

Dr. Anwar Ali Khan

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Professional Profiles:

[University of Malakand – Department of Physics](#)

[Google Scholar](#)

[ResearchGate](#)

Profile:

I am a dedicated physicist and researcher with expertise in Quantum Optics, Optomechanics, Magnonics, Nonlinear Optics, Surface Plasmons, and Dissipative Solitons. With extensive teaching experience, active contributions to peer-reviewed journals, and a strong commitment to academic leadership, I am passionate about driving innovation and discovery in the field of optical physics.

Education:

- **Ph.D. in Quantum Optics** (December 2021)
 - University of Malakand, Chakdara, KP, Pakistan
 - Research conducted at COMSATS University, Islamabad
 - Dissertation: *Coherent Control of Goos-Hänchen Shift in Dispersive Media and Optomechanical Systems*
 - **M.Phil. in Quantum Physics** (April 2015)
 - University of Malakand, Chakdara, KP, Pakistan
 - Thesis: *Observable Effects of Kerr Nonlinearity on Light Propagation in a Chiral Medium*
 - **M.Sc. Physics** (October 2008)
 - Federal Urdu University of Arts, Science and Technology, Karachi, Pakistan
 - **B.Sc. (Physics, Mathematics)** (April 2006)
 - University of Malakand, Chakdara, KP, Pakistan
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Academic Experience:

- Assistant Professor, Department of Physics, University of Malakand (Dec 2022 – Present)
 - Lecturer, Department of Physics, University of Malakand (Sep 2012 – Aug 2022)
 - Visiting Lecturer, Govt. Dr. Khan Shaheed Degree College, Kabal Swat (2010–2011)
 - Lecturer, Tipu Model School and College, Kabal Swat (2009–2012)
 - Staff Proctor, University of Malakand
 - Focal Person, Campus Management System, University of Malakand
 - Focal Person, Prime Minister Laptop Scheme, University of Malakand
 - Program Team Member, Quality Enhancement Cell, University of Malakand
 - Member, Admission Committee, Department of Physics, University of Malakand
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Funded Research Project:

Quantum Control of Dissipative Solitons: Towards Robust Optical Information Processing

Approved and Funded by ORIC, UOM.

Awards and Honors:

- Best Staff Proctor Award (2017–2018), University of Malakand
 - HEC-Approved PhD Supervisor (Nov 2023 – Nov 2026)
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Research Interests:

- Quantum Optics and Light-Matter Interactions
 - Magnonics and Hybrid Quantum Systems
 - Optomechanics and Mechanical Control of Light
 - Nonlinear Optical Phenomena
 - Surface Plasmons for Sensing and Imaging
 - Dissipative Solitons in Optical Communications
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Research Contributions:

Reviewer for Prestigious Journals:

- Journal of Optics (2022, 2025)
- Scientific Reports (2024)
- Reports on Progress in Physics (2024)
- Physics Letters A (2024)

Publications:

