute/organization, where I may use and enhance my capabilities and knowledge for the betterment of the institute/organization. This is how one can serve the society ultimately, using innovative research/teaching skills and methodologies involved in modern educational strategies.

Qualification: An Overview

2022 - Continued | Ph.D.

The Islamia University of Bahawalpur (IUB) | Bahawalpur, Pakistan

Density Functional Insights of Oxychalcogenide Materials for Energy Harvesting Applications under the supervision of Dr. Altaf Hussain (Professor) in Materials Simulation Group (MSG).

2019 - 2021 | M. Phil. in Physics

The Islamia University of Bahawalpur (IUB) | Bahawalpur, Pakistan

DFT based simulation is used to study structural, electronic, magnetic and optical properties of carbides under the supervision of Dr. Altaf Hussain (Associate Professor) in Institute of Physics (IoP). The topic of my research is “**Mechanical, Thermal, Optical and Electronic Properties of Nanolaminated Ternary Carbide $U_3Al_3C_3$** ”

Obtain 3.93 CGPA out of 4.0 in thesis research project. I have also published a research paper during my MPhil research work in the “**Journal of Materials Research and Technology**” entitled

“**Structural stability, electronic structure, mechanical and optical properties of MAX phase ternary Mo_2Ga_2C , Mo_2GaC and Mo_3GaC_2 carbides**”

2015 - 2019 | BS (Honors) Physics

The Islamia University of Bahawalpur (IUB) | Bahawalpur, Pakistan

Solid state physics, laser, nuclear physics, quantum mechanics and electrodynamics as majors, obtained 3.88 CGPA out of 4.0 with 3rd position in 6th Semester, B+ grade in review research project, and report titled

“**Density Functional Theory based Electronic Structure Studies of Cr-Al-C Max System**”

2013 - 2015 | Higher Secondary School Certificate

Superior Colleges for Boys Model Town A Bwp | Bahawalpur, Pakistan

Obtained 819 marks out of 1100 with A grade.

Physics, Mathematics & Chemistry as Majors

2011 - 2013 | Secondary School Certificate Govt. High

School Bwp Cantt | Bahawalpur, Pakistan

Obtained 941 marks out of 1050 with A+ grade.

Physics, Mathematics, Chemistry & Computer as Majors

Awards and Research Publications

2024 | Research Publication in International Journal

Materials Today Communications - Elsevier

“First-principles calculations of ScMC_2 ($M = \text{Fe, Co, Ni, Cu}$) ternary carbides: A suitable candidate for shielding purpose”

<https://doi.org/10.1016/j.mtcomm.2024.109300>

2024 | Research Publication in International Journal

Physica B: Condensed Matter - Elsevier

“First-principles calculations on electronic, mechanical and optical properties of ScMC_2 ($M = \text{Ti, V, Cr, and Mn}$) ternary carbides”

<https://doi.org/10.1016/j.physb.2024.415967>

2024 | Research Publication in International Journal

Materials Science in Semiconductor Processing - Elsevier

“First-principles study of structural, electronic, mechanical, optical, thermodynamic and thermoelectric properties of ternary ZnSnN_2 and ZnMoN_2 nitrides”

<https://doi.org/10.1016/j.mssp.2024.108354>

2024 | Research Publication in International Journal

Journal of Physics and Chemistry of Solids - Elsevier

“First-principles investigation of physical properties of transition metal-based ternary $\text{TM}_5\text{Si}_3\text{C}$ ($\text{TM} = \text{Nb, Mo, Ta, W}$) silicides of Nowotny phase”

<https://doi.org/10.1016/j.jpcs.2024.111873>

2023 | Research Publication in International Journal

Materials Today Communications - Elsevier

“*Ab initio* study of electronic structure, bonding and optical properties of ternary $\text{A}_2\text{B}_2\text{In}$ ($\text{A} = \text{Ca, Eu}$ and $\text{B} = \text{Pd, Pt}$) indides”

<https://doi.org/10.1016/j.mtcomm.2023.107134>

2023 | Certification of Participation/Oral Presentation

International Conference on Materials Science and Nanotechnology MSNANO-23 Faisalabad | Pakistan

Talk given at “6th International Conference on Materials Science and Nanotechnology MSNANO-23” scheduled on 25-27 September 2023 at Quaid e Azam Auditorium New Campus Government College University Faisalabad.

2023 | Research Publication in International Journal

Vacuum - Elsevier

“First-principles study on physical properties of actinide-based ternary $(\text{UC})\text{mAl}_3\text{C}_2$ ($m = 1, 2, 3$) carbides”

<https://doi.org/10.1016/j.vacuum.2023.111810>

2022 | Research Publication in International Journal

Journal of Solid-State Chemistry - Elsevier

“DFT based comparative study of physical properties of Y_3AlC_3 , YAl_3C_3 and Y_3AlC carbides”

<https://doi.org/10.1016/j.jssc.2022.123417>

2022 | Certification of Participation/Oral Presentation

International Conference on Solid State Physics (ICSSP) Lahore | Pakistan

Talk given at “International Conference on Solid State Physics” organized by Center of Excellence Solid State Physics in Punjab University Lahore.

2021 | Research Publication in International Journal

Journal of Materials Research and Technology - Elsevier

“Structural stability, electronic structure, mechanical and optical properties of MAX phase ternary $\text{Mo}_2\text{Ga}_2\text{C}$, Mo_2GaC and Mo_3GaC_2 carbides”

<https://doi.org/10.1016/j.jmrt.2021.06.079>

2019 | Certificate of Participation/Volunteer Awarded by NCP

National Centre for Physics (NCP), Islamabad | Pakistan

Participate as a volunteer organizer in “International School on Physics & Allied Disciplines” organized by National Centre of Pakistan in Islamabad.

