

CURRICULUM VITAE

A. PERSONAL DATA:

Name: **MUHAMMAD IQBAL HUSSAIN**
Father's Name: Muhammad Yar
Date of Birth: April 1, 1981
Domicile: Muzaffar Garh (Punjab, Pakistan).
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B. ACADEMIC QUALIFICATIONS:

Certificate/Degree (Duration)	Name and Address of Institution	From - To	Division /Grade	Major Subjects Studied
Secondary School Certificate (S.S.C)	Govt. High School, Gourmani Pakistan	1994-1996	1 st / A	English, Mathematics, Physics, Chemistry etc.
Faculty of Science (F.Sc. Pre-engineering)	Govt. Degree College Muzaffar Garh Pakistan	1996-1998	2 nd / B	English, Physics, Mathematics, Chemistry etc.
Bachelor of Science (B. Sc.)	Govt. Degree College Muzaffar Garh Pakistan	1998-2001	1 st / A	English, Physics, Mathematics (A & B courses)
Master of Science (MSc Physics with Specialization Industrial Electronics) (Two years)	Bahauddin Zakariya University Multan, Pakistan	2001-2003	1 st / A	Quantum Mechanics, Classical & Statistical, Mechanics, Electronics, Atomic & Molecular Physics, Mathematical Physics, Electromagnetic Theory, Digital Electronics etc.
Master of Philosophy in Physics (M. Phil.) (Two years)	COMSATS Institute of Information Technology, Lahore, Pakistan.	2009-2011	1 st	Advanced Quantum Mechanics, Advance Electrodynamics, Quantum Optics I & II, Plasma Physics I & II, Graduate Laboratory, Mathematical & Computational Methods in Physics etc.
PhD (continue)	Bahauddin Zakariya University Multan, Pakistan	2017-2021	1 st	Condensed matter Physics

M. PHIL DISSERTATION TITLE:

“Entangled Coherent States Based on Even-Odd Coherent States with Average Photon Number as Relative Phase”

PhD DISSERTATION TITLE (CONTINUE):

“First Principles Study of the Physical Properties of Perovskite Materials for Optoelectronic Applications” supervised by Dr. Muhammad Arif Khalil, Department of Physics, Bahauddin Zakariya University, Multan, Pakistan.

C. MEMBERSHIP OF ORGANIZATIONS: -

1. Member of the Board of Studies of University of Education, Lahore from 29.05.2018 to 21.08.2019.

D. TEACHING/NON-TEACHING EXPERIENCE:

Institution / Organisation	Position Held	From-To	Responsibility
Department of Physics, University of Education, Lahore Multan Campus	Lecturer (BPS-18)	31-10-2017 To date	Taught various courses to BS and MSc level students and supervised their research work.
Registrar' Office, University of Education, Lahore, Pakistan.	Look after charge of the Registrar's Office	16-09-2017 to 27-09-2017	Looking after day to day matters of the Registrar's Office
Registrar' Office, University of Education, Lahore, Pakistan.	Deputy Director (Management) (BPS-18)/Re-assigned duties	09-11-2016 To 30-10-2017	<ul style="list-style-type: none"> - dealing appointments BPS-17 & above. - preparing Agenda, writing minutes and conducted meetings of Syndicate, Academic Councils, Selection Boards, Board of Advanced Studies & Research (BASR) etc. - Dealing official routine matters
Registrar' Office, University of Education, Lahore, Pakistan.	Assistant Director (BPS-17) to date	31-7-2013 TO 08-11-2016	<ul style="list-style-type: none"> - dealing appointments BPS-17 & above. - preparing agenda, writing minutes and conducted meetings of Syndicate, Academic Councils, Selection Boards, Board of Advanced Studies & Research (BASR) etc. - Dealing official routine matters

Registrar' Office, University of Education, Lahore, Pakistan.	Administrative Officer (BPS-16)	29-5-2006 To 30-7-2013	- Dealing appointments BPS-17 & above. - Conducted meetings of Syndicate, Academic Councils, Selection Boards, Board of Advanced Studies & Research (BASR) etc. - FDP program/PhD (off campus) related matters
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E. M.Phil/Ph.D. THESES / PROJECTS SUPERVISION:

BS Thesis Supervision

1. “*Ab-Initio Investigation of Structural, Electronic and Optical Properties of VGaO₃*”, Umair Mumtaz (bsf1602302).

