

Curriculum Vitae

Personal:

Name: **Bakht Amin Bacha.**

Father's Name: Shah Zamin Bacha.

Domicile: Swat, KP, Pakistan.

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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 GPC Matta District 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 till date.

Research interest:

Quantum optics, Slow and fast light, Kerr nonlinearity, Plasmonics, Optical cloaking, Solitonic behaviors of electromagnetic 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.

Publications (IF; 44.73):

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; 1.902
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; 1.158
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; 1.158

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 ; 2.909
5. 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; 1.178
6. Atom Microscopy via Dual Resonant Superposition , M.S. Abdul Jabar, **Bakht Amin Bacha**, M. Jalaluddin, and Iftikhar Ahmad *Comm.Theor. Phys.* 64 (2015) 741–746. IF; 1.178
7. Temporal cloak via Doppler broadening. M S Abdul Jabar, **Bakht Amin Bacha** and Iftikhar Ahmad, *Laser Phys.* 25 (2015) 065405. IF; 1.158
8. 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; 1.321
9. 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; 2.909
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; 1.158
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;1.863
12. 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; 1.158
13. 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; 0.553
14. 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;1.947
15. 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; 2.048
16. 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; 1.863

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;2.909
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; 1.158
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; 1.902
20. 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; 1.158
21. 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; 1.178
22. 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, Naeem Jan, Arif Ullah, Waqar Ahmad, Amin Ur Rahman, Azmat Iqbal, **Bakht Amin Bacha**, Journal of optics 21 (2019):015505 IF,2.323
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; 1.947
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 IF; 1.191
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/j.physleta.2018.11.036 IF; 1.863
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 1.321
27. The event cloaking from a birefringent medium via Kerr nonlinearity; **Bakht Amin bacha**, M.S Abdul Jabar, Journal optics 20, 2018 IF; 2.323

PAPERS UNDER REVIEW:

- Currently 12 research papers are under review in different peer-reviewed journals

Ph.D student co-supervised:

- Mr Mian Syed Abdul Jabar (seven publications)

MPHIL Students supervisor:

- 1) Mr. Muhammad Yasin, department of Physics (UOM)
- 2) Mr. Numan Ahmad, department of Physics (UOM)
- 3) Mr. Ayub Khan department of Physics (UOM)
- 4) Mr. Saboor khan department of Physics (UOM)
- 5) Mr. Alyaseen department of Physics (UOM)
- 6) Mr. Abdur Rahman department of Physics (UOM)
- 7) Mr. Kaleem Ullah department of Physics (UOM)

M.Phil Students co-supervised:

- 1) Mr. Habib Ur Rahman UOM Chakdara (one publication on rotation of polarization states in a spinning slow fast medium)
- 2) Mr. Hizbullah UOM Chakdara (one publication on superposition of standing wave fields via atom microscopy)
- 3) Mr. Anwar Ali Khan UOM Chakdara (one publication-on Kerr effect and spectral Hole burning)
- 4) Mr. M. Jalaluddin UOM Chakdara (two articles are under review)
- 5) Mr. Arshad Ali UOM Chakdara (one publication on surface plasmon polaritons)
- 6) Mr. Rafiuddin UOM Chakdara (one article under review)
- 7) Mr. Syed Fazal Ghani UOM Chakdara (one article under review)
- 8) Mr. Fizan Ahmad HU Manshera(one article under review)
- 9) Mr. Muhammad Atif HU Manshera(one article under review)
- 10) Mr. Roidar Khan HU Manshera(four article under review)
- 11) Mr. Maqsood Iqbal HU Manshera(four article under review)
- 12) Mr. Zakir Khan HU Manshera(two article under review)
- 13) Mr. Muhammad Qayum HU Manshera
- 14) Mr. Asif Gul HU Manshera
- 15) Mr. Sartaj Khan Abdul wali khan (UM)
- 16) Mr. Arif khan COMSATS University Islamabad Lahore Campus.

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)

Evaluation of MPhil Thesis:

- 1) Mr. Rukhsar Ali Khan, department of Physics, Hazara University Mansehra.
- 2) Mr. Adeel Ahmad, department of Physics, Hazara University Mansehra.
- 3) Mrs. Khuzaiwa Saeed, department of Physics, Hazara University Mansehra.
- 4) Mr. Anwar Hayat, department of Physics, Hazara University Mansehra.
- 5) Mr. Iqtidar Ahmad, department of Physics, Hazara University Mansehra.
- 6) Mr. Fakhr-e-alam, department of Physics, Hazara University Mansehra.
- 7) Ms. Sundus Munir, department of Physics, Hazara University Mansehra.
- 8) Mr. Khalil Ullah, department of Physics, Hazara University Mansehra
- 9) Ms. Asma shamraz department of Physics, Hazara University Mansehra
- 10) Ms. Asmat Rehman department of Physics, Hazara University Mansehra.
- 11) Ms. Mahnoor Ali department of Physics, Hazara University Mansehra.

External Examiner (Viva Voce Examination) of MPhil students:

- 1) Mr. Adeel Ahmad, department of Physics, Hazara University Mansehra.
- 2) Mr. Rukhsar Ali Khan, department of Physics, Hazara University Mansehra.
- 3) Mr. Anwar Hayat, department of Physics, Hazara University Mansehra.
- 4) Mrs. Khuzaiwa Saeed, department of Physics, Hazara University Mansehra.
- 5) Mr. Fakhr-e-alam, department of Physics, Hazara University Mansehra.
- 6) Ms. Sundus Munir, department of Physics, Hazara University Mansehra
- 7) Ms. Asma Shamraiz department of Physics, Hazara University Mansehra
- 8) Ms. Mahnoor Ali department of Physics, Hazara University Mansehra.

Working as reviewer:

- Laser Physics Journals (Laser Physics and Laser Physics Letters)
- Material Research Express Journal

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:

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