

**PROF. DR. MUSHTAQ AHMAD (Dean, Faculty of Science)**  
**Professor of Physics, Department of Physics, Faculty of Sciences,**  
**International Islamic University Islamabad Pakistan**

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International Islamic University Sector H-10, Islamabad, Pakistan

**Google Scholar:** <https://scholar.google.com.pk/citations?user=7BUQUbAAAAAJ&hl=en>

**Research Gate:**

[https://www.researchgate.net/profile/A\\_Mushtaq/publications?sorting=recentlyAdded&editMode=1](https://www.researchgate.net/profile/A_Mushtaq/publications?sorting=recentlyAdded&editMode=1)

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## **SUMMARY OF SKILLS**

Dr. Mushtaq is an accomplished academic and administrator with extensive experience in teaching, research, and leadership. He currently serves as the Dean of the Faculty of Science at the International Islamic University Islamabad (IIUI) since May 2024, and as a Professor of Physics since 2016. His professional background spans over two decades, including 13 years of R&D experience as a Junior and Senior Scientist at the Pakistan Atomic Energy Commission (PAEC), where he contributed significantly to scientific research.

He has held various leadership roles, including Associate Professor and Professor at Abdul Wali Khan University Mardan (AWKUM), where he also served as Head of the Department of Physics, Director of the Office of Research, Innovation, and Commercialization (ORIC), and Dean of the Faculty of Physical and Numerical Sciences. He has been an active member of selection boards and academic committees, including at prestigious institutions such as GCU Lahore and Quaid-e-Azam University Islamabad.

Dr. Mushtaq's expertise lies in theoretical physics, curriculum development, and research. He holds a Ph.D. in Physics, as well as an MS in Nuclear and Applied Physics from PIEAS. He has received postdoctoral training at the University of Sydney, Australia, and has attended advanced theoretical physics programs at the Abdus Salam International Centre for Theoretical Physics (AS-ICTP) in Italy, and other renowned institutions in China, Turkey, and Malaysia.

His research, primarily focused on theoretical plasma physics, has been published in top-tier national and international journals. Dr. Mushtaq is on the editorial boards of several high-impact journals and serves as a member of technical and advisory panels for international conferences. He has been invited as a keynote speaker at numerous national and international conferences and has contributed extensively to M.Phil and Ph.D. supervision in theoretical physics.

Dr. Mushtaq is the recipient of the Pakistan Council for Science and Technology (PCST) Research Productivity Award for five consecutive years, with his last three awards in the prestigious A category. He has authored 109 research publications, with over 2,000 citations and an impact factor exceeding 200. His commitment to teaching excellence earned him the Best University Teacher Award in 2015.

Dr. Mushtaq is fluent in both English and Urdu and is a member of various professional bodies and international committees in the field of Physics.

## ACADEMIC QUALIFICATION

15 October 2018 to 21 October 2018	Research Collaboration Southeast University Nanjing, China
2009-2011	<b>Post-Doctorate (Quantum Plasma Physics)</b> University of Sydney Australia
2002-2007	<b>Doctor of Philosophy (Ph.D) Physics</b> Govt. College University Lahore Pakistan
1997-1999	<b>MS (Applied Physics)</b> PIEAS, Quaid-e-Azam University, Islamabad
1993-1995	<b>M. Sc. (Physics)</b> Dep't of Physics, Peshawar University Peshawar
1990-1992	<b>B.Sc (Gold medalist)</b> Islamia College Peshawar, University of Peshawar

## TEACHING & RESEARCH EXPERIENCE

May 2024 – Present	Dean, Faculty of Science, International Islamic University, Islamabad,
Feb. 2015 – Present	Professor, International Islamic University Islamabad (May 2016 – Present) and Department of Physics, Abdul Wali Khan University Mardan (Feb. 2015 – May 2016)
Nov. 2020 – January 2023	Director, Office of Research, Innovation and Commercialization (ORIC), International Islamic University, Islamabad
May 2016 – Nov. 2018	Chairman, Department of Physics, International Islamic University, Islamabad
July 2015 – May 2016	Interim Dean, Faculty of Physical and Numerical Sciences, Abdul Wali Khan University, Mardan
Sep. 2012 – Feb. 2015	Chairman, Department of Physics, Abdul Wali Khan University, Mardan
Aug. 2012 – Feb. 2015	Associate Professor, Department of Physics, Abdul Wali Khan University, Mardan
2013 – 2015	Member, University Senate, Abdul Wali Khan University, Mardan
2013 – 2014	Director, Office of Research, Innovation and Commercialization (ORIC), Abdul Wali Khan University, Mardan
2001 – 2012	Senior Scientist (BPS-18), Theoretical Plasma Physics Division, PINSTECH, Nilore, Islamabad
Sep. 1999 – Dec. 2001	Junior Scientist (BPS-17), Theoretical Physics Group, PRD, PINSTECH, Nilore, Islamabad

## RESEARCH PROJECTS/FUNDING

- **Rs0.5million** "Synthesis of Nanomaterial for various type of electronic devices and sensors" By

- HEC in 2014.
- **Rs0.5million**“Metal Oxide Semiconductors Nanowires for Optoelectronics and Photocatalytic Applications”byHECin2018
- **AUS\$146,578** “Research Fellowship in Quantum Plasma Physics in University of Sydney NSW 2006 Australia (2009-2011).

## ADMINISTRATIVE JOB EXPERIENCE

### Administrative Experience

**May 2024 – Present**

**Dean, Faculty of Science**, International Islamic University Islamabad (IIUI), Pakistan

- Responsible for the overall academic, administrative, research, and financial leadership of the Faculty of Science.
- Major initiatives and achievements:
  - ✓ Facilitated inter-departmental collaboration and promoted interdisciplinary research.
  - ✓ Oversaw strategic planning for curriculum development and student enrollment growth.
  - ✓ Strengthened faculty-level international linkages and initiated new exchange programs.
  - ✓ Supported research and innovation projects through external and internal funding.
  - ✓ Promoted diversity and inclusion across faculty recruitment and student programs.
  - ✓ Led academic quality assurance efforts to enhance program accreditation and rankings.
  - ✓ Represented the faculty in national and international academic forums.

**Nov. 2020 – Jan. 2023**

**Director, Office of Research, Innovation and Commercialization (ORIC)**, International Islamic University Islamabad (IIUI), Pakistan

- Promoted a culture of innovative research and commercialization within the university.
- Key accomplishments:
  - ✓ Developed strategic partnerships with national industry and international institutions.
  - ✓ Facilitated patent filing and research grant applications for faculty members.
  - ✓ Supported faculty in organizing international seminars, travel grants, and collaborative projects.
  - ✓ Streamlined project submission processes to funding agencies at national and international levels.