F. COURSES TAUGHT TO BS/M.Phil/PhD LEVEL CLASSES

Mathematical Method of Physics-I & II, Mechanics-I & II, Electronics, Modern physics and electronics, Fundamentals of digital electronics, Applied physics, Computational Physics, Heat & Thermodynamics, Waves and Oscillations etc.

G. ADMINISTRATIVE RESPONSIBILITIES:

1. Member of the Board of Studies of University of Education, Lahore from 29.05.2018 to 21.08.2019.
2. Co-ordinator sports at the University of Education, Lahore, Multan Campus from 27.09.2018 to 21.08.2019.

H. DISTINCTIONS:

1. Secured 2nd position in M.Sc. (Physics) during session 2001-2003, Bahauddin Zakariya University, Multan.
2. Achieved First Class throughout the Academic Career except F.Sc.

I. SPECIAL TRAINING/COURSES:

1. Certificate awarded on completion of 3-day orientation session on Peace Building organized by Centre for Policing and Security at University of Education, Multan Campus from 4-6th April 2019.
2. Achieved Certificate of participation by Pak Institute for Peace Studies (PIPS) on participation in 2-days dialogue on “Promoting Social Harmony and Critical Consciousness” from 14-15th December 2018.
3. Attended 3-days HEC’s “Indigenous on Campus Training under modern University Governance program” from 15-17th December 2015 organized at Directorate of Research, University of Education, Lahore.
4. Attended training program on “Developing & Assessing Research Proposal” from 27-30th July 2015 organized by HEC Tertiary Education Support Program at the Centre for Executive Education (CEE), Institute of Business Administration, Karachi.

5. Attended 5-days HEC's "Indigenous on Campus Training under modern University Governance program" from 2-7th February 2015 organized at Directorate of Research, University of Education, Lahore.
6. On successful training of National Cadet Corps, received a "Certificate of Service in National Cadet Corps (NCC)" during F.Sc. in academic session 1996-1998.

J. CONFERENCES/ WORKSHOPS/ MEETINGS ATTENDED:

1. Online talk of the article titled "Computational study of the structural and optoelectronic properties of $AGaO_3$ (A = Sc, Ti, Ag) using LDA+U Functional for optoelectronic applications" at AIMS-2022, held on December 15-16, 2022 by the Department of Physics, DSNT, University of Education, Lahore, Pakistan.
2. Oral presentation of the article titled "*Ab-initio* study of the Structural, Electronic, Mechanical and Optical properties of Tantalum-based perovskite oxides $ATaO_3$ (A = Rb, Fr) for Optoelectronic Applications" at AIMS-2021, held online on October 5-6, 2021 by the Department of Physics, DSNT, University of Education, Lahore, Pakistan.
3. Invited Speaker in iiScience International Conference entitled "Light Generation, Sensing and Energy Resources" held at Department of Physics Women University Multan from 2-4th March, 2020.
4. Arranged and attended 2nd International Conference-2010 organized by University of Education, Lahore from 20-21st September, 2010.
5. Arranged and attended 1st International Conference-2006 organized by University of Education, Lahore from 13-16th March, 2006.

K. RESEARCH PUBLICATIONS

International Publications in impact factor Journals

2022

1. R.M. Arif Khalil, **Muhammad Iqbal Hussain**, Nyla Saeed, Fayyaz Hussain, Anwar Manzoor Rana, Exploration of the structural, optoelectronic and vibrational behavior of Sb_2S_3 through first principles approach for phenomenal applications in solar cells, Optical and Quantum Electronics 54 (12) (2022) 1-14. (IF: 2.794). <https://doi.org/10.1007/s11082-022-04190-w>.
2. Ayesha Zia, G. Murtaza, Khawar Ismail, R.M. Arif Khalil, **Muhammad Iqbal Hussain**, Ab-initio calculations of the structural, electronic and optical response of $KXCl_3$ (X = Be, Ca and Sr) for optoelectronic applications, Computational Condensed Matter 33 (2022) 1-9. (Y-category-Null). <https://doi.org/10.1016/j.cocom.2022.e00737>.
3. **Muhammad Iqbal Hussain**, R.M. Arif Khalil, Density functional theory studies of the structural, optoelectronic, bond stiffness and lattice dynamical properties of double perovskite oxides M_2YVO_6 (M= Mg, Sr): promising candidates for optoelectronic applications, Materials Science in Semiconductor processing 152 (2022) 1-11. (IF: 4.644). <https://doi.org/10.1016/j.mssp.2022.107050>.
4. Amjad Ali, Sajid Munir, Mubushar Majeed, A. Khalil, **Muhammad Iqbal Hussain**, and Rizwan Raza, Effect of Manganese Catalysts on the Performance of Anodes in

Direct Carbon Fuel Cells, ACS Applied Energy Materials, (2022) 1-8.
<https://doi.org/10.1021/acsaem.2c00450>.

