

Dr. Bilal Ramzan

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HEC Approved PhD Supervisor

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EDUCATION

Graduate Institute of Astronomy <i>PhD in Astronomy and Astrophysics GPA: 3.4/4.0</i>	National Central University, Taiwan <i>Graduation: June 2021</i>
Department of Physics <i>Masters in Physics GPA: 3.1/4.0</i>	COMSATS Institute of Information and Technology, Lahore, Pakistan <i>Graduation Session: 2012-2014</i>
Department of Secondary Education <i>Bachelors in Education GPA: 3.01/4.0</i>	University of Education, Lahore, Pakistan <i>Graduation Session: 2011-2012</i>
Department of Physics <i>Bachelors in Physics GPA: 3.07/4.0</i>	COMSATS Institute of Information and Technology, Lahore, Pakistan <i>Graduation Session: 2007-2011</i>
Pre-Engineering <i>Intermediate</i>	Nishtar College for Boys, Lahore, Pakistan <i>12th Standard: August 2007</i>
Matric	Nishtar School for Boys, Lahore, Pakistan <i>10th Standard: August 2005</i>

PUBLICATIONS

- 1) **B Ramzan**, CM Ko, DO Chernyshov, “Outflows in the presence of cosmic rays and waves” 2020, *Astrophysical Journal*, 905 117
[DOI: 10.3847/1538-4357/abc82b](https://doi.org/10.3847/1538-4357/abc82b)
- 2) CM Ko, **B Ramzan**, DO Chernyshov, “Outflows in the presence of cosmic rays and waves with cooling” 2021, *Astronomy and Astrophysics*, 654, A63
[DOI: https://doi.org/10.1051/0004-6361/202141047](https://doi.org/10.1051/0004-6361/202141047)
- 3) A Rasheed, A Nazir, A Fatima, **B Ramzan**, Z Kiran, M Jamil “Kelvin–Helmholtz instability in magnetically quantized dense plasmas” 2023, *Z. Naturforsch A*, 78, 1123
[DOI: https://doi.org/10.1515/zna-2023-0123](https://doi.org/10.1515/zna-2023-0123)
- 4) **B Ramzan**, Zahid Mir, A Rasheed and M Jamil, “Transonic plasma winds with cosmic-rays and waves”, *Physica Scripta*, 98,125005, 2023.
[DOI: 10.1088/1402-4896/ad07bf](https://doi.org/10.1088/1402-4896/ad07bf)
- 5) K Irshad, **B Ramzan**, SNA Qazi, F Areeb, A Rasheed, M Jamil “Continuous Solutions of Cosmic-Rays and Waves in Astrophysical Environments” 2023, *Sci Rep*, 13(1), 22850
[DOI: https://doi.org/10.1038/s41598-023-48223-0](https://doi.org/10.1038/s41598-023-48223-0)
- 6) A Iqbal, A Rasheed, A Fatima, S Perveen, **B Ramzan**, M Jamil “Magnetoacoustics and Magnetic Quantization of Fermi States in Relativistic Plasmas” 2024, *Z. Naturforsch A*, 0224
[DOI: https://doi.org/10.1515/zna-2023-0224](https://doi.org/10.1515/zna-2023-0224)
- 7) W Rahmaniari, **B Ramzan**, A Ma'arif “Deep Learning and Quantum Algorithms Approach to Investigating the Feasibility of Wormholes: A Review” *Astron. Comput.* 47 (2024) 100802
<https://doi.org/10.1016/j.ascom.2024.100802>
- 8) Waqas Ali Faridi, Mujahid Iqbal, **B Ramzan**, Salman A AlQahtani, MS Osman, Lanre Akinyemi, Almetwally M Mostafa “The formation of invariant optical soliton structures to electric-signal in the telegraph lines on basis of the tunnel diode and chaos visualization, conserved quantities: Lie point symmetry approach” 2024, *Optik*, 171785
<https://doi.org/10.1016/j.ijleo.2024.171785>
- 9) **B Ramzan**, SNA Qazi, I Salarzai, M Tahir, AM Mirza, A Rasheed, M Jamil “A Fluid Approach to Cosmic-Ray Modified Shock” *Adv.Space Res.* 74 (2024) 4250-4263
<https://doi.org/10.1016/j.asr.2024.06.071>

- 10) A Yaseen, Z Mir, **B Ramzan** “Propagation of dust lower hybrid wave in dusty magneto dense plasma with polarization force effect” 2024, *Indian Journal of Physics*. 1-6
<https://doi.org/10.1007/s12648-024-03394-y>
- 11) M Adnan, MI Jamil, **B Ramzan**, T Hussain, A Ahmad, MU Ghani “Determination of the optical properties of tungsten trioxide thin film using the Transfer Matrix Method” 2024, *Indian Journal of Physics*, 1-5
<https://doi.org/10.1007/s12648-024-03401-2>
- 12) U Majeed, **B Ramzan** “Outflows in Different Geometries” *Adv.Space Res.* 75 (2025) 1378-1389
<https://doi.org/10.1016/j.asr.2024.10.025>