**May 2016 – Nov. 2018**

**Chairman, Department of Physics**, International Islamic University Islamabad (IIUI), Pakistan

- Oversaw administrative, academic, and research operations of the department.
- Major initiatives and reforms:
  - ✓ Revised and upgraded BS, MSc, MS, and PhD programs per HEC guidelines.
  - ✓ Introduced new elective and core courses to modernize curriculum.
  - ✓ Chaired over six Board of Studies (BoS) meetings to update academic schemes.
  - ✓ Supervised multiple DTRC evaluations and faculty promotion processes.
  - ✓ Promoted student research and seminar culture at the department level.

**July 2015 – May 2016**

**Interim Dean, Faculty of Physical and Numerical Sciences**, Abdul Wali Khan University Mardan (AWKUM), Pakistan

- Provided academic and strategic leadership for a newly formed faculty.
- Key contributions:
  - ✓ Established SOPs and governance structure for the faculty.
  - ✓ Launched new departments (Geology and Statistics) with approved BS and MS programs.
  - ✓ Revised and restructured curricula across departments as per HEC guidelines.
  - ✓ Conducted pending PhD defenses in Mathematics and resolved long-standing academic bottlenecks.
  - ✓ Represented the faculty at university administration and syndicate level.

#### **Sep. 2012 – Feb. 2015**

**Chairman, Department of Physics, Abdul Wali Khan University Mardan (AWKUM), Pakistan**

- Responsible for the academic and operational oversight of the department.
- Major accomplishments:
  - ✓ Revised curricula for all programs in line with national standards.
  - ✓ Chaired over three BoS and two DTRC meetings for curriculum and faculty evaluation.
  - ✓ Initiated collaborative MOUs with national and international research institutions.
  - ✓ Facilitated the recruitment of 11 new faculty members across academic ranks.
  - ✓ Enhanced research infrastructure and initiated inter-university projects.

#### **2013 – 2015**

**Member, University Senate, Abdul Wali Khan University Mardan (AWKUM), Pakistan**

- Actively contributed to university policy decisions and attended high-level Senate meetings chaired by the Chancellor (Governor of KPK).
- Played a key role in academic and strategic discussions on university governance.

#### **2013 – 2014**

**Director, Office of Research, Innovation and Commercialization (ORIC), Abdul Wali Khan University Mardan (AWKUM), Pakistan**

- Spearheaded internal R&D initiatives and established international academic partnerships.
- Major outcomes:
  - ✓ Initiated international student exchanges with institutions in Korea and Thailand.
  - ✓ Designed SOPs for ORIC operations and research support mechanisms.
  - ✓ Facilitated national and international conferences and represented the university in academic expos.

### **MEMBER ACADEMIC BODIES/COMMITTEES**

- **Chairman/Convener**, Board of Faculty, Faculty of Sciences, International Islamic University, Islamabad (2024–Present)
- **Member**, Selection Board (Federal Government on Higher Secondary and College Education) (2016-2018)
- **Member**, Board of Studies (BOS), Department of Physics, Shaheed Benazir Bhutto Women University Peshawar (2015)
- **Member**, Selection Board, Shaheed Benazir Bhutto Women University Peshawar (2014-2015)
- **Member**, Selection Board, Hazara University Mansehra (2015)
- **Member**, Selection Board, Government College University (GCU), Lahore (2016-2019)

- **Member**, Selection Board, Malakand University Malakand (2017)
- **Member**, Board of Studies (BOS), Department of Physics, Quaid-e-Azam University Islamabad (2019-2022)
- **Member**, Board of Studies (BOS), Department of Physics, Peshawar University (2017)
- **Chairman/Convener**, Board of Studies, Department of Physics, International Islamic University Islamabad
- **Chairman/Convener**, Faculty Board, Faculty of Social Sciences, Abdul Wali Khan University Mardan
- **Chairman/Convener**, Departmental Tenure Track Committee, International Islamic University Islamabad

## NATIONAL/INTERNATIONAL COLLABORATIONS AND INDUSTRIAL LINKAGE

- University of Sydney, Australia
- Tokyo University of Science, Tokyo, Japan
- Mansoura University, Egypt
- University of Dhaka, Bangladesh
- South East University Nanjing China
- COMSATS Lahore, Pakistan
- GCU, Lahore, Pakistan
- PINSTECH, Islamabad, Pakistan
- PIEAS, Islamabad, Pakistan
- NCP Islamabad, Pakistan
- Islamia College Peshawar, Pakistan
- Peshawar University, Peshawar, Pakistan

## AWARDS & HONORS

- **First Position in Merit List**, B.Sc. Exam (1990-1992), Peshawar University
- **PhD Fellowship Award (2002-2006)**, Ministry of Science and Technology, Government of Pakistan, through HEC
- **Research Productivity Awards:**
  - Awarded the Best Research Productivity Award by the Pakistan Council for Science and Technology (PCST) five times
  - Three times in the A-category and two times in the G-category
- **Best University Teacher Award (2015)**, Abdul Wali Khan University Mardan, KPK, Pakistan
- **Post-Doctoral Fellowship Award (2009-2011)**, School of Physics, University of Sydney, NSW, Australia
- **Referee for International Journals:**
  - *Physical Review Letters*, *Physical Review E*, *Physics of Plasmas*, *Phys. Lett. A*, *Chinese Physics Letters*, and *European Physical Journal D*
- **Google Scholar:** Total citations approximately 1,700
- **ResearchGate:** RG score of 34.48
- **Curriculum Development:** Introduced 8 advanced-level courses at BS, MSc, MS, and PhD levels
- **Publications:** Authored 107 papers with a total impact factor exceeding 200

## EDUCATIONAL RADIO AND TV INTERVIEWS

- ✓ **Radio:** Interviewed for 30 minutes on FM Diva on the topic "**Importance of Science in the Community**", 2013.
- ✓ **Television:** Interviewed for 50 minutes on **Naway Sahar AVT-Khyber** on the topic "**How to Flourish Science in Pashtun Society**", 2015.

- ✓ **Radio:** Interviewed for 30 minutes on **Suno FM Radio** on the topic "**Nuclear Science Importance in the Community**", 2025.