5. R. M. Arif Khalil, **Muhammad Iqbal Hussain**, Saba Arshad, Fayyaz Hussain, Anwar Manzoor Rana, Hafiz M. Asif Javed, First-principles simulation: study of the structural, electronic, mechanical and optical properties of disulfide XS_2 (X=Ta, Ti) compounds for optoelectronic applications, Surface Review and Letters, 29 (6), 2250083 (2022). <https://doi.org/10.1142/S0218625X22500834>.
6. R. M. Arif Khalil, **Muhammad Iqbal Hussain**, A. M. Rana, Fayyaz Hussain, Neelam Inam, H. H. Smailly, Shafqat Hayat, First principles study of the structural, optoelectronic and mechanical properties of $XLaS_2$ (X=Cu, Zn) for optoelectronic applications, Optik - International Journal for Light and Electron Optics, 258 (2022) 1-10. (IF: 2.443). <https://doi.org/10.1016/j.ijleo.2022.168940>.
7. R.M. Arif Khalil, **Muhammad Iqbal Hussain**, Nadia Luqman, Fayyaz Hussain, Anwar Manzoor Rana, Muhammad Saeed Akhtar, Rana Farhat Mehmood, DFT based study of the structural, optoelectronic, mechanical and magnetic properties of Ti_3AC_2 (A=P, As, Cd) for coating applications, RSC Advances 12 (2022) 4395-4407. (IF: 3.361). <https://doi.org/10.1039/D1RA07856A>.
8. Shafqat Hayat, R.M. Arif Khalil, **Muhammad Iqbal Hussain**, A.M. Rana, Fayyaz Hussain, A DFT study of perovskite type halides $KBeBr_3$, $RbBeBr_3$, and $CsBeBr_3$ in triclinic phase for advanced optoelectronic devices, International Journal of Solid State Communications 344 (2022) 1-15. (IF: 1.804). <https://doi.org/10.1016/j.ssc.2022.114674>.
9. Syed Awais Rouf, **Muhammad Iqbal Hussain**, Umair Mumtaz, Hafiz Tariq Masood, Hind Albalawi, Abdul Mannan Majeed, R. M. Arif Khalil and Q. Mahmood, An ab-initio study of electronic and optical properties of $RhXO_3$ (X = Ga, Ag) perovskites, Physica Scripta 97 (2) (2022) 1-10. (IF: 2.487). <https://doi.org/10.1088/1402-4896/ac4b34>.

2021

10. Shafqat Hayat, R.M.Arif Khalil, **Muhammad Iqbal Hussain**, A.M. Rana, Fayyaz Hussain, *Ab-initio* study of the structural, optoelectronic, magnetic, hydrogen storage properties and mechanical behaviour of novel combinations of hydride perovskites $LiXH_3$ (X = Cr, Fe, Co & Zn) for hydrogen storage applications, Journal of Computational Electronics 20 (6) (2021) 2284–2299. (IF: 1.807). <https://doi.org/10.1007/s10825-021-01807-3>.
11. R.M.Arif Khalil, **Muhammad Iqbal Hussain**, R.Fatima, Fayyaz Hussain, A.M. Rana, H.H. Hegazy, Abeer Mera, Effect of dopants on the structural, optoelectronic and magnetic properties of pristine $AgGaO_3$ perovskite: A first principles study, Optik - International Journal for Light and Electron Optics, 244 (2021) 1-11. (IF: 2.443). <https://doi.org/10.1016/j.ijleo.2021.167555>.
12. Syed Awais Rouf, **Muhammad Iqbal Hussain**, Umair Mumtaz, Abdul Mannan Majeed, Hafiz Tariq Masood, A density functional theory study of the structural, electronic and optical properties of $XGaO_3$ (X = V, Nb) perovskites for optoelectronic applications, Journal of Computational Electronics 20 (2021) 1-14. (IF: 1.807). <https://doi.org/10.1007/s10825-021-01718-3>.