15 November 2018 | PM's Merit Laptop Award by Government of Punjab, Pakistan*Prime Minister's Laptop scheme | Punjab, Pakistan*

Representative student of Department of Physics receives the laptop award in distribution ceremony chaired by Provincial Minister of Punjab.

13 December 2014 | CM's Merit Laptop Award by Government of Punjab, Pakistan*Chief Minister's E-Youth Initiative | Punjab, Pakistan*

Receive the laptop award in distribution ceremony chaired by Provincial Minister of Punjab.

31 December 2013 | CM's Ujala Program – Solar Home systems for Students.*Chief Minister's Ujala Program | Punjab, Pakistan*

Receive solar panels by excellent performance.

Professional Experience

February 2023 – June 2023 | Visiting Lecturer in the Institute of Physics*The Islamia University of Bahawalpur | Bahawalpur, Pakistan***September 2022 – January 2023 | Teaching Assistant in the Institute of Physics***The Islamia University of Bahawalpur | Bahawalpur, Pakistan***March 2021 – July 2022 | Visiting Lecturer in the Institute of Physics***The Islamia University of Bahawalpur | Bahawalpur, Pakistan*

Workshops, Seminars, Conferences and Trainings

September 2023 | Certification of Participation/Oral Presentation*International Conference on Materials Science and Nanotechnology MSNANO-23 Faisalabad | Pakistan*

Talk given at “6th International Conference on Materials Science and Nanotechnology MSNANO-23” scheduled on 25-27 September 2023 at Quaid e Azam Auditorium New Campus Government College University Faisalabad.

July 2023 | Certification of Participation*Three Days workshop on Quantum Chemistry Thermodynamic approach organized by Zastr Innovations Pvt Ltd*

Participated in the three days' workshop titled “Fast and Robust Quantum Chemistry” and “Solvation Chemistry for modelling and prediction of fluid phase properties” conducted by the Zastr Innovations Pvt Ltd from 25th to 27th July, 2023.

July 2023 | Certificate of 10 Days Training on Online Teaching Tools*Ten Days Training Offered by Edexmy Tuition Hub, Edexmy LMS Pakistan first public LMS | Pakistan***April 2023 | Certification of Participation***Five Days FDP (Faculty Development Program) at Vellore Institute of Technology, Chennai | India*

Participated in the five days FDP titled “Modelling, Simulation & Fabrication of Advanced Electronic Devices” conducted by the School of Electronics Engineering (SENSE) from 15th to 19th April, 2023 at Vellore Institute of Technology, Chennai.

December 2022 | Certificate of Participation/ Training*One Day Training Offered by Directorate of Teaching Assistants & Research Assistants, The Islamia University of Bahawalpur | Pakistan***August 2022 | 1st Pedagogical Training 2022 Certificate***by The Islamia University of Bahawalpur | Pakistan***February 2022 | Certification of Participation/Oral Presentation***International Conference on Solid State Physics (ICSSP) Lahore | Pakistan*

Talk given at “International Conference on Solid State Physics” organized by Center of Excellence Solid State Physics in Punjab University Lahore.

January 2021 | Python for Everybody Specialization learning program *Offered by University of Michigan through coursera online learning.***March 2019 | Participation in “International School on Physics & Allied Disciplines” National Centre for Physics (NCP), Islamabad | Pakistan**

Participate as a volunteer organizer in “International School on Physics & Allied Disciplines” organized by National Centre of Pakistan in Islamabad.

Interests and Expertise

✓ Research and Study Interests

- Thermomagnetic materials
- Thermoelectric materials
- Semiconductors
- Carbides
- Oxychalcogenides
- Spin based study of magnetic materials etc.

✓ Skills and Competencies

- Installation and use of Wien2k, OLCAO and Abinit codes
- First-principles Structural, Bonding, Electronic, Elastic, Mechanical anisotropy, Phononic, Thermoelectric, Thermodynamic and Optical properties of materials
- Use of VELAS and EIA Tools softwares for mechanical anisotropy calculations
- Origin software to draw graphs and evaluate research parameters
- Crystal maker
- Vesta
- XMGrace
- Gnuplot
- Meshlab
- MATLAB
- View3Dscene
- Computer programming language skills (C, C++, Python)
- Well familiar with MS office & other computer applications
- Good organizing and managements skills

✓ Hobbies and Causes Supported

- Reading (books, web content etc.)
- Internet surfing for research, education as well as for social causes
- Tourism, social networking and career counselling for youngsters
- Attending conferences, workshops and trainings
- Cooking and baking
- Chess and badminton

References

Dr. Saeed Ahmad Buzdar, *Professor, Dean of Physical and Mathematical Sciences Faculty, Director Institute of Physics.*

The Islamia University of Bahawalpur (IUB), Bahawalpur, Pakistan

Relationship: Instructor for Courses in M.Phil & BS Honors Physics, Departmental Director Student Affairs.

Email: saeed.buzdar@iub.edu.pk

Dr. Altaf Hussain, *Professor*

The Islamia University of Bahawalpur (IUB), Bahawalpur, Pakistan

Relationship: Supervisor for M.Phil, Instructor for Courses in M.Phil and BS Honors Physics.

Email: altafphy@iub.edu.pk

Dr. Muhammad Amir Rafiq, *Assistant Professor*

The Islamia University of Bahawalpur (IUB), Bahawalpur, Pakistan

Relationship: Research advisor

Email: amir.rafiq@iub.edu.pk