## CONFERENCE PAPERS/CONFERENCE PARTICIPATION/ABSTRACTS/PROCEEDINGS/KEYNOTE SPEECHES/SEMINARS

1. 8<sup>th</sup>Asia-Pacific Conference on Plasma Physics (AAPPS-DPP2024), Nov. 3-8, 2024, held at Grand Swiss-Bel Hotel, Malacca, Malaysia.
2. Recent Trends in Plasma Physics, Nov. 28-30, 2023, held at FC College University, Lahore, Pakistan.
3. Joint NUST-NCP International College on Space and Astrophysical Plasmas, Oct. 27-Nov. 03, 2023, held at National University of Science and Technology, Islamabad, Pakistan.
4. International School on Physics and Applied Discipline (ISPAD)-2023, March 13-17, 2023, held at National Center for Physics, Quaid-i-Azam University Campus, Shahdra Valley Road, Islamabad, Pakistan.
5. 16<sup>th</sup>National Symposium on Frontiers in Physics, Jan. 29-31, 2019, held at Govt. College University, Lahore, Pakistan.
6. International Scientific School-2018, March 12-16, 2018, held at National Centre for Physics, Quaid-i-Azam University Campus, Shahdra Valley Road, Islamabad, Pakistan.
7. 15<sup>th</sup>National Symposium on Frontiers in Physics, Jan. 29-31, 2018, held at Govt. College University, Lahore, Pakistan.
8. 14<sup>th</sup>National Symposium on Frontiers in Physics, Nov. 23-25, 2016, held at Govt. College University, Lahore, Pakistan.
9. International Scientific Spring-2016, March 07-11, 2016, held at National Center for Physics, Quaid-i-Azam University Campus, Shahdra Valley Road, Islamabad, Pakistan.
10. International Scientific Spring-2014, March 10-14, 2014, held at National Center for Physics, Quaid-i-Azam University Campus, Shahdra Valley Road, Islamabad, Pakistan.
11. First-ICTP-NCP International College on Plasma Physics, Nov. 11-15, 2013, held at National Center for Physics (NCP), Quaid-i-Azam University (QAU) Campus, Shahdra Valley Road, Islamabad, Pakistan.
12. 5<sup>th</sup>International Scientific Spring, March 11-15, 2013, held at National Center for Physics, Quaid-i-Azam University Campus, Shahdra Valley Road, Islamabad, Pakistan.
13. 13<sup>th</sup>National Symposium on Frontiers in Physics, Dec. 19-21, 2013, held at University of Peshawar, Peshawar, Pakistan.
14. 4<sup>th</sup>International Scientific Spring, March 05-09, 2012, held at National Center for Physics (NCP), Quaid-i-Azam University (QAU) Campus, Shahdra Valley Road, Islamabad, Pakistan.
15. 11<sup>th</sup>National Symposium on Frontiers in Physics, Jan. 29-31, 2009, held at Govt. College University, Lahore, Pakistan.
16. National Symposium on Plasma Physics, Jan. 28-29, 2008, held at Pakistan Academy of Sciences (PAS) Auditorium, Islamabad, Pakistan.
17. One-day Symposium (Workshop) on Plasma Technology, Aug. 27, 2005, Quaid-i-Azam University, Islamabad, Pakistan.
18. 30<sup>th</sup>International Nathiagali Summer College on Physics and Contemporary Needs, June 27 – July 13, 2005, held at Nathiagali, Pakistan.
19. 10<sup>th</sup>National Symposium on Frontiers in Physics, Jan. 11-14, 2005, G. C. University, Lahore, Pakistan.
20. One-day Symposium on Mathematics, Nov. 27, 2004, G. C. University, Lahore, Pakistan.
21. 9<sup>th</sup>National Symposium on Frontiers in Physics, Jan. 28-30, 2003, G. C. University, Lahore, Pakistan.
22. 27<sup>th</sup>International Nathiagali Summer College on Physics and Contemporary Needs, June 24 – July 6, 2002, held at Nathiagali, Pakistan.
23. 26<sup>th</sup>International Nathiagali Summer College on Physics and Contemporary Needs, June 26 – July 1, 2001, held at Nathiagali, Pakistan.
24. Regional College on Plasma Physics, Jan. 29 – Feb. 3, 2001, held under the auspices of National Centre for Physics, Quaid-i-Azam University, Islamabad, Pakistan.
25. Conference on Nuclear Science and Technology, Oct. 15-16, 2001, Islamabad, Pakistan.
26. 8<sup>th</sup>Symposium on "Frontiers in Physics", Nov. 20-22, 2000, held at Government College Lahore, Pakistan.
27. Autumn College on Plasma Physics, Sept. 5-30, 2005, As-ICTP, Trieste, Italy
27. International Workshop on Frontier of Plasma Sciences, Aug. 22 – Sept. 1, 2006, As-ICTP, Trieste, Italy.

28. 2007 Summer College on Plasma Physics, July 30 – Aug. 24, 2007, As-ICTP, Trieste, Italy.
30. 19<sup>th</sup> Australian Institute of Physics Congress, Dec. 5-9, 2010, held at Melbourne Convention and Exhibition Centre, Victoria, Australia.

## COURSES TAUGHT

Plasma Physics-I; Plasma Physics-II, Nonlinear Plasma Physics, Advanced Statistical Mechanics; Classical Mechanics, Mathematical Method of Physics-II, Special Theory of Relativity, General Theory of Relativity, Electrodynamics, Quantum Physics, Nonlinear Dynamics.

## PHDRESEARCH SUPERVISION

### Completed

1. **Sajad Ali** *Linear and Non-Linear Drift Modes in an Inhomogeneous Multicomponent Plasmas.*
2. **Muhammad Nasir** (Co-supervisor) *Nonlinear Perturbation in Complex Plasma.* Peshawar University
3. **Raheema Maroof** (Co-supervisor) *MHD Waves in Quantum Plasmas.* Peshawar University
4. **Akhtar Iqbal** *Transverse Momentum and Rapidity Spectra of Negative Pions in Nucleus-Nucleus Collisions at 4.2 GeV/c Per Nucleon.*
5. **Nauman Sadiq** *Quantum Kinetic and Inertial Alfven Waves: Linear and Nonlinear Analysis.*
6. **Safdar Ali** *Quantum MHD Waves with Effect of Temperature Degeneracy and Spin Magnetization.*
7. **Sadiq Usman** *Magnetorotational Instability in Classical and Quantum Plasma.*
8. **Muhammad Farooq** *Linear and Nonlinear Analysis of Electrostatic Waves in Plasma Systems with Effect of Nonthermal Distribution of Particles.*
9. **Qasim Jan** *Nonlinear Multi Time Scale Analysis in Quantum Plasmas.*

