

Curriculum Vitae

Personal:

Name: **Bakht Amin Bacha.**

Father's Name: Shah Zamin Bacha.

Domicile: Swat, KP, Pakistan.

CNIC: 15602-9234168-3

Date of birth: 11 November 1978.

Address: Village Fateh Pur, P/O & Tensile Khwazakhela, District
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Language:

English, Urdu, Pashtu.

Qualifications:

- Ph.D, Physics (Quantum optics) (2014), Hazara University Mansehra, KP, Pakistan.
- M.Sc, Physics, (2006), University of Malakand, KP, Pakistan.
- B.Sc. Physics, Maths. A, Maths. B (2001) University of Peshawar, KP, Pakistan
- F.Sc.Pre-Engg., (1997): BISE Saidu Sharif Swat, KP, Pakistan.
- S.S.C. Science, (1995): BISE Saidu Sharif Swat, KP, Pakistan.

Ph.D Supervisor:

Prof. Dr. Iftikhar Ahmad, Chairman, Department of Physics,
University of Malakand, KP, Pakistan

Ph.D Co-Supervisor:

Prof. Dr. Fazal Ghafoor, Comsat Institute of Information Technology(CIIT) Islamabad.

Ph.D Thesis Title:

- SUPERLUMINALITY AND KERR NONLINEARITY IN FAST LIGHT

Teaching Experience:

- 1) Worked as lecturer in the Govt:AKL,PG College Matta Swat from August, 2006 to September 2008
- 2) Worked as researcher in “Center for Quantum optics, COMSATS Institute of Information Technology (CIIT) Islamabad Pakistan (2009-2014).
- 3) Worked as Assistant Professor (IPFP) Department of Physics, University of Malakand (2015-2016).
- 4) Working as Assistant Professor (visiting) at UOM District Dir (L) from August, 2016 to 14-03-2018
- 5) Working as a Lecture at University of Malakand from 14-03-2018 to till date.

Research interest:

Quantum optics, Slow and fast light, Kerr nonlinearity, Plasmonics, Optical cloaking, Solitonic behaviors of surface Plasmon polariton waves, Electromagnetically induced transparency and Gain-assisted modeling, Spectral hole burning, GH shifts, Atom microscopy, Birefringence, Entanglement, Optical control in grapheme medium, Quantum information, phase shifts in interferometry, Fresnel and rotary photon drag, complex conductivity dependent optical responses, Soliton wave propagation and event cloaking.

Publications (IF; 65.764):

1. Superluminal propagation in a poly-chromatically driven gain assisted four level n-type atomic, (**Bakht Amin Bacha**, I. Ahmad, Arifullah, H. Ali) Physica Scripta 88, 045402 (2013)) IF; 2.151
2. Gain assisted multiple superluminal region via a kerr nonlinearity in a double lamda type atomic (**Bakht Amin Bacha**, F. Ghafoor, I. Ahmad, A. Rahman Laser Phys. 24, 055401 (2014)) IF; 1.231

