

Dr. Zeeshan Yousaf

HEC Approved PhD Supervisor

Curriculum Vitae

Personal Information

- Address Department of Mathematics, University of the Punjab, Quaid-i-Azam Campus, Lahore-54590, Pakistan.
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- Nationality Pakistani.
- Weblinks <http://pu.edu.pk/faculty/description/1641/Dr-Zeeshan-Yousaf.html>
<http://pu.edu.pk/ggc/GroupMembers.html>

Education

- 2012-2015 **Ph.D. (Doctor of Philosophy)** in Mathematics,
Department of Mathematics, University of the Punjab, Lahore.
Thesis: Dynamical Evolution of Collapsing Stellar Systems in $f(R)$ Gravity
<http://pr.hec.gov.pk/jspui/handle/123456789/9585>
- 2010-2012 **M.Phil. (Master of Philosophy)** in Mathematics,
Department of Mathematics, University of the Punjab, Lahore.
CGPA=3.87/4.00.
Thesis: Shear and Expansion Free Evolution Models in General Relativity
- 2007-2009 **M.Sc. (Master of Science)** in Mathematics,
Department of Mathematics, University of the Punjab, Lahore.
CGPA=3.86/4.00

Awards, Scholarships and Honors

- 2018 **7th Most Productive Young Scientist of Pakistan in Mathematical Sciences**,
Directory of Productive Scientist of Pakistan, Pakistan Council for