### In Progress

1. **Umar Khitab** *Surface Modes in Degenerate Quantum Plasma: Linear/Non-Linear Analyses*
2. **Muhammad Ayub**, *Super and Cusp Solitons in Multicomponent Space and Astrophysical Plasma*

## MSRESEARCH SUPERVISIOIN

### Completed

#### *International Islamic University Islamabad (IIUI)*

1. **Asif Ullah**, *Dissipative Dust Ion Acoustic Soliton in Dusty Quantum Plasma.*
2. **Muhammad Ayyub**, *Dissipative Dust Acoustic Soliton in Quantum Dusty Plasma.*
3. **Mohammad Rehman**, *Extra Ordinary Waves with Temperature Degeneracy Effect in Spin Quantum Plasma.*
4. **Muhammad Shamir**, *Coupled Drift-Ion-Acoustic Waves in Electron-Positron-Ion Plasma.*
5. **Jabir Khan**, *Kelvin Helmholtz Instability in Dusty Plasma with Kappa Distributed Species.*
6. **Sibghat Ullah**, *Kelvin Helmholtz Instability in a Magnetized Plasma with q-Nonextensive Electrons.*
7. **Umar Khitab**, *Electromagnetic Waves in Spin Magnetized Plasmas with Temperature Degeneracy Effects.*
8. **Ehtsham Ul Haq**, *Effect of Correction Terms Due to Degenerate and Radiation Pressures on Jeans Instability in Quantum Dusty Plasma.*
9. **Muhammad Adnan**, *Jeans Instability in Quantum Dusty Plasma with Effect of Temperature*

*Degeneracy and Radiation Pressure.*

10. **Zakir Iqbal**, *Solitary Waves and Double Layers in Relativistic Degenerate Electron-Positron-Ion Plasma.*
  11. **Syeda Riffat Batool**, *Shear Alfvén Waves with Temperature Degeneracy Effect in Electron-Positron-Ion Quantum Plasma.*
  12. **Misbah Kanwal**, *Lower Hybrid Waves with Exchange Correlation Potential in Arbitrary Degenerate Plasma.*
  13. **Hamid Ali**, *Electromagnetic Drift Waves in Spin Inhomogeneous Quantum Plasma.*
  14. **Amna Sadia**, *Magnetohydrodynamic Waves with Effect of Landau Diamagnetism.*
  15. **Imran Khan**, *Landau Damping of Electrostatic Waves in Electron-Positron-Ion Quantum Plasma.*
  16. **Sehrish Mumtaz**, *Temperature Degeneracy and Streaming Instabilities in Semiconductor Quantum Plasma.*
- Registration No: 522-FBAS/MSPHY/F-18
17. **Aarif Ullah Khan**, *Dust Ion Acoustic Wave with Effect of Polarization Force and Charging Current in Halley Comet Plasma.*
  18. **Safeer Ahmad**, *Waveguide Instability in Super Thermal Plasma.*
  19. **Muhammad Roman**, *Analysis of Exchange Correlation Potential and Drift-Acoustic Modes in Quantum Dusty Plasma.*
  20. **Naveed Bin Umar**, *Arbitrary Amplitude Quantum Ion Acoustic Wave in Pair-Ion Plasma.*
  21. **Kifayat Ullah**, *Beam Excited Ion Acoustic Instability in Non-Thermal Plasma.*
  22. **Abdul Hanan Shahid**, *Effect of Adiabaticity and Polarization Force on Dust Acoustic and Dust Ion Acoustic Waves in 4-Component Plasmas.*
  23. **Anees Ahmad**, *Super-Soliton in Dense Multi-Component Astrophysical Plasmas*
  24. **Ahmad Fahim Spinghar**, *Linear Analysis of Drift Alfvén Waves in Dense Astrophysical Objects*
  25. **Chaudhry Afaq Bashir**, *Arbitrary amplitude electrostatic solitary waves in chip semiconductor plasma*
  26. **Muhammad Bilal**, *Waveguide Instability in Electron-Ion-Hole Semiconductor Plasma*

**Abdul Wali Khan University Mardan (AWKUM)**

27. **Fazli Akram**, *Dispersion Properties of Electron Acoustic Waves (EAWs) in Degenerate and Non-Degenerate Quantum Plasmas.*
28. **Syeda Neelam Naeem**, *Zakharov Kuznetsov Equation For Four Component Dust Magnetoplasma.*
29. **Ms. Almas**, *Kinetic Treatment of Four Component Dusty Plasma.*
30. **Zahid Gul**, *Raleigh-Taylor Instability in Multi-Component Plasma.*
31. **Qasim Jan**, *The Effect of Exchange Correlation and Temperature Degeneracy on Rayleigh Taylor Instability in Quantum Plasma.*
32. **Ali Sardar**, *Rayleigh-Taylor Instability in Pair-Ion Quantum Plasmas.*
33. **Waheed Ur Rehman**, *Dispersion Properties of Dust Acoustic Waves with Effect of Arbitrary Temperature Degeneracy.*
34. **Ishtiaq Khan**, *Kinetic Theory Effects on Ion Acoustic Waves in Multicomponent Plasmas.*

**Federal Urdu University of Arts, Science & Technology Islamabad (FUUAST)**

35. **Zahid Gul**, *Raleigh-Taylor Instability in Multi-Component Plasma.*

**Allama Iqbal Open University (AIU)**

36. **Ishtiaq Khan**, *Kinetic Theory Effects on Ion Acoustic Waves in Multicomponent Plasmas*

**IN PROGRESS**

1. **Abdul Waheed**, *Effect of exchange co-relation potential on the electrostatic mode in unmagnetized semiconductor plasma*
2. **Waleed Mumtaz Kayani**, *Linear analysis of Kelvin-Helmholtz Instability in Halley's Comet Plasma*



3. **Zil E Huma Sabi**, *Electrostatic Drift Solitary Waves in Halley's Comet Plasma*
4. **Noor-ul-Aim**, *Kinetic and Inertial Alfvén Solitary Waves in Halley Comet Plasma with effect of Non-Maxwellian particles*