NATIONAL INVITED SPEAKER

1. “Cosmic-Ray Modified Shocks: A Fluid Perspective” Pakistan
UNIVERSITY OF MANAGEMENT AND TECHNOLOGY LAHORE Held 14-15th April 2025, in Lahore
UMT 2nd International Conference on Emerging Trends in Physics
2. “A Fluid Approach to Cosmic-Ray Modified Shocks” Pakistan
FC COLLEGE UNIVERSITY Held 9-11th April 2025, in Lahore
<https://www.fccollege.edu.pk/departments-of-physics/3rd-conference-on-recent-trends-in-physics/>
3. “Cosmic-Ray Modified Shocks: A Fluid Perspective” Pakistan
GOVERNMENT COLLEGE UNIVERSITY FAISALABAD Held 17-19th February 2025, in Faisalabad
7th International conference on Material science & Nanotechnology 2025 at GC UNIVERSITY FAISALABAD
4. “From Stellar to Galactic Winds” Pakistan
QUAID-E-AZAM UNIVERSITY Held 11-13th February 2025, in Islamabad
https://phys.qau.edu.pk/symposium_certificate.php?id=57&vhash=d031154cbb4e314c83f830bc50289ac4
5. “Astrophysics of Stars and Galaxies” Pakistan
GOVERNMENT COLLEGE UNIVERSITY LAHORE Held 4th March 2024, in Lahore
<https://ssc.ugt.edu.pk/Physics/News/Invited-Seminar-talk-%22Seminar-on-Cosmology-and-Relativity%22-at-Lahore-Garrison-University.aspx>
6. “Cosmology and Relativity” Pakistan
LAHORE GARRISON UNIVERSITY Held 3rd January 2024, in Lahore
<https://ssc.ugt.edu.pk/Physics/News/Invited-Seminar-talk-%22Seminar-on-Cosmology-and-Relativity%22-at-Lahore-Garrison-University.aspx>
7. “Outflows from Galaxies” Pakistan
SUPEERIOR UNIVERSITY LAHORE, Held 30th May 2022, in Lahore
<https://ssc.ugt.edu.pk/Physics/News/Public-Talk-%22Outflows-from-Galaxies%22.aspx>

CONFERENCE PROCEEDINGS

8. Cosmic ray driven Transonic Winds Greece
44th COSPAR Scientific Assembly. Held 16-24 July 2022, in Athens
Poster
9. Hydrodynamics of Outflows with Cosmic-Rays and Waves Greece
44th COSPAR Scientific Assembly. Held 16-24 July 2022, in Athens
Poster
10. CRs propagation with cosmic ray viscosity in hydrodynamic description Australia
43rd COSPAR Scientific Assembly. Held 28-04 Feb 2021, in Sydney
Poster
11. The effect of the CRs and waves on galactic outflows Australia

<i>43rd COSPAR Scientific Assembly. Held 28-04 Feb 2021, in Sydney</i>	<i>Oral</i>
12. From CRs accompanied outflows to quasi-thermal outflows <i>3 to 4 September, 2020, ASROC Meeting</i>	Taiwan <i>Oral</i>
13. Outflows driven by CRs and waves <i>5 to 7 Feb, 2019, PSROC Meeting</i>	Taiwan <i>Oral</i>
14. Winds driven by CRs and waves with effective wave Damping <i>17 to 19 May, 2019, ASROC Meeting</i>	Taiwan <i>Poster</i>
15. Winds driven by CRs and waves <i>23 to 25 Jan, 2019, PSROC Meeting</i>	Taiwan <i>Poster</i>
16. Structure of the interstellar clouds including the effects of CRs and waves with Damping <i>42nd COSPAR Scientific Assembly. Held 14 to 22 July 2018, in Pasadena, California</i>	USA <i>Poster</i>
17. Structure of the interstellar clouds influenced by CRs and waves <i>18 to 20 May, 2018, ASROC Meeting</i>	Taiwan <i>Poster</i>
18. Structure of the interstellar clouds including the effects of CRs and waves <i>2 to 4 May, 2018, Galileo Galilei Institute of theoretical physics</i>	Italy <i>Poster</i>
19. CRs propagation in plasma with Alfven wave damping mechanism <i>24 to 26 Jan, 2018, PSROC Meeting</i>	Taiwan <i>Poster</i>
20. MHD simulations on outflows from the galactic center <i>19 to 21 May, 2017, ASROC Meeting</i>	Taiwan <i>Poster</i>
EXPERIENCE	