1. Vacuum-induced Goos-Hänchen, *Physical Review A* 112, 013718 (2025).
 2. Harnessing Doppler broadening for giant photonic spin Hall shifts in an atomic cavity, *Chaos, Solitons and Fractals* 201, 117392 (2025).
 3. Influence of Parity-Time Symmetry on Surface Plasmon Resonance, *Eur. Phys. J. Plus* 140, 475 (2025).
 4. The Goos-Hänchen shift analysis in optical lattices under the parity-time symmetry, *Phys. Scr.* 98, 085104 (2023).
 5. Transparency in a Laguerre-Gaussian photo-rotational cavity, *Eur. Phys. J. Plus* 137, 1203 (2022).
 6. Influence of orbital angular momentum of vortex light on lateral shift behavior, *J. Opt.* 23, 115402 (2021).
 7. Enhancement of the Goos-Hänchen shift via Casimir force, *Phys. Scr.* 96, 125104 (2021)
 8. Enhanced Cross-Kerr nonlinearity induced PT-symmetry in optical lattices, *J. Opt.* 23, 025401 (2021).
 9. Atomic localization via superposition of three standing wave fields, *Eng. Appl. Sci. Lett.* 04, 69-76 (2021).
 10. Investigation of the Goos-Hänchen shift via quantum control, *Phys. Rev. A* 102, 053718 (2020)
 11. Solitary waves of surface plasmon polaritons via phase shifts, *Eur. Phys. J. Plus* 132, 506 (2017).
 12. Optical activity via Kerr nonlinearity in a spinning chiral medium, *Phys. Lett. A* 380, 3724-3731 (2016).
 13. Conductivity-dependent surface Plasmon polariton propagation, *Laser Phys.* 26, 095204 (2016).
 14. Spectral Hole Burning via Kerr Nonlinearity, *Commun. Theor. Phys.* 64, 473–478 (2015)
 15. Superposition of stationary wave fields via atomic microscopy, *Commun. Theor. Phys.* 63, 340-346 (2015).
 16. Coherent control of polarization state rotation via Doppler broadening, *Laser Phys.* 24, 115404 (2014).
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Conferences, Workshops & Seminars:

- Organizer of Quantum Day, held on April 17, 2024, under the umbrella of Quantum Initiatives Pakistan, Department of Physics, University of Malakand
 - Organizer and Speaker at the National Workshop on Materials Modeling and Simulations, August 15–18, 2023, Center for Computational Materials Science, University of Malakand
 - Organizer and Speaker at the Quantum Science Summer School, July 17–21, 2023, University of Malakand
 - Organizer of the 1st International Conference and 4th International Workshop on Materials Modeling and Simulation, October 24–26, 2022, University of Malakand
 - Organizer of the 2nd National Conference on Mathematical Sciences, December 6–7, 2021, University of Malakand
 - Organizer of the First National Conference on Advances in Physics, November 6–7, 2017, Department of Physics, University of Malakand
 - Participant in the TUD-CIIT International Mini School on Quantum and Ultrafast Optics: Theory and Experiment, October 4–6, 2017, COMSATS Islamabad
 - Participant in the one-day conference on the International Year of Light, November 24, 2015, University of Malakand, in collaboration with NILOP (National Institute for Lasers and Optronics)
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Certifications and Trainings:

- Organizer of the *Project Awareness Seminar & Training Workshop*, organized by PASTIC (Pakistan Scientific & Technological Information Centre) on July 22, 2024, at the University of Malakand
 - Organizer of various events under the Green Youth Movement Club, University of Malakand
 - Organizer of various co-curricular activities under the Directorate of Students Societies, University of Malakand
 - Recognized for outstanding performance as a participant in the 22nd Foundation Week Celebrations, December 6–8, 2023, University of Malakand
 - Participant in the Capacity Building Program for Faculty Members training workshop, October 9–12, 2023, organized by the Directorate of Quality Enhancement Cell, University of Malakand
 - Participant in the Workshop on Teaching and Talking of Peace in the Vulnerable Region of Pakistan, October 13–14, 2023, organized by the University of Malakand in collaboration with USEFP (United States Educational Foundation in Pakistan)
 - Participant in the one-week workshop on English for Academic Purposes under the Transforming English Language Skills program, April 3–7, 2017, University of Malakand, in collaboration with the Higher Education Commission
 - Participant in the Indigenous On-Campus Training Workshop on Administration & IT Skills, September 15–16, 2015, organized by the Directorate of Quality Enhancement Cell, University of Malakand
 - Participant in the Training of Presiding Officers, 2013, organized by the Election Commission of Pakistan
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Technical Skills:

- Programming: Python, Mathematica, LaTeX
 - Software: MS Office, CorelDRAW, Adobe Illustrator
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Languages:

- English
 - Urdu
 - Pashto
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References:

- **Prof. Dr. Iftikhar Ahmad**
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Former Vice Chancellor, Gomal University, D.I. Khan, Pakistan
& Abbottabad University of Science & Technology, Abbottabad, Pakistan
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