## JOURNAL PUBLICATIONS

1. S. Mahmood and **A. Mushtaq** "Dust streaming effect on dust acoustic solitary wave in magnetized dusty plasmas", *Journal of Fusion Energy*, **21**, 199, (2003).
2. S. Mahmood, **Mushtaq A.** and H. Saleem "Ion acoustic solitary wave in homogeneous magnetized electron-positron-ion plasmas", *New Journal of Phys.* **5**, 28.1-28.10. (2003).
3. **A. Mushtaq** and H. A. Shah "Effects of positron concentration, ion temperature and plasma  $\beta$ -value on linear and nonlinear two-dimensional magnetosonic waves in electron-positron-ion plasmas", *Phys. Plasmas* **12**, 012301 (2005).
4. **A. Mushtaq** and H. A. Shah "Nonlinear Zakharov-Kuznetsov equation for obliquely propagating 2D ion acoustic solitary waves in a relativistic, rotating magnetized electron-positron-ion plasma", *Phys. Plasmas* **12**, 072306 (2005).
5. **A. Mushtaq** and H. A. Shah "Study of non-Maxwellian trapped electrons by using generalized ( $r$ ,  $q$ ) distribution function and their effects on the dynamics of ion acoustic solitary wave", *Phys. Plasmas* **13**, 012303 (2006).
6. **A. Mushtaq**, H. A. Shah, N. Rubab, and G. Murtaza "Study of an obliquely propagating dust acoustic solitary wave in magnetized tropical mesospheric plasmas with effect of dust charge variations and rotation of the plasma", *Phys. Plasmas* **13**, 62903 (2006).
7. N. Rubab, G. Murtaza and **A. Mushtaq** "Effect of non-Maxwellian particle trapping and dust grain charging on dust acoustic solitary waves", *Phys. Plasmas* **13**, 112104 (2006).
8. **A. Mushtaq**, S. A. Khan "Ion acoustic solitary wave with weakly transverse perturbations in quantum electron-positron-ion plasma", *Phys. Plasmas* **14**, 052 307 (2007).
9. S. A. Khan, **A. Mushtaq** "Linear and nonlinear dust ion acoustic waves in ultra cold quantum dusty plasmas", *Phys. Plasmas* **14**, 083703 (2007).
10. **A. Mushtaq** "Cylindrical dust acoustic solitary waves with transverse perturbations in quantum dusty plasmas", *Phys. Plasmas* **14**, 113701 (2007).
11. W. Masood, **A. Mushtaq**, and R. Khan, "Linear and nonlinear dust ion acoustic waves using the two-fluid quantum hydrodynamic model", *Phys. Plasmas* **14**, 123702 (2007).
12. W. Masood and **A. Mushtaq**, "Electron acoustic soliton in a quantum magnetoplasma", *Phys. Plasmas* **15**, 022306 (2008).
13. S. A. Khan, **A. Mushtaq** and W. Masood "Dust ion-acoustic waves in magnetized quantum dusty plasmas with polarity effect", *Phys. Plasmas* **15**, 013701 (2008).
14. S. Mahmood and **A. Mushtaq** "Quantum ion acoustic solitary waves in electron-ion plasmas: A Sagdeev potential approach", *Phys. Lett. A* **372**, 3467 (2008).
15. W. Masood, **A. Mushtaq**, "Obliquely propagating magnetosonic waves in multi-component quantum magnetoplasma", *Phys. Lett. A* **372**, 4283 (2008).
16. **A. Mushtaq**, and R. Khan "Linear and nonlinear studies of two-stream instabilities in electron-positron-ion plasmas with quantum corrections" *Phys. Scr.* **78**, 015501 (2008).
17. **A. Mushtaq** "Spatially limited ion acoustic drift soliton in electron-positron-ion magneto plasma" *Phys. Plasmas* **15**, 082313 (2008).
18. Q. Haque, S. Mahmood and **A. Mushtaq** "Nonlinear electrostatic drift waves in dense electron-positron-ion plasmas" *Phys. Plasmas* **15**, 082315 (2008).
19. **A. Mushtaq** and A. Qamar "Parametric studies of nonlinear magnetosonic waves in two-dimensional quantum magneto-plasmas" *Phys. Plasmas* **16**, 022301 (2009).
20. R. Saeed and **A. Mushtaq** "Ion acoustic waves in pair-ion plasma: Linear and nonlinear analyses"

- Phys. Plasmas **16**, 032307 (2009).
21. W. Masood, H. A. Shah, **A. Mushtaq** "Linear and Non-Linear Properties of an Obliquely Propagating Dust Magnetosonic Wave" Journal of Plasma Phys. **75**, 217 (2009).
  22. **A. Mushtaq**, R. Saeed and, Q. Haque "Ion acoustic solitary waves in magnetized pair-ion electron plasmas" Phys. Plasmas **16**, 084501 (2009).
  23. **A. Mushtaq** and D. B. Melrose "Quantum effects on the dispersion of ion acoustic waves" Phys. Plasmas **16**, 102110 (2009).
  24. D. B. Melrose and **A. Mushtaq** "Quantum recoil and Bohm diffusion" Phys. Plasmas **16**, 94505 (2009).
  25. M. Nadeem and **A. Mushtaq** "Thermal induced reversibility/ irreversibility in the ac electrical properties of  $La_{0.50}Ca_{0.50}MnO_{3+\delta}$  by impedance spectroscopy" J. App. Phys. **106** 737013 (2009).
  26. **A. Mushtaq**, A. Qamar and Zulfiqar Ahmed, "Vortical structures in a non-uniform pair-ion dust magnetoplasma with sheared flows" Phys. Plasmas **17**, 014502 (2010).
  27. W. F. El-Taibany, **A. Mushtaq**, W. M. Moslem and Miki Wadati, "A model for dust acoustic solitary waves in a non-thermal rotating magnetized dusty plasma with arbitrary dust polarity" Phys. Plasmas **17**, 034501 (2010).
  28. **A. Mushtaq** "Ion acoustic solitary waves in magneto-rotating plasmas" J. Phys. A: Math. Theor. **43**, 315501 (2010).
  29. D. B. Melrose and **A. Mushtaq** "Dispersion in a thermal plasma including arbitrary degeneracy and quantum recoil" Phys. Rev. E **82**, 56402 (2010).
  30. **A. Mushtaq** and S. V. Vladimirov "Fast and slow magnetosonic waves in two-dimensional spin-1/2 quantum plasmas" Phys. Plasmas **17**, 102310 (2010).
  31. W. Masood, S. Hussain, H. Rizvi, **A. Mushtaq** and M. Ayub "Electromagnetic solitary structures in dense electron-positron-ion magneto-plasmas" Phys. Scr. **82**, 065508 (2010).
  32. D. B. Melrose and **A. Mushtaq** "Plasma dispersion function for a Fermi-Dirac distribution" Phys. Plasmas, **17**, 122103 (2010).
  33. D. B. Melrose and A. Mushtaq "Classical relativistic model for spin dependence in a magnetized electron gas" Phys. Rev. E **83**, 056404 (2011).
  34. **A. Mushtaq**, R. Saeed and, Q. Haque "Coupled electrostatic drift and ion acoustic waves in pair ion-electron plasma" Phys. Plasmas, **18**, 42305 (2011).
  35. A. J. Keane, **A. Mushtaq** and M. S. Wheatland "Alfvén solitons in a Fermionic quantum plasma" Phys. Rev. E **83**, 066407 (2011).
  36. S. Ali Shan and **A. Mushtaq** "Role of Jeans instability in multi-component quantum plasmas in the presence of Fermi pressure" Chin. Phys. Lett, **28**, 075204 (2011).
  37. **A. Mushtaq** and S. V. Vladimirov "Arbitrary magnetosonic solitary waves in spin 1/2 degenerate quantum plasma" Euro. Phys. J. D., **64**, 419 (2011).
  38. **A. Mushtaq**, M. Nasir Khattak, Zulfiqar Ahmad and, A. Qamar "Dust ion acoustic soliton in pair-ion plasmas with non-isothermal electrons" Phys. Plasmas, **19**, 42304 (2012).
  39. **A. Mushtaq**, R. Maroof, Zulfiqar Ahmad and, A. Qamar "Magnetohydrodynamic spin waves in degenerate electron-positron-ion plasmas" Phys. Plasmas, **19**, 52101 (2012).
  40. S. Ali Shan and **A. Mushtaq** "Arbitrary dust ion acoustic soliton with streaming ions and superthermal electrons" Phys. Scr. **86**, 035503 (2012).
  41. **A. Mushtaq** and S. V. Vladimirov "Nonlinear magnetosonic waves in spin 1/2 quantum plasma" AIP Conf. Proc. **1445**, 115 (2012).
  42. S. Hussain, **A. Mushtaq** and S. Mahmood "An arbitrary amplitude fast magnetosonic soliton in quantum electron-positron-ion plasmas" Phys. Scr. **87**, 025502 (2013).
  43. Ata-ur-Rahman, **A. Mushtaq**, S. Ali, and A. Qamar "Non-planar electrostatic solitary waves in a relativistic degenerate dense plasma" Commun. Theor. Phys. **59**, 479 (2013).
  44. S. Ali Shan and **A. Mushtaq** "Dust acoustic soliton and double layers with streaming dust and superthermal particles" Astrophys Space Sci. **346**, 171 (2013).
  45. S. Hussain, S. Mahmood and **A. Mushtaq** "Magnetoacoustic solitons in dense astrophysical electron-