3. Coherent control of polarization state rotation via doppler broadening and Kerr nonlinearity in a spinning fast light medium (H. Rahman, Hizbullah, M. S. A. Jabar, A. Khan, I. Ahmad, **Bakht Amin Bacha** Laser Phys. 24 , 115404 (2014)) IF; 1.231
4. Inverse Doppler shift and control field as coherence generators for the stability in superluminal light Fazal Ghafoor, **Bakht Amin Bacha** and Salman Khan, Phy. Rev A 91, 053807 (2015). IF ; 2.907
5. Superposition of Stationary Wave Fields Via Atom Microscopy, Hizbullah, Anwar Ali Khan, Naveed Khan, Iftikhar Ahmad and **Bakht Amin Bacha**, Commun. Theor. Phys. 63 (2015) 340-346; IF; 1.416
6. Spectral Hole Burning via Kerr Nonlinearity Anwar Ali Khan, M.S Abdul Jabar, M.Jalaluddin, **Bakht Amin Bacha**, Iftikhar Ahmad Comm. Theor. Phys. 64 2015 473 ; IF; 1.416
7. Atom Microscopy via Dual Resonant Superposition , M.S. Abdul Jabar, **Bakht Amin Bacha**, M. Jalaluddin, and Iftikhar Ahmad Commu.Theor. Phys. 64 (2015) 741–746. IF; 1.416
8. Temporal cloak via Doppler broadening. M S Abdul Jabar, **Bakht Amin Bacha** and Iftikhar Ahmad, Laser Phys. 25 (2015) 065405. IF; 1.231
9. Time gap for temporal cloak based on spectral hole burning in atomic medium, M S Abdul Jabar, **Bakht Amin Bacha** and Iftikhar Ahmad, Chin. Phys. B 25 (2016) 084200 IF; 1.469
10. Corrigendum: Conductivity dependent surface plasmon polariton propagation, Arshad Ali, **Bakht Amin Bacha**, M S Abdul Jabar, Anwar Ali Khan, Rafi Uddin and Iftikhar Ahmad Laser Phys. 26 (2016) 095204; IF; 1.231
11. Optical activity via Kerr nonlinearity in a spinning chiral medium, Anwar Ali Khan, **Bakht Amin Bacha** and R. A. Khan, Physics Letters A 380 (2016) 3724-3731; IF;1.772
12. Conductivity dependent surface plasmon polariton propagation, Arshad Ali, **Bakht Amin Bacha**, Abdul Jabar, Anwar Ali Khan, Rafi Ud Din and Iftikhar Ahmad Laser Physics 26 (2016) 095204; IF; 1.231
13. Gain-assisted superluminal propagation and rotary drag of photon and surface plasmon polaritons, Naveed Khan, **Bakht Amin Bacha**, Azmat Iqbal, Amin Ur Rahman and A. Afaq, Phys. Rev. A 96 (2017) 013848; IF; 2.907
14. Distortion-free propagation in a chiral medium using the coherent superposition of atomic states, Sana Ullah, Fayaz Muhammad, Irfan Ullah, **Bakht Amin Bacha** and Sayed Arif Ullah, Laser Phys. 27 (2017) 115203 IF; 1.231
15. GOOS–HANCHEN SHIFT FROM COLD AND HOT ATOMIC MEDIA USING KERR NONLINEARITY, H. Iqbal, M. Idrees, M. Javed, **B. A. Bacha**, S. Khan and S. A. Ullah Journal of Russian Laser Research 38(2017) 426-436 IF; 0.487
16. Solitary waves of surface plasmon polariton via phase shift under Doppler broadening and Kerr nonlinearity, S. Ahmad, A. Ahmad, **B. A. Bacha**, A. A. Khan and M. S. Abdul Jabar, European Physical Journal Plus 132 (2017) 506, IF; 2.612