13. R. M. Arif Khalil, **Muhammad Iqbal Hussaina**, A. Batool, Fayyaz Hussain, A. M. Rana, N. Luqman “Computational Study of $TbMn_2O_5$ and Tb_2MnCoO_6 to Probe the Structural, Vibrational and Optoelectronic Properties using PBE + U functional”, *Optik - International Journal for Light and Electron Optics*, 241 (2021) 1-11. (IF: 2.443). <https://doi.org/10.1016/j.ijleo.2021.166835>.
14. **Muhammad Iqbal Hussain**, R.M.A. Khalil, F. Hussain “Computational Exploration of Structural, Electronic, and Optical Properties of Novel Combinations of Inorganic Ruddlesden–Popper Layered Perovskites Bi_2XO_4 (X = Be, Mg) using Tran and Blaha-Modified Becke–Johnson Approach for Optoelectronic Applications”, *Energy Technology* 9 (5) (2021) 1-23. (IF: 3.631). <https://doi.org/10.1002/ente.202001026>.
15. R.M.A. Khalil, S. Hayat, **Muhammad Iqbal Hussain**, A.M. Rana, F. Hussain “DFT based First Principles Study of Novel Combinations of Perovskite-type Hydrides $XGaH_3$ (X= Rb, Cs, Fr) for Hydrogen Storage Applications”, *AIP Advances* 11 (2) (2021) 1-14. (IF: 1.548). <https://doi.org/10.1063/5.0037790>.
16. E.A. Khera, H. Ullah, M. Imran, N.A. Niaz, R.M.A. Khalil, U. Resheed, A.M. Rana, **Muhammad Iqbal Hussain**, C. Mahata, S. Kim “*ab-initio* study of oxygen vacancy effects on structural, electronic and thermoelectric behavior of $AZr_{1-x}M_xO_3$ (A = Ba, Ca, Sr; M= Al, Cu, x = 0.25) for application of memory devices”, *Journal of Molecular Graphics and Modelling* 103 (2021) 1-13. (IF: 2.518). <https://doi.org/10.1016/j.jmgm.2020.107825>.
17. R.M.A. Khalil, **Muhammad Iqbal Hussain**, Nyla Saeed, A.M. Rana, F. Hussain “The prediction of structural, electronic, optical and vibrational behavior of ThS_2 for nuclear fuel applications: A DFT study”, *Optical and Quantum Electronics* 53 (11) (2021) 1-15. (IF: 2.084). <https://doi.org/10.1007/s11082-020-02698-7>.
18. S. Hayat, R.M.A. Khalil, **Muhammad Iqbal Hussain**, A.M. Rana, F. Hussain “First-principles investigations of the structural, optoelectronic, magnetic and thermodynamic properties of hydride perovskites $XCuH_3$ (X= Co, Ni, Zn) for hydrogen storage applications”, *Optik - International Journal for Light and Electron Optics* 228 (2021) 1-18. (IF: 2.443). <https://doi.org/10.1016/j.ijleo.2020.166187>.

2020

19. R.M.A. Khalil, **Muhammad Iqbal Hussain**, M. Imran, F. Hussain, N. Saeed, G. Murtaza, A.M. Rana, C. Mahata “First-Principles Simulation of Structural, Electronic and Optical Properties of Cerium Trisulfide (Ce_2S_3) Compound”, *Journal of Electronic Materials* 50(4) (2020) 1637–1643. (IF: 1.938). <https://doi.org/10.1007/s11664-020-08478-z>.
20. A. Ali, R. Raza, R.M.A. Khalil, **Muhammad Iqbal Hussain** “Electrochemical Analysis of Titanate based Anode for Direct Carbon Fuel Cell”, *ACS Applied Energy Materials* 3 (9) (2020) 9182–9189. (IF: 6.024). <https://doi.org/10.1021/acsaem.0c01532>.
21. **Muhammad Iqbal Hussain**, R.M.A. Khalil, F. Hussain, A.M. Rana “DFT based insight into the magnetic and thermoelectric characteristics of $XTaO_3$ (X = Rb, Fr) ternary perovskite oxides for optoelectronic applications”, *International Journal of Energy Research* (2020) 1-13. (IF: 4.672). <https://doi.org/10.1002/er.5968>.