- positron-ion plasmas*" *Astrophys. Space Sci.* **346**, 359(2013).
46. Ata-ur-Rahman, S. Ali, A. **Mushtaq**, and A. Qamar "Nonlinear ion acoustic excitations in relativistic degenerate astrophysical electron-positron-ion plasmas" *J. Plasma Physics* **79**, 817 (2013).
  47. Ata-ur-Rahman, S. Ali, W. M. Muslim and A. **Mushtaq** "Two-dimensional cylindrical ion-acoustic solitary and rogue waves in ultra-relativistic plasmas" *Phys. Plasmas*, **20**, 72103 (2013).
  48. Zulfiqar Ahmad, A. **Mushtaq**, and A. A. Mamun "Effects of plasma particle trapping on dust-acoustic solitary waves in an opposite polarity dust-plasma medium" *Phys. Plasmas*, **20**, 32302 (2013).
  49. S. Ali Shan, A. **Mushtaq** and N. Akhtar "Ion acoustic double layers in the presence of positrons beam and  $q$ -nonextensive velocity distributed electrons" *Astrophys. Space Sci.* **348**, 501 (2013).
  50. A. **Mushtaq** and Attaullah Shah "Sheared flow-driven vortices and solitary waves in a non-uniform plasma with negative ions and non-thermal distributed electrons" *J. Plasma Physics*, **79**, 479 (2013).
  51. A. **Mushtaq**, M. Ikram and R. E. H. Clark "Electrostatic Solitary Waves in Pair-ion Plasmas with Trapped Electrons" *Braz. J. Phys.* **44**, 614 (2014).
  52. S. Ali Shan, N. Akhtar and A. **Mushtaq** "Kadomtsev-Petviashvili solitons in a warm electronegative plasma with  $q$ -nonextensive electrons" *Phys. Scr.* **90**, 15602 (2015).
  53. R. Maroof, S. Ali, A. **Mushtaq** and A. Qamar "Magnetohydrodynamic waves with relativistic electrons and positrons in degenerate spin-1/2 astrophysical plasmas" *Phys. Plasmas* **22**, 112102 (2015).
  54. M. N. Khattak, A. **Mushtaq** and A. Qamar "Ion Streaming Instabilities in Pair Ion Plasma and Localized Structure with Non-Thermal Electrons" *Braz. J. Phys.* **45**, 633 (2015). DOI 10.1007/s13538-015-0356-5.
  55. A. **Mushtaq**, AttaUllah Shah, M. Ikram, R. E. H. Clark "Sheared Flow Driven Drift Instability and Vortices in Dusty Plasmas with Opposite Polarity" *Braz. J. Phys.* **46**, 78 (2016)
  56. R. Maroof, A. **Mushtaq** and A. Qamar "Quantum dust magnetosonic waves with spin and exchange correlation effects" *Phys. Plasmas* **23**, 13704 (2016).
  57. M. N. Khattak, A. **Mushtaq** and Z. Ehsan "Electrostatic baryonic solitary waves in ambiplasma with nonextensive leptons" *Chinese Journal of Physics* **54**, 503(2016).
  58. S. Ali Shan, Aman-ur-Rehman and A. **Mushtaq** "Electron-acoustic solitary waves in a beam plasma with electron trapping and nonextensivity effects" *Phys. Plasmas* **23**, 092118 (2016).
  59. A Rahman, A. **Mushtaq**, A. Qamar and S. Neelam "Arbitrary electron acoustic waves in degenerate dense plasmas" *Indian J. Phys.* **91**, 581(2017). DOI 10.1007/s12648-016-0935-5.
  60. Zulfiqar Ahmad, A. **Mushtaq**, and S. Neelam "Zakharov Kuznetsov equation for four component dust magnetoplasma using the multi-fluid concept" *Advances in Space Research* **59**, 1775 (2017).
  61. S. Ali Shan, Aman-ur-Rehman and A. **Mushtaq** "Ion-acoustic solitary waves in a positron beam plasma with electron trapping and nonextensivity effects" *Phys. Plasmas* **24**, 032104 (2017).
  62. M. Farooq, and A. **Mushtaq** "Dust ion acoustic waves in four component magnetized dusty plasma with effect of slow rotation and superthermal electrons" *Phys. Plasmas* **24**, 123707 (2017).
  63. M. Ikram, A. **Mushtaq**, and S. Ali "Microwave transmission efficiency and simulations of electron plasma in ELTRAP device" *Phys. Plasmas* **24**, 112507 (2017).
  64. M. Farooq, A. **Mushtaq** and Qasim Jan "Coupled dust drift acoustic shock and soliton in collisional four component magnetized dusty plasmas" *Phys. Plasmas* **24**, 093704 (2017).
  65. Zulfiqar Ahmad, **Mushtaq Ahmad**, and A. Qamar "Kinetic treatment of nonlinear ion-acoustic waves in multi-ion plasma" *Phys. Plasmas* **24**, 092304 (2017).
  66. Sajad Ali, **Mushtaq Ahmad**, "Electrostatic Rayleigh-Taylor Mode in Electron-Positron-Ion Quantum Plasma", *Journal of Modern Physics*, **8**, 636-653 (2017).
  67. Qasim Jan, A. **Mushtaq** and M. Ikram "Non-linear Alfvén waves in spin-1/2 quantum plasma" *Phys. Plasmas* **25**, 022930 (2018).
  68. S. Ali Shan, A. **Mushtaq**, Naeem Mustafa, Aman-ur-Rehman, "Dust ion-acoustic solitons with trapped  $q$ -non-extensive electrons, dissipative processes, and streaming ions", *Contrib. Plasma Phys.* **59**, 9 (2019).
  69. Nauman Sadiq, **Mushtaq Ahmad**, M. Farooq, and Qasim Jan, "Linear and nonlinear analysis of