17. Erratum: Gain-assisted superluminal propagation and rotary drag of photon and surface plasmon polaritons, Naveed Khan, **Bakht Amin Bacha**, Azmat Iqbal, Amin Ur Rahman and A. Afaq, Phys. Rev. A 96 (2017) 013848 IF;2.907
18. Precise position measurement of an atom using superposition of two standing wave fields, Muhammad Idrees, **Bakht Amin Bacha**, Muhammad Javed and Syed Arif Ullah Laser Physics 27 (2017) 045202, IF; 1.231
19. Surface plasmon induced atom localization in a tripod-type four level atomic system, Syed A. Shah, Sanaullah, Muhammad Idrees, **Bakht Amin Bacha** and Sayed Arif Ullah, Phys scripta; doi: 10.1364/FIO.2017.JW3A.15 IF; 2.151
20. Photon drag enhancement by a slow light moving medium via electromagnetically induced transparency, Azmat iqbal, Naveed Khan, **Bakht Amin Bacha**, Amin Ur Rahman and Afaq Ahmad Phys. Lett. A 381(2017) IF; 1.772
21. One Dimensional Atom Microscopy Via Surface Plasmon Polariton, Syed Ali Shah.....**Bakht Amin Bacha**.... Conference: Frontier in Optics (2017) IF;
22. Unusual refraction and Fizeau effect for a linearly polarized pulse in rotary chiral media Rafi Din, Qing He, **Bakht Amin Bacha**, Iftikhar Ahmad, and Guo Ge Accepted in the Journal: JOSA B; 35,(2018) 1817 IF; 2.284
23. The hybrid mode propagation of surface plasmon polaritons at the interface of graphene and a chiral medium, **Bakht Amin bacha**, Tahir khan, Naveed khan, Sayed Arif Allah, Abdul Jabar, Amin Ur Rehman European Physical Journal Plus 133 ,2018; IF; 2.612
24. Rotary photon drag in a Mach-Zehnder-type Sagnac interferometer; Sana Ullah, M.Maaz, **Bakht Amin Bacha**, Salman khan, A.Ullah; International Journal for Light and Electron Optics (2018) IF; 1.914
25. Implications of spectral-hole burning on the manipulation of spatial Goos–Hänchen shift in an atomic cell; **Bakht Amin Bacha**, Amin Ur Rehman, Azmat khan, Naveed khan; 10.1016, Physics Letter A.(2018).11.036 IF; 1.772
26. Surface plasmon polariton at the interface of dielectric and graphene medium using Kerr effect, Bakhtawar Muhammad Hanif, **Bakh Amin Bacha**, Humayun khan, M Atif; Chin. Phys. B, 27, (2018) 114215, IF 1.469
27. The event cloaking from a birefringent medium via Kerr nonlinearity; **Bakht Amin bacha**, M.S Abdul jabar, Journal optics 20, (2018) IF; 2.753
28. Preparation of Neodymium Metal by Pyro-Metallurgical Process Using Fluoride Salt Ali Murad, Azmat Iqbal, **Bakht Amin Bacha** Key Engineering Materials 778 (2018) IF;
29. Surface plasmon induced atom localization in a tripod-type four level atomic system Syed Ali Shah.....**Bakht Amin Bacha**.... Physica Scripta 94 (2018) IF; 2.151
30. Reply to coments Gain-assisted superluminal Naveed Khan, **Bakht Amin Bacha**, Azmat Iqbal, Amin Ur Rahman, and A. Afaq,Phys Rev. A. 2019 IF; 2.907

31. Spectral hole burning of surface Plasmon polariton via soliton wave at the interface of sodium and gold media, Roidar Khan, Haneef, Maqsood Iqbal, Zakir Khan, **B A Bacha**, Humayun, Physica Scripta 94, (2019) IF; 2.151
32. Effect of the atomic dipole relaxation and the pulse width on temporal cloaking, Roidar Khan, M Iqbal, M Haneef, **B A Bacha**, H Khan , Laser physics,29 (2019,) IF; 1.231
33. Effects of a chiral atomic medium on the manipulation of light birefringence and lateral Goos–Hänchen shifts via Kerr nonlinearity and local field effects; Akhlaq Ahmad, Naem Jan, Arif Ullah, Waqar Ahmad, Amin Ur Rahman, Azmat Iqbal, **Bakht Amin Bacha**, Journal of optics 21 (2019):015505 IF,2.753
34. Quantum photodetachment of hydrogen negative ion in a harmonic potential subjected to static electric fields,Azmat Iqbal,Kirn Humayun, Sana Jawaid, Afaq Ahmad,Amin ur Rahman,**Bakht Amin Bacha**,Chin.Phys.B,28,023201(2019)IF, 1.469
35. Complex conductivity dependent two dimensional atom Microscopy,Khurshaid Ali,Maghfir Ullah, **Bakht Amin Bacha**,Abdul Jabar, European Physical Journal Plus 134 ,(2019)618; IF; 2.612
36. Surface Plasmon hole burning at the interface of Cesium and Gold by Kerr nonlinearity,Umer Wahid, Aftab Khan, **Bakht Amin Bacha**, Sayed,Arif Ullah, Optik, 202, 163651 (2019), IF; 1.914
37. Control of light in a quantized four level grapheme atomic system via self and cross Kerr nonlinearity,U. khan, **Bakht Amin Bacha**, S, Arif Ullah,K. Ullah,Physics Letter.A 383, 125998 (2019)IF, 1.772

PAPERS UNDER REVIEW:

- Currently 35 research papers are under review in different peered review journals

Ph.D student co-supervised:

- Mr Mian Syed Abdul Jabar (seven publications)

Current Ph.D student co-supervisor:

- 1) Zia ull Haq dept ment of Physics UOM
- 2) Akhtar Zaman dept: Physics HU Mansehra.
- 3) Shah Faisal dept: Physics HU Mansehra.

MPHIL Students supervised:

- 1) Mr. Muhammad Yasin, department of Physics (UOM)
- 2) Mr. Numan Ahmad, department of Physics (UOM)

Current MPHIL Students supervisor:

- 1) Mr. Ayub Khan department of Physics (UOM)
- 2) Mr. Saboor khan department of Physics (UOM)
- 3) Mr. Alyaseen department of Physics (UOM)
- 4) Mr. Abdur Rahman department of Physics (UOM)
- 5) Mr. Kaleem Ullah department of Physics (UOM)
- 6) Mr. Tauseef khan department of Physics (UOM)
- 7) Mr. Sohail Ahmad department of Physics (UOM)
- 8) Mr. Ahmadulhaq department of Physics (UOM).
- 9) Mr. Ijazulhaq department of Physics (UOM).
- 10) Mr. Latif Khan department of Physics (UOM).

M.Phil Students co-supervised:

- 1) Mr. Habib Ur Rahman Malakand univiresity (uom) Chakdara Dir(L) KPK.Pakistan
- 2) Mr. Hizbullah Malakand university (uom) Chakdara Chakdara Dir(L) KPK.Pakistan
- 3) Mr. Anwar Ali Khan Malakand university (uom) Chakdara Dir(L) KPK.Pakistan
- 4) Mr. M. Jalaluddin Malakand university (uom) Chakdara Dir(L) KPK.Pakistan
- 5) Mr. Arshad Ali Malakand university (uom) Chakdara Dir(L) KPK.Pakistan
- 6) Mr. Rafiuddin Malakand university (uom) Chakdara Dir(L) KPK.Pakistan
- 7) Mr. Syed Fazal Ghani Malakand university (uom) Chakdara Dir(L) KPK.Pakistan
- 8) Mr. Fizan Ahmad HU Manshera KPK.Pakistan
- 9) Mr. Muhammad Atif HU Manshera KPK.Pakistan
- 10) Mr. Roidar Khan HU Manshera KPK.Pakistan
- 11) Mr. Maqsood Iqbal HU Manshera KPK.Pakistan
- 12) Mr. Zakir Khan HU Manshera KPK.Pakistan
- 13) Mr. Muhammad Qayum HU Manshera KPK.Pakistan
- 14) Mr. Asif Gul HU Manshera KPK.Pakistan
- 15) Mr. Sartaj Khan Abdul wali khan (UM) KPK.Pakistan
- 16) Mr. Arif khan COMSATS University Islamabad Lahore Campus.

