

## CURRICULUM VITAE

NAME: **Arfa Waseem**  
FATHER'S NAME: Muhammad Waseem  
DATE OF BIRTH: September 25, 1991  
NATIONALITY: Pakistani  
PERMANENT ADDRESS: Street no, 4, house no. 5,  
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<https://www.researchgate.net/profile/Arfa-Waseem>

### EDUCATION

PhD (Mathematics) University of the Punjab, Lahore (2016-2029)  
Course Work (3.78/4.00)  
Comprehensive (4.00/4.00)

PhD Thesis Title Study of Stellar Structures and Stability Analysis in  
Modified Gravity.

PhD Supervisor Prof. Dr. Muhammad Sharif,  
Ex-Dean, Faculty of Sciences,  
University of the Punjab, Lahore.

MPhil (Mathematics) University of the Punjab, Lahore (2014-2016) (3.77/4.00)

MPhil Thesis Title Some Features of Compact Stars in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity.

MPhil Supervisor: Prof. Dr. Muhammad Sharif, Chairman,  
Department of Mathematics, University  
of the Punjab, Lahore.

MSc (Mathematics) University of the Punjab, Lahore (2011-2013) (948/1200)

BSc (Maths A&B, Phys.) University of the Punjab (2009-2011) **2<sup>nd</sup> position**  
(677/800)

FSc (Pre-Eng) BISE Gujranwala (2007-2009) (917/1100)

Matriculation (Science) BISE Gujranwala (2005-2007) (765/850)

## **Field of Interest**

- Gravitational Theories
- Astrophysics
- Cosmology
- Dynamical Systems

## **EXPERIENCE**

### **A. ACADEMIC EXPERIENCE:**

Dec. 2021 – to date	<b>Lecturer</b> , Department of Mathematics, GC Women University, Sialkot.
Mar 2020 – Dec 2021	<b>Visiting Assistant Professor</b> of Mathematics, University of the Punjab, Gujranwala.
Mar 2019 – Mar 2020	<b>Visiting Assistant Professor</b> of Mathematics, Institute of Chemistry, University of the Punjab, Lahore.
Mar 2019 – Mar 2020	<b>Visiting Assistant Professor</b> of Mathematics, Department of Mathematics, University of Education, Bank road campus, Lahore.

### **B. ADMINISTRATIVE EXPERIENCE**

Dec. 2021 – to date	Focal Person of MS and Ph.D. Admission Programs
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### **C. COMPUTER EXPERIENCE:**

- MS Office
- LaTeX
- Mathematica
- Maple

### **D. ONLINE CLASSES EXPERIENCE:**

- Google Classroom
- LMS
- Zoom Meeting
- Google Meet

## **SEMINARS & CONFERENCES ATTENDED**

1. **Weekly Departmental Seminar Series** held at Department of Mathematics,

- University of the Punjab, Lahore, since 2015.
2. **Second International Workshop on Modern Aspects of Algebra and Graph Theory** held at COMSATS, Lahore, November 02-03, 2016.
  3. **Workshop on Relativistic Astrophysics and Cosmology** held at COMSATS Institute of Information Technology, Lahore, November 24-25, 2016.
  4. **One Day Conference on Gravitation and Cosmology** held at Department of Mathematics, University of Punjab, Lahore, November 26, 2016.
  5. **Symposium on Recent Developments in Theoretical Physics** held at Abdus Salam School of Mathematical Sciences, Lahore, November 22, 2017.
  6. **Sixth Italian-Pakistani Workshop on Relativistic Astrophysics** held at NUST, Islamabad, January 24, 2019.
  7. **1<sup>st</sup> PU International Conference on Gravitation and Cosmology** (*member of organizing committee*) held at University of the Punjab, Lahore, January 27-31, 2019.
  8. **4<sup>th</sup> PU International Conference on Gravitation and Cosmology** held at University of the Punjab, Lahore, November 22-25, 2021.
  9. **7<sup>th</sup> UMT International Conference on Pure and Applied Mathematics (7<sup>th</sup> UICPAM-2023)** held at UMT, Lahore on December 4-5, 2023.
  10. **2<sup>nd</sup> International Conference on Recent Advances in Mathematics (CORAM-2023)** held at University of Education, Township campus, Lahore on December 4-5, 2023.
  11. **International Conference on Gravitation and Cosmology (ICGC24)** held at University of Lahore, Lahore, on January 29-31, 2024.