- kinetic Alfvén waves in quantum magneto-plasmas with arbitrary temperature degeneracy*", Phys. Plasmas **25**, 063510 (2018).
70. Aman-ur-Rehman, **Mushtaq Ahmad**, S. Ali Shan, Tariq Majeed, "Kinetic theory of ion acoustic waves in a  $q$ -nonextensive distributed ions and electrons plasma", Physica A **506**, 938 (2018).
  71. AttaUllah Shah, **A. Mushtaq**, M. Farooq, Aurangzeb Khan, and Aman-ur-Rehman, "Drift dust acoustic soliton in the presence of field-aligned sheared flow and nonextensivity effects", Physics of Plasmas **25**, 053706 (2018).
  72. Sajad Ali, **Mushtaq Ahmad**, M. Farooq, *Coupled drift shock and soliton in collisional ambiplasma with non-thermal effects of electrons and positrons*, Chaos, Solitons and Fractals **112**, 66 (2018).
  73. Aman-ur-Rehman, **Mushtaq Ahmad**, M. Y. Hamza, *Effect of non-extensivity parameter  $q$  on the damping rate of dust ion acoustic waves in non-extensive dusty plasma*, Contrib. Plasma Phys. **59**, 54 (2019)
  74. M. Farooq, **A. Mushtaq** and Qasim Jan "Dissipative ion acoustic solitary waves in collisional, magneto-rotating, non-thermal electron-positron-ion plasma" Contrib. Plasma Phys. **59**, 122 (2019).
  75. M. Farooq, **A. Mushtaq** and Qasim Jan "Coupled dust drift acoustic shock and soliton in collisional four component magnetized dusty plasmas" Phys. Plasmas **24**, 093704 (2017).
  76. Qasim Jan, **A. Mushtaq**, M. Farooq and H. A. Shah "Alfvén solitary waves with effect of arbitrary temperature degeneracy in spin quantum plasma" Phys. Plasmas **25**, 082122 (2018).
  77. S. Usman, **A. Mushtaq**, and Qasim Jan "Magnetorotational instability in spin quantum plasmas" Phys. Rev. E **98**, 033202 (2018).
  78. Nauman Sadiq, **Mushtaq Ahmad**, *Inertial Alfvén solitons in quantum plasma with correction of temperature degeneracy*, Phys. Plasmas **25**, 124501 (2018).
  79. **Mushtaq Ahmad**, M. Farooq, Zulfiqar Ahmad, Almas Gul, *Kinetic treatment of acoustic waves in four component dusty plasma*, Contrib. Plasma Phys. **59**, 367 (2019); DOI: 10.1002/ctpp.201800060.
  80. M. Farooq, **A. Mushtaq** and M. Shamir "Analysis of Cairns-Tsallis distribution for oblique drift solitary waves in a rotating electron-positron-ion magneto-plasma" Phys. Plasmas **25**, 122110 (2018).
  81. Nauman Sadiq, and **A. Mushtaq** "Inertial Alfvén solitons in quantum plasma with correction of temperature degeneracy" Phys. Plasmas **25**, 124501 (2018).
  82. Aman-ur-Rehman and **Mushtaq Ahmad** "Comment on Langmuir oscillations in a nonextensive electron-positron plasma" Phys. Rev. E **99**, 017201 (2019).
  83. N. Sadiq and Mushtaq Ahmad, *Kinetic Alfvén waves in dense quantum plasmas with effect of spin magnetization*, Plasma Res. Express **1**, 025007 (2019).
  84. Akhtar Iqbal, Khusniddin K. Olimov, , Kosim Olimov, **Mushtaq Ahmad**, Sh. Z. Kanokova, Sagdulla L. Lutpullaev, Alisher K. Olimov, Kadyr G. Gulamov, Sh. D. Tojimamatov, and Bekhzod S. Yuldashev, *Collision centrality dependencies of charged pion production in  $^{12}\text{C}+^{181}\text{Ta}$  collisions at 4.2 A GeV/c*, Int. J. of Mod. Physics E, **27**, 1850092(2018)
  85. S. A. Khattak, A. Mushtaq, and Qasim Jan "Circularly polarized dust Alfvén solitary waves in magnetized gravitative-radiative quantum dusty plasma" Phys. Plasmas **26**, 072101 (2019).
  86. S. Fahad, **Mushtaq Ahmad**, Q. Jan and F. Akram, *Dispersion properties of electron acoustic waves in degenerate and non-degenerate quantum plasmas*, Cont. Plasma Phys. **59**, e201900041 (2019); doi.org/10.1002/ctpp.201900041
  87. Aman-ur-Rehman and Mushtaq Ahmad "Stability analysis of the acoustic like modes in nonextensive pair ion plasma" Astroph. Space Sci. **364**, 90 (2019).
  88. Akhtar Iqbal, Khusniddin Olimov, **Mushtaq Ahmad**, Ali Zaman, Obaidullah Jan and B. S. Yuldashev "Centrality and rapidity dependences of negative pions in He-C collisions at 4.2 A GeV/c" Modern Physics Letters A **34**, 1950092(2019).
  89. Nauman Sadiq & **Mushtaq Ahmad** (2020) *Quantum inertial Alfvén solitary waves: the effect of exchange-correlation and spin magnetization*, Waves in Random and Complex Media, DOI: 10.1080/17455030.2020.1718243.
  90. **Mushtaq Ahmad**, S. Fahad and Waheed Ur Rahman, *Quantum kinetic dust acoustic waves in arbitrary degenerate quantum dusty plasma*, Phys. Plasmas **27**, 013701 (2020);