❖ Department of Physics <i>Assistant Professor</i>	University of Agriculture, Faisalabad, Pakistan <i>Duration: October 2024- Present</i>
<ul style="list-style-type: none"> ○ Taught “Advanced Quantum Mechanics” to MS and PhD students (Spring-2024) ○ Taught “Mathematical Methods of Physics I and II” (Spring-2024) ○ Taught “Basic Electronics” to BS CS (Spring-2024) 	
❖ Department of Physics <i>Assistant Professor</i>	University of Management and Technology, Lahore, Pakistan <i>Duration: February 2022- September 2024</i>
<ul style="list-style-type: none"> ○ Taught “Advanced Statistical Mechanics” to MS and PhD students (Spring-2023) ○ Taught “Mathematical Methods of Physics I and II” (Fall-2022 & Spring-2023) ○ Taught “Applied Physics” to BS IT students (Fall-2022) ○ Taught “Physics of Fluids” to MS and PhD students (Spring-2022) ○ Taught “Medical Physics” to BS students (Spring-2022) ○ Taught “MATLAB” to BS students (Fall-2022) ○ Taught “Computational Physics” to BS students (Spring-2023) 	
❖ Graduate Institute of Astronomy <i>Research Assistant</i>	National Central University, Taiwan <i>Duration: September 2015- October 2021</i>
<ul style="list-style-type: none"> ○ Thermal outflows ○ Cosmic rays accompanied outflows with and without diffusion 	

- Cosmic rays and waves accompanied outflows
- Quasi-thermal outflows
- Outflows in the presence of Non-Linear Landau damping
- Transonic outflows in Galaxies
- Cosmic ray Viscosity in Jets (Theory)
- Dark Matter (Theory)
- Radial and Halo acceleration relation in Spiral Galaxies
- Radial and Halo acceleration relation in Elliptical Galaxies

❖ **Department of Physics** **COMSATS Institute of Information and Technology, Lahore, Pakistan**

Research Assistant

Duration: September 2014- August 2015

- MHD and Equilibria
- Study of the Wake Potential Jeans Instability
- Gravitational Instabilities of Dust
- Agglomeration of Dust
- Importance of the Dust in Gravitational Collapse
- Frequent user of MATLAB
- Mathematica

❖ **Department of Radiology**

Lahore General Hospital, Lahore, Pakistan

Lecturer

Duration: September 2009- August 2015

- Nuclear Physics
- Radiation Physics
- Hazards of X-rays and Gamma rays
- Positron emission and Medical Laser Treatment
- Laser Treatment for Cancer cells
- X-rays Physics
- CT-Scan Detector Physics
- MRI Detector Physics
- O and A Level Physics

MS/ PhD STUDENTS SUPERVISION

- Kinza Irshad (Completed)
- Irshad (Completed)
- Uzair Majeed (Completed)
- Muhammad Arif (Completed)
- Muhammad Inam Ullah Zaheer
- Abid Hussain (Continue)

COMPUTATIONAL SKILLS

Programming Languages

- MATLAB Numerical Analysis
- Python (NumPy, Matplotlib, SciPy)
- Mathematica
- Microsoft Word, Excel, Power
- Point Experienced to treat ODEs
- Operating system: Windows 10

TECHNICAL SKILLS

Expertise

- Quick learner with positive attitude
- Ability to work effectively and efficiently as a part of a team
- Having excellent communication skills

- Excellent interpersonal skills
- High degree of problem-solving skills
- Personal characteristics (Social supportive and polite attitude)

LANGUAGE SKILLS

- English: Proficient
- Native: Urdu
- Having good Chinese communication skills

EXTRA-CURRICULAR ACTIVITIES

- Best Volley ball Player
- Badminton Player
- Cricket Lover
- Science Fiction
- News Nature Astronomy

DISTINCTIONS/ HONORS

- Merit Scholarship during PhD (Astrophysics) in National Central University Taoyuan, Taiwan
- Merit Scholarship during MS-H (Physics) in COMSATS Institute of Information Technology, Lahore, Pakistan
- Merit Scholarship during BS-H (Physics) in COMSATS Institute of Information Technology, Lahore, Pakistan
- Excellent Research Award 2020
- Excellent student Award 2020
- Member of Astrophysical Journal (American)
- Member of Astronomy and Astrophysics Journal (European)
- Member of Astronomical Society Taiwan
- Member of Taiwan physical
- SocietyNCU Astronomy club Member

REFERENCE 1

Dr. MUHAMMAD JAMIL
 jamil.gcu@gmail.com; drmjamil@cuilahore.edu.pk
 COMSATS University Islamabad, Lahore Campus, Pakistan

Associate Professor (Tenured)

REFERENCE 2

Dr. ZAHID MIR
 sqnldr.zahid@gmail.com
 Department of Physics and Mathematics, Superior University, Lahore Pakistan

Assistant Professor

REFERENCE 3

Dr. CHUNG-MING KO
 cmko@astro.ncu.edu.tw
 Graduate Institute of Astronomy National Central University, Taiwan

Professor

