

# Dr. Muhammad Altaf Ur Rehman

**Designation:** Assistant Professor  
**Present Address:** Department of Physics, GC University, Lahore.  
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## Research Interest:

Theoretical Plasma Physics, Nonlinear Waves in Plasma, Space Plasma.

## Educational Profile:

Certificate/ Degree	Session	% Marks	Division	Grade	Board/University
<b>PhD</b> (Physics)	2011-2014		1 <sup>st</sup>	A	GC University, Lahore.
<b>M. Phil</b> (Solid State Physics)	2000-2002	OPM 62.4%	1 <sup>st</sup>	B	University of the Punjab, Lahore.
<b>M.Sc</b> (Physics)	1996-1998	CGPA 3.13/4	1 <sup>st</sup>	B	University of Agriculture, Faisalabad.
<b>B.Sc</b> Phys,Math(A),Math(B)	1993-1995	60.8%	1 <sup>st</sup>	B	University of Punjab, Lahore.
<b>F.Sc</b> (Pre-Engineering)	1991-1993	57.8%	2 <sup>nd</sup>	c	B.I.S.E Faisalabad.
<b>Matriculation</b> (science)	1989-1991	77.7%	1 <sup>st</sup>	A	B.I.S.E Faisalabad.

## PhD thesis title:

***"Investigation of Nonlinear Dispersive and Dissipative Structures in Dense plasmas"***

**Supervisor:** Prof. Dr. Hassan Amir Shah. (S.I)

**Publications:** I have following research publications in International Journals

1. "Alfven Solitary waves in nonrelativistic, relativistic and ultra-relativistic degenerate quantum plasma", Phys. Plasmas **22**, 10230 (2015).  
**M. A. Rehman**, H. A. Shah, W. Masood, and M. N. S. Qureshi

2. "Obliquely propagating electromagnetic excitations in dissipative plasma with relativistically degenerate electrons" Phys. Plasmas **23**, 0623 (2017).  
**M. A. Rehman**, H. A. Shah, W. Masood, and M. N. S. Qureshi
3. "Electromagnetic instabilities of low-beta alpha/proton beam in space plasma", Astrophys space Sci. 107, 365 (2020).  
**M. A. Rehman**, S. M. Shaaban. P. H. Yoon, M. Lazar. S. Poedts
4. "Optimized Structural, electronic, optical and mechanical properties of  $\text{SrTiO}_3\text{-xHx}$  for photovoltaic applications: a DFT insight". Molecular Physics e2410483(2024)  
M. Zaman, **M. A. Rehman**, I. Zeba, Sana Zafar and S. S. A. Gillani.
5. "Impact of temperature anisotropy on longitudinal and transverse wave in magnetized partially degenerate electron plasma" Eur. Phys. J. D **44**, 79 (2025)  
H. Anwar, G. Abbas, H. Fatima, H. Khalid, **M. A. Rehman** and Z. Iqbal
6. Enhanced optoelectronic properties of perovskite type  $\text{TiSrF}_3$  under the influence of pressure: A DFT perspective *Computational Condensed Matter* 44, e01075 (2025,)

### Conferences and Workshops attended:

- Attended 11<sup>th</sup> **National Symposium on Frontiers in physics** in which well Known Scientists discussed their latest research work (GCU Lahore).
- Certificate of participation in **4<sup>th</sup> International Scientific Spring at NCP** jointly Organized by ICTP & NCP, Islamabad, Pakistan.
- Certificate of participation in **One Day International Workshop on Plasma Physics** jointly Organized by ICTP & NCP, Islamabad, Pakistan.
- Certificate of participation in the International Workshop on **Plasma Science** Organized by **COMSTECH** in Collaboration with **HEC** Islamabad, Pakistan.
- Attended 13<sup>th</sup> **National Symposium on Frontiers in physics** December 19-21, 2012 University of Peshawar.
- Certificate of participation in **1<sup>st</sup> ICTP-NCP International College on Plasma Physics**, 11-15 November 2013. Organized by ICTP, Trieste, Italy & NCP, Islamabad, Pakistan.
- Certificate of participation in **1<sup>st</sup> Refresher Course for Physics Teachers "Problem Solving and Concept Development"** August 01-20, 2016 Organized by National Center for Physics & Higher Education commission, Islamabad, Pakistan.
- Attended 14<sup>th</sup> **National Symposium on Frontiers in physics** November 23-25, 2016 GC, University Lahore, Pakistan.
- Attended 15<sup>th</sup> **National Symposium on Frontiers in physics** January 29-31, 2018 GC, University Lahore, Pakistan.
- Attended **One day Symposium on Quantum and Nano-Optics** 12<sup>th</sup> April, 2018, Physics department, Lahore University of Management Sciences (LUMS), Lahore.
- Participated 16<sup>th</sup> **National Symposium on Frontiers in physics** January 29-31, 2019 GC, University Lahore, Pakistan.

## Professional Experience:

Designation	Institution	Period
Assistant Professor	GC University Lahore.	11-2-2017 To Date
Lecturer in Physics	GC University Lahore.	02-07-2007 To 10-02-2017

## M Phil Theses Supervised:

- Hamza Anwar (2021-2023)  
Longitudinal wave in anisotropic un-magnetized electron plasma with arbitrary temperature degeneracy
- Fatima Akhtar (2021-2023)  
Linear Accelerator Based Stereotactic Radiosurgery for multi-brain metastases
- Muhammad Zaman (2022-2024)  
Exploring the influence of pressure induced semiconductor to metal transition and its impact on the physical properties of  $\text{TiSrF}_3$

## BS Theses Supervised:

- Muhammad Yasin (2014-2018)  
A Brief Overview of Fluid Model In Plasma
- Abdul Majeed Tariq (2018-2022)  
Linear Analysis of Obliquely Propagating Longitudinal Ion Acoustic Wave In Partially Spin Polarized Degenerate Magnetized Plasma
- Usman Hameed (2018-2022)  
Linear Analysis of Obliquely Propagating Longitudinal Cyclotron Waves in Partially Spin Polarized Degenerate Magnetized Plasma
- Ahrar Ahmad (2017-2021)  
Low frequency waves in spin polarized quantum Plasma
- Yousaf Shah (2019-2023)  
Ion Acoustic Wave in Bi-Ion Quantum Plasma
- Muhammad Farhan (2019-2023)  
Linear propagation of electron plasma wave in quantum plasma
- Muhammad Adnan Khan (2020-2024)  
Linear drift ion acoustic waves in an inhomogeneous magnetized plasma
- Muhammad Nouman (2020-2024)  
Linear Drift Ion Acoustic Wave In Electron-Positron And Ion Plasma

## Course Teach at M Phil. Level:

- Statistical Physics

## Courses Teach at BS Level:

- Mechanics
- Waves And Oscillation
- Electricity and Magnetism
- Modern Physics
- Heat And Thermodynamics
- Classical Mechanics

## Computer Skills:

MS Office, Software Installation, Scientific WorkPlace, Mathematica.

## Co-Curricular Activities:

- Departmental Controller of Examination
- Secretary Board of Studies
- Member of departmental QEC Committee
- Active member, Jones Physics Society, GCU Lahore.
- Member of Blood Donor Society, GCU Lahore.
- Browsing and searching internet,
- Playing Football.
- Books Reading