<https://doi.org/10.1063/1.5111095>

91. Safdar Ali, **Mushtaq Ahmad**, Muhammad Ikram "Magnetoacoustic waves with effect of arbitrary degree of temperature and spin degeneracy in electron-positron-ion plasmas" *Contrib. Plasma Phys.* **60**, e201900087 (2020) <https://doi.org/10.1002/ctpp.201900087>.
92. **Mushtaq Ahmad**, M. Farooq and Asif Ullah, *On a semiclassical model for damped dust ion-acoustic solitons with analysis of quantum electron exchange-correlation potential*, *Phys. Plasmas* **27**, 023704 (2020); <https://doi.org/10.1063/1.5121372>.
93. Nauman Sadiq & **Mushtaq Ahmad** "Kinetic Alfvén soliton structure with exchange-correlation potential in quantum plasma" *Plasma Res. Express* **2**, 015007 (2019), <https://doi.org/10.1088/2516-1067/ab7286>.
94. A. Safdar, A. Mushtaq, Amin Esmaeili, M. Ikram and Nauman Sadiq "MHD waves with Landau diamagnetic pressure and Pauli paramagnetism in degenerate plasmas" *Phys. Scr.* **96**, 015603(2020).
95. Aman-ur-Rehman and **Mushtaq Ahmad** "Comment on Kinetic Study of Dust Ion Acoustic Waves in a Nonthermal Plasma" *J. Phys. Soc. Jpn.* **89**, 096001 (2020).
96. Nauman Sadiq and Mushtaq Ahmad "Effects of Pauli Paramagnetism and Degeneracy Temperature on Solitary Kinetic Alfvén Waves in Quantum Plasma" *Arabian Journal for Science and Engineering* **46**, 5885- (2021) .
97. Aman-ur-Rehman and **Mushtaq Ahmad** "Revisiting some analytical and numerical interpretations of Cairns and Kappa-Cairns distribution functions" *Phys. Plasmas* **27**, 100901 (2020); doi: 10.1063/5.0018906
98. Amin Esmaeili, M. Ikram, **A. Mushtaq**, and A. A. Abid; *A two-dimensional Weibel instability simulation using the non-extensive distribution function*, **AIP Advances** **10**, 115120 (2020); doi: 10.1063/5.0028596
99. Muhammad Farooq, Mushtaq Ahmad, Qasim Jan, Polarization force in an opposite polarity dusty plasma with hybrid Cairns-Tsallis distributed electrons; **Contrib. Plasma Phys.** **2021**;e202000170. <https://doi.org/10.1002/ctpp.202000170>
100. S. Usman and A. Mushtaq; *Magnetorotational Instability in Quantum Dusty Plasma*, **The Astrophysical Journal**, 911:50 (9pp), 2021. <https://doi.org/10.3847/1538-4357/abe94e>
101. A Safdar, **A Mushtaq**, S Usman and Aman-ur-Rehman, "Magneto-sonic waves in ion trapped semiconductor chip plasma with effect of exchange correlation potential and relativistic degeneracy" *Phys. Scr.* **97**, 025603(2022)
102. M. Bilal , A. Rehman, S. Mahmood, M. A. Shahzad, M. Sarfraz and **Mushtaq Ahmad** "Kinetic theory of dust ion-acoustic waves in the presence of hybrid Cairns-Tsallis distributed electrons" *Phys. Scr.* **97**, 125606 (2022).
103. M. Bilal , A. Rehman, **Mushtaq Ahmad**, M. A. Shahzad, M. Sarfraz, and S. Mahmood "Linear analysis of whistler mode instability in anisotropic q-nonextensive distributed plasmas: a numerical approach" *Phys. Scr.* **98** (2023) 095607
104. S. Usman & **A. Mushtaq** "Magnetorotational instability in dense electron-positron-ion plasmas" *Scientific Reports* **13**, 15315 (2023), DOI:10.1038/s41598-023-42397-3
105. Zulfiqar Ahmad and **A Mushtaq** "Propagatory dynamics of electromagnetic drift waves in inhomogeneous spin degenerate compact objects plasmas" *Phys. Scr.* **98**, 065606 (2023)
106. **Mushtaq Ahmad**, Zulfiqar Ahmad, M. Farooq and S. Usman "Nonlinear electrostatic kelvin-helmholtz shock waves in a viscous electron-positron-ion plasma with non-maxwellian distribution", *Phys. Scr.* **99**, 015602 (2024); DOI 10.1088/1402-4896/ad1454
107. Umar Khitab, Zulfiqar Ahmad and A. Mushtaq "Electrostatic Surface Waves in Magnetized Quantum Plasma Half-Space with Application of Metallic Gold" *Plasmonics* (2024). <https://doi.org/10.1007/s11468-024-02287-4>.
108. M. A. Shahza, Aman-ur-Rehman, **Mushtaq Ahmad**, M. Sarfraz, M. Bilal, S. Mahmood "Exact numerical analysis of EMEC mode instability in more realistic Cairns distributed non-thermal plasmas" **502**, 129397 (2024).

109. Z. Ahmad, **A. Mushtaq**, "Effect of Temperature Degeneracy on Two-Stream Instability in Chip-Based Semiconductor Plasmas". Braz J Phys **55**, 100 (2025).

As the Dean of the Faculty of Physical and Numerical Sciences, I played a pivotal role in the establishment and development of the Departments of Statistics and Geology at Abdul Wali Khan University Mardan (AWKUM).

### **MS & PHD THESIS EVALUATOR**

I have been an active member of the thesis evaluation panels for numerous prestigious national universities, including:

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- Gomal University
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### **EXPERT IN SELECTION BOARDSESTABLISHMENT OF DEPARTMENTS**

I have served as a subject expert on the selection boards of several institutions, including:

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- Malakand University Malakand and other academic organizations.