- 17) Mr.Husain Ahmad Rifa internation university Islamabad.
- 18) Mr. Saeed Alam khan university of Punjab
- 19) Mr. Ashfaq Ahmad HU Manshera (current co-supervision)
- 20) Mr.M.Ijaz khan HU Manshera (current co-supervision)
- 21) Mr.Atta ullah HU Manshera (current co-supervision)
- 22) Mohib ullah university of Peshawar (current co-supervision)
- 23) Mr.M.Irshad HU Manshera (current co-supervision)
- 24) Mr.Fazlullah HU Manshera (current co-supervision)
- 25) Mr.Sajid khan-1, HU Manshera (current co-supervision)
- 26) Mr.Naemullah HU Manshera (current co-supervision);
- 27) Mr.Waqar Ahmad HU Manshera (current co-supervision);
- 28) Mr.arif Khan HU Manshera (current co-supervision);
- 29) Mr.Muhammad khan HU Manshera (current co-supervision)
- 30) Mr.Sajid khan-2, HU Manshera (current co-supervision)
- 31) Mr. Afsar Ali Ahmad Rifa internation university Islamabad.
- 32) Mr. Mubasir Khan Ahmad Rifa internation university Islamabad.

BS/MSc Students supervised:

- 1) Mr. Nazir Ahmad department of Physics (UOM)
- 2) Mr. Wajid Ali department of Physics (UOM)
- 3) Mr. Sana Ullah department of Physics (UOM)
- 4) Mr. Waqar Ahmad department of Physics (UOM)
- 5) Mr. Roidar Khan department of Physics (UOM)
- 6) Mr. Maqsood Khan department of Physics (UOM)
- 7) Mr. Akhlaq Ahmad department of Physics (UOM)
- 8) Mr. Sohail Ahmad department of Physics (UOM)
- 9) Mr. Zakir Ullah department of Physics (UOM)
- 10) Mr. Saqib Ullah department of Physics (UOM)
- 11) Mr. Zahoor department of Physics (UOM)
- 12) Mr. Ikram Ullah department of Physics (UOM)
- 13) Mr. Raheel Jan department of Physics (UOM)
- 14) Mr. Raza Ullah department of Physics (UOM)
- 15) Mekail khan department of Physics (UOM)
- 16) Aziz u-din department of Physics (UOM)

- 17) Amjad Ali department of Physics (UOM)
- 18) Khurshaid Ali department of Physics (UOM)
- 19) Maghfirullah department of Physics (UOM)
- 20) Muhammad Usman department of Physics (UOM)
- 21) Haq Nawab department of Physics (UOM)
- 22) Wahid Ali department of Physics (UOM)
- 23) Jamil Ahmad department of Physics (UOM)
- 24) Zahidullah department of Physics (UOM)
- 25) Salman Khan department of Physics (UOM)
- 26) Shahidullah department of Physics (UOM)
- 27) Imaduddin department of Physics (UOM)
- 28) Abbas Nasir department of Physics (UOM)
- 29) Wajid Ali department of Physics (UOM)

Current BS/MSc Students supervision:

- 1) Mr. Ihsan ullah department of Physics (UOM)
- 2) Mr. Latif department of Physics (UOM)
- 3) Mr.Zia ullah department of Physics (UOM)
- 4) Mr. Inzimumul Haq department of Physics (UOM)
- 5) Mr. Muhammad Faizan department of Physics (UOM)
- 6) Mr. Fazle Qayyum department of Physics (UOM)
- 7) Mr. Farhan Amir department of Physics (UOM)
- 8) Mr.Ayaz Ahmad department of Physics (UOM)
- 9) Mrs.Balqees department of Physics (UOM)
- 10) Mr.Jameel Badsha department of Physics (UOM)

Evaluation of MPhil Thesis:

- 1) Mr. Rukhsar Ali Khan, department of Physics, Hazara University Mansehra KP Pakistan.
- 2) Mr. Adeel Ahmad, department of Physics, Hazara University Mansehra KP Pakistan.
- 3) Mrs. Khuzaiwa Saeed, department of Physics, Hazara University Mansehra KP Pakistan.

- 4) Mr. Anwar Hayat, department of Physics, Hazara University Mansehra KP Pakistan.
- 5) Mr. Iqtidar Ahmad, department of Physics, Hazara University Mansehra KP Pakistan.
- 6) Mr. Fakhr-e-alam, department of Physics, Hazara University Mansehra KP Pakistan.
- 7) Ms. Sundus Munir, department of Physics, Hazara University Mansehra KP Pakistan.
- 8) Mr. Khalil Ullah, department of Physics, Hazara University Mansehra KP Pakistan
- 9) Ms. Asma shamraz department of Physics, Hazara University Mansehra KP Pakistan
- 10) Ms. Asmat Rehman department of Physics, Hazara University Mansehra KP Pakistan.
- 11) Ms. Mahnoor Ali department of Physics, Hazara University Mansehra KP Pakistan.
- 12) Mr. Zafer Ali department of Physics, Hazara University Mansehra KP Pakistan
- 13) Mr. Umair Khan department of Physics, Hazara University Mansehra KP Pakistan.
- 14) Mr. Tahir Nawaz department of Physics, Hazara University Mansehra KP Pakistan.
- 15) Ms. Benish Bibi department of Physics, Hazara University Mansehra KP Pakistan.
- 16) Mr. Amjad Khan department of Physics, Hazara University Mansehra KP Pakistan.
- 17) Mr. Muhammad Inziam department of Physics, Hazara University Mansehra KP Pakistan
- 18) Mr. Fawad Siddique department of Physics, Hazara University Mansehra KP Pakistan
- 19) Mr. Nadim ullah department of Physics, Hazara University Mansehra KP Pakistan.

External Examiner (Viva Voce Examination) of MPhil students:

- 1) Mr. Adeel Ahmad, department of Physics, Hazara University Mansehra KP Pakistan.
- 2) Mr. Rukhsar Ali Khan, department of Physics, Hazara University Mansehra KP Pakistan.
- 3) Mr. Anwar Hayat, department of Physics, Hazara University Mansehra KP Pakistan.
- 4) Mrs. Khuzaiwa Saeed, department of Physics, Hazara University Mansehra KP Pakistan.
- 5) Mr. Fakhr-e-alam, department of Physics, Hazara University Mansehra KP Pakistan.

- 6) Ms. Sundus Munir, department of Physics, Hazara University Mansehra KP Pakistan
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- 8) Ms. Mahnoor Ali department of Physics, Hazara University Mansehra KP Pakistan.
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- 10) Mr. Amjad Khan department of Physics, Hazara University Mansehra KP Pakistan
- 11) Mr. Zafar Ali department of Physics, Hazara University Mansehra KP Pakistan
- 12) Mr. Fawad Siddique department of Physics, Hazara University Mansehra KP Pakistan
- 13) Ms. Beenish Bibi department of Physics, Hazara University Mansehra KP Pakistan
- 14) Mr. Tahir Nawaz department of Physics, Hazara University Mansehra KP Pakistan
- 15) Mr. M. Inzham department of Physics, Hazara University Mansehra KP Pakistan.

Working as reviewer:

- Laser Physics Journals (Laser Physics and Laser Physics Letters)
- Material Research Express Journal (MREJ)
- European Physics Journal D (EPJD)
- Journal of Nanotechnology (JN).
- Journal of Optics.
- Journal of Physica Scripta.
- Journal of Optics.

Conferences/workshops:

- Three days international conference on “Materials Modeling and Simulations” at UOM (2013)

- One day conference on “International Year of Light” at UOM organized by the department of Physics in collaboration with National Institute of Lasers and Optronics (NILOP) (2015)
- Three days national conference on “International Year of Light” at NILOP Islamabad (2015)
- First National Conference on “Advances in Physics” at UOM (2017)
- One week workshop on “English for Academic Purposes” arranged by HEC of Pakistan at UOM, (2017)

Project approved:

- Coherent and incoherent control of temporal cloak via nonlinearity” approved in October, 2015 for Rs.190,900 by HEC of Pakistan under national research program.

References:

Dr. Fazal Ghafoor

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