22. **Muhammad Iqbal Hussain**, R.M.A. Khalil, F. Hussain, A.M. Rana “*Ab-initio* prediction of the structural, electronic and optical behavior of novel combinations of ternary perovskite oxides $ATiO_3$ ($A = Rb, Cs, Fr$) using Hubbard ‘U’ correction for optoelectronic devices”, *Journal of Computational Electronics* 19 (4) (2020) 1-11. (IF: 1.807). <https://doi.org/10.1007/s10825-020-01571-w>.
23. R.M.A. Khalil, **Muhammad Iqbal Hussain**, F. Hussain, A.M. Rana, G. Murtaza, M. Shakeel, H. M. Asif Javed “Structural, Vibrational, Mechanical and Optoelectronic Properties of $LiBH_4$ for Hydrogen Storage and Optoelectronic Devices: First Principles Study”, *The International Journal of Quantum Chemistry* e26444 (2020) 1-14. (IF: 2.437). <http://dx.doi.org/10.1002/qua.26444>.
24. **Muhammad Iqbal Hussain**, R.M.A. Khalil, F. Hussain, A.M. Rana, G. Murtaza, M. Imran “Probing the structural, electronic, mechanical strength and optical properties of tantalum-based oxide perovskites $ATaO_3$ ($A = Rb, Fr$) for optoelectronic applications: First-principles investigations”, *Optik - International Journal for Light and Electron Optics* 219 (2020) 165027 1-10. (IF: 2.443). <https://doi.org/10.1016/j.ijleo.2020.165027>.
25. **Muhammad Iqbal Hussain**, R.M.A. Khalil, F. Hussain, A.M. Rana, M. Imran “*Ab-initio* prediction of the mechanical, magnetic and thermoelectric behaviour of perovskite oxides $XGaO_3$ ($X = Sc, Ti, Ag$) using LDA+U functional: For optoelectronic devices”, *Journal of Molecular Graphics and Modelling* 99 (2020) 1-11. (IF: 2.942). <https://doi.org/10.1016/j.jmgm.2020.107621>.
26. **Muhammad Iqbal Hussain**, R.M.A. Khalil, F. Hussain, M. Imran, A.M. Rana, S. Kim: “Investigation of structural, electronic and optical properties of $YInO_3$ ($Y=Rb, Cs, Fr$) perovskite oxides using mBJ approximation for optoelectronic applications: A first principles study”, *Materials Science in Semiconductor processing* 113 (2020) 1-9. (IF: 4.644). <https://doi.org/10.1016/j.mssp.2020.105064>.
27. **Muhammad Iqbal Hussain**, R.M.A. Khalil, S. Boota, F. Hussain, M. Imran, G. Murtaza, A.M. Rana, M.A. Sattar: “The structural, electronic and dynamical investigations of $NdMn_2O_5$ and La_2CoMnO_6 for optoelectronic applications: A first principles study”, *Optik - International Journal for Light and Electron Optics* 204 (2020) 1-10. (IF: 2.443). <https://doi.org/10.1016/j.ijleo.2019.164165>.
28. R.M.A. Khalil, F. Hussain, **Muhammad Iqbal Hussain**, A. Parveen, M. Imran, G. Murtaza, M.A. Sattar, A.M. Rana, S. Kim: “The Investigation of The investigation of optoelectronic, magnetic and dynamical properties of Ce and Ti doped 2D blue phosphorene: A dispersion corrected DFT study”, *Journal of Alloys and Compounds* 827 (2020) 1-10. (IF: 6.731). <https://doi.org/10.1016/j.jallcom.2020.154255>.

- 29. Muhammad Iqbal Hussain**, R.M.A. Khalil, F. Hussain, M. Imran, A.M. Rana, S. Kim, “Investigations of Structural, Electronic and Optical properties of TM-GaO₃ (TM= Sc, Ti, Ag) Perovskite Oxides for Optoelectronic applications: A First Principles study”, Materials Research Express, 7 (2020) 1-12. (IF: 2.025).
<https://doi.org/10.1088/2053-1591/ab619c>.

2012

- 30. S.H. Bukhari, Muhammad Iqbal Hussain, S.N. Khan, M.A. Ahmad**, “Nonclassicality of two-mode nonorthogonal states”, Optik - International Journal for Light and Electron Optics 123 (2012) 2288-2291. (IF: 2.443).
<https://doi.org/10.1016/j.ijleo.2011.11.025>.

L. REVIEWED PUBLICATIONS/LAB MANUAL:

- Various Elsevier articles are reviewed till date.

M. REFERENCES:

1. Prof. Dr. Mohammad Alam Saeed
Professor of Computational Physics, Director Division of Science & Technology,
University of Education, Lahore, Pakistan.
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Pakistan.
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