### **DELIVERED PRESENTATIONS**

1. **Formation of Compact Stars in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity** in the *Weekly Departmental Seminar Series* on March 16, 2016 at Department of Mathematics, University of the Punjab, Lahore.
2. **Some Features of Compact Stars in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity** on June 20, 2016 at Department of Mathematics, University of the Punjab, Lahore.
3. **Stability of Einstein Universe in General Relativity and Modified Theories** in the *Weekly Departmental Seminar Series* on April 18, 2018 at Department of Mathematics, University of the Punjab, Lahore.
4. **Stellar Evolution of Compact Stars in Matter-Curvature Coupling Gravity** in the *Weekly Departmental Seminar Series* on October 31, 2018 at Department of Mathematics, University of the Punjab, Lahore.
5. **Study of Compact Objects in Modified Gravity** in *Sixth Italian-Pakistani Workshop on Relativistic Astrophysics* on January 24, 2019 at NUST, Islamabad.
6. **Study of Stellar Structures in Curvature–Matter Coupling Gravity** in *1<sup>st</sup> PU International Conference on Gravitation and Cosmology* on January 30, 2019 at University of the Punjab, Lahore.
7. **Study of Quark Stars in  $f(R, T)$  Gravity** in the *Weekly Departmental Seminar Series* on May 22, 2019 at Department of Mathematics, University of the Punjab, Lahore.
8. **Study of Stellar Structures and Stability Analysis in Modified Gravity** on November 29, 2019 at Department of Mathematics, University of the Punjab, Lahore.
9. **Some Aspects of Compact Objects in Rastall Gravity** in *International Conference on Gravitation and Cosmology (ICGC24)* on January 29, 2024 at University of

## **RESEARCH SUMMARY**

Total Research Papers **Published** in Impact Factor Journals: **37**

A complete list of research papers can be seen at the following link.

[https://scholar.google.com/citations?user=aIcw\\_f8AAAAJ&hl=en](https://scholar.google.com/citations?user=aIcw_f8AAAAJ&hl=en)  
<https://www.researchgate.net/profile/Arfa-Waseem>

## **List of PUBLICATIONS**

1. Muhammad Sharif and **Arfa Waseem.**: *Study of Isotropic Compact Stars in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity*,  
Eur. Phys. J. Plus **131**(2016)190 (Springer).
2. Muhammad Sharif and **Arfa Waseem.**: *Physical Behavior of Anisotropic Compact Stars in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity*,  
Can. J. Phys. **94**(2016)1024 (NRC Research Press).
3. Muhammad Sharif and **Arfa Waseem.**: *Spherical Dust Solution in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity*.  
Eur. Phys. J. Plus **133**(2018)136 (Springer).
4. Muhammad Sharif and **Arfa Waseem.**: *On the Stability of Einstein Universe in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity*,  
Mod. Phys. Lett. A **33**(2018)1850216 (World Scientific).
5. Muhammad Sharif and **Arfa Waseem.**: *Stability of Einstein Universe Against Inhomogeneous Perturbations in  $f(R, T, R_{\mu\nu}T^{\mu\nu})$  Gravity*,  
Eur. Phys. J. Plus **133**(2018)160 (Springer).
6. Muhammad Sharif and **Arfa Waseem.**: *Effects of Charge on Dynamical Instability of Spherical Collapse in  $f(R, T)$  Gravity*,  
Gen. Relativ. Gravit. **50**(2018)78 (Springer).
7. Muhammad Sharif and **Arfa Waseem.**: *Role of  $\sigma R^2 + \gamma R_{\mu\nu}T^{\mu\nu}$  Model on Anisotropic Polytropes*,  
Int. J. Mod. Phys. D **27**(2018)1950007 (World Scientific).
8. Muhammad Sharif and **Arfa Waseem.**: *Anisotropic Quark Stars in  $f(R, T)$  Gravity*,  
Eur. Phys. J. C **78**(2018)868 (Springer).
9. Muhammad Sharif and **Arfa Waseem.**: *Stellar Evolution of Compact Stars in Curvature-Matter Coupling Gravity*,  
Prog. Theor. Exp. Phys. **2019**(2019)053E02 (Oxford University Press).
10. Muhammad Sharif and **Arfa Waseem.**: *Charged Compact Objects in  $f(R, T)$  Gravity*,  
Int. J. Mod. Phys. D **28**(2019)1950033 (World Scientific).
11. Muhammad Sharif and **Arfa Waseem.**: *Anisotropic Spherical Solutions by Gravitational Decoupling in  $f(R)$  Gravity*,  
Ann. Phys. **405**(2019)14 (Elsevier).
12. Muhammad Sharif and **Arfa Waseem.**: *Effects of Charge on Gravitational Decoupled Anisotropic Solutions in  $f(R)$  Gravity*,  
Chin. J. Phys. **60**(2019)426 (Elsevier).
13. Muhammad Sharif and **Arfa Waseem.**: *Charged Gravastars with Conformal Motion in  $f(R, T)$  Gravity*,  
Astrophys. Space Sci. **364**(2019)189 (Springer).

14. Muhammad Sharif and **Arfa Waseem.**: *Inhomogeneous Perturbations and Stability Analysis of the Einstein Static Universe in  $f(R,T)$  Gravity*, *Astrophys. Space Sci.* **364**(2019)221.
15. **Arfa Waseem** and Muhammad Sharif.: *Study of Some Compact Objects in  $R+2\beta T$  Gravity*, *Int. J. Mod. Phys. D* **28**(2019) 2040005(World Scientific).
16. Muhammad Sharif and **Arfa Waseem.**: *Role of Curvature-Matter Coupling on Anisotropic Strange Stars*, *Chin. J. Phys.* **63** (2020)92 (Elsevier).
17. Muhammad Sharif and **Arfa Waseem.**:Impact of Kuchowicz metric function on gravastars in  $f(R, T)$  theory, *Eur. Phys. J. Plus* **135** (2020)930 (Springer).
18. Qanitah Ama-Tul-Mughani, **Arfa Waseem**, Wardat-us-Salam and Abdul Jawad.: *Greybody factor and thermal fluctuations of rotating regular black hole bounded by PFDM*, *Chin. J. Phys.* **77**(2022)2213 (Elsevier).
19. Qanitah Ama-Tul-Mughani, **Arfa Waseem** and Wardat-us-Salam.: *Phase transition and quantum corrections of quintessential Kerr–Newman black hole with cloud of strings*, *Chin. J. Phys.* **79**(2022)306 (Elsevier).
20. Muhammad Sharif and **Arfa Waseem.**: *Stability of Einstein universe in matter-curvature coupling gravity*, *The Fifteenth Marcel Grossmann Meeting: On Recent Developments in Theoretical and Experimental General Relativity, Astrophysics, and Relativistic Field Theories (In 3 Volumes)* (2022) 465.
21. Aisha Siddiqa, Ghulam Abbas, **Arfa Waseem**, Ayesha Aleem and Hafiza Rizwana Kausar.: *Impact of minimal matter-geometry coupling on anisotropic quark stars*, *Int. J. Geom. Meth. Mod. Phys.* **20**(2023)2350068 (World Scientific).
22. Faisal Javed, **Arfa Waseem** and Bander Almutairi.: *Quantum corrected charged thin-shell wormholes surrounded by quintessence*, *Eur. Phys. J. C* **83**(2023)811 (Springer).
23. **Arfa Waseem**, Faisal Javed, Muhammad Zeshan Gul, Ghulam Mustafa and Abdelghani Errehymy.: *Impact of quintessence and cloud of strings on self-consistent d-dimensional charged thin-shell wormholes*, *Eur. Phys. J. C* **83**(2023)1088 (Springer).
24. Sobia Sadiq, **Arfa Waseem**, Faisal Javed, Abdelghani Errehymy and Abdel-Haleem Abdel-Aty.: *Gravitationally Decoupled Charged Anisotropic Solutions in Rastall Gravity*, *Front. Astron. Space Sci.* **10**(2024)1320081 (frontiers).
25. Faisal Javed, **Arfa Waseem**, Ghulam Mustafa and Ertan Gudekli.: *Thin-shell wormholes with AdS black holes surrounded by Chaplygin dark fluid*, *Int. J. Geomet. Meth. Mod. Phys.* **21**(2024)2450061 (World Scientific).
26. Faisal Javed, **Arfa Waseem**, Ji Lin, Sobia Sadiq, Ghulam Mustafa and Mansoor H. Alshehri.: *Insights into dynamical evolution and stability of thin-shell configurations through acoustic black holes*, *Eur. Phys. J. C* **83**(2024)1088 (Springer).
27. **Arfa Waseem.**: *Tolman IV perfect fluid sphere in Rastall gravity*, *Int. J. Geomet. Meth. Mod. Phys.* **21** (2024) 2450112 (World Scientific).
28. Faisal Javed, **Arfa Waseem**, Ghulam Mustafa, Fairouz Tchier, Farruh Atamurotov, Bobomurat Ahmedov and Ahmadjon Abdujabbarov.:

- Constraining study of charged gravastars solutions in symmetric teleparallel gravity, *Chin. J. Phys.* **90** (2024) 410-421 (Elsevier).
29. **Arfa Waseem.**: Isotropic compact stars admitting Heintzmann solution in Rastall gravity, *Int. J. Geomet. Meth. Mod. Phys.* **21** (2024) 2450194 (World Scientific).
  30. Ghulam Fatima, Faisal Javed, **Arfa Waseem**, Ghulam Mustafa and Fairouz Tchier.: Study of acoustic thin-shell wormholes with different types of matter distributions, *Int. J. Geomet. Meth. Mod. Phys.* (2024) (World Scientific).
  31. Ghulam Fatima, Faisal Javed, **Arfa Waseem**, Ghulam Mustafa and Bander Almutairi.: Role of holographic dark energies in preserving stability of thin-shell wormholes in charged torus black holes, *Chin. J. Phys.* **90** (2024) 864 (Elsevier).
  32. Ghulam Mustafa, Faisal Javed, S.K. Maurya, **Arfa Waseem** and Ghulam Fatima.: Imprints of dark energy models on structural properties of charged gravastars in extended teleparallel gravity, *Phys. Dark Universe* **46** (2024) 101574 (Elsevier).
  33. Faisal Javed, **Arfa Waseem**, Ghulam Fatima and Bander Almutairi.: Stability of thin-shell wormholes via polymer black hole in loop quantum gravity, *Phys. Dark Universe* **46** (2024) 101605 (Elsevier).
  34. **Arfa Waseem**, Tooba Chudhary, Sunaiha Naeem, Bander Almutairi and Faisal Javed.: Insights on the stability of compact stars under Durgapal-Lake metric potentials in the framework of non-conservative theory of gravity, *Phys. Dark Universe* **46** (2024)101609 (Elsevier).
  35. **Arfa Waseem**, Faisal Javed, Ghulam Mustafa, Farruh Atamurotov and Bander Almutairi.: Impact of cold dark matter and variable equations of state on the stability of thin-shell wormholes, *Phys. Dark Universe* **46** (2024) 101613 (Elsevier).
  36. **Arfa Waseem** and Sunaiha Naeem.: Role of Durgapal-Fuloria model on isotropic spheres in Rastall gravity, *Gen. Relativ. Gravit.* **56** (2024) 100 (Springer).
  37. Asifa Ashraf, Faisal Javed, Wen-Xiu Ma and **Arfa Waseem.**: Effect of perfect fluid dark matter on Bardeen thin-shell wormholes, *Eur. Phys. J. Plus* **139** (2024) 857 (Springer).

### **ACHEIVEMENTS/AWARDS**

- ❖ HEC Indigenous Ph.D. Fellowship for 5000 Scholars, Phase-II, Batch-III.
- ❖ DPCC scholarship during M.Phil.
- ❖ Study tour of UK, Germany and Turkey for 1 month fully funded by Govt. of Pakistan.
- ❖ Merit scholarship in M.Sc.
- ❖ Merit certificate from University of the Punjab with prize of seventy five thousand (B.Sc).
- ❖ 2<sup>nd</sup> position in B.Sc (Mathematics, Physics).
- ❖ PEEF Merit scholarship in B.Sc.
- ❖ Merit scholarship in intermediate.

### **MS Supervised**

1. Miss Sunaiha Naeem (**Enrolled**)

Dr. Arfa Waseem

2. Miss Tooba Chudhary (**Enrolled**)
3. Miss Maimoona Abbas (**Enrolled**)
4. Miss Salma Yaqoob (**Enrolled**)

### **LANGUAGES**

- English (fluent)
- Urdu (fluent)

### **REFERENCES**

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| <ul style="list-style-type: none"><li>➤ Prof. Dr. Muhammad Sharif<br/>Head, Department of<br/>Mathematics &amp; Statistics<br/>The University of Lahore,<br/>Pakistan<br/>Tel: +92 (333)4231696<br/>Email: <a href="mailto:msharif.math@pu.edu.pk">msharif.math@pu.edu.pk</a></li></ul> | <ul style="list-style-type: none"><li>➤ Prof. Dr. Muhammad Akram<br/>Head, Department of<br/>Mathematics<br/>University of Punjab, Lahore,<br/>Pakistan<br/>Tel: +92 (333)4510258<br/>Email: <a href="mailto:m.akram@pucit.edu.pk">m.akram@pucit.edu.pk</a></li></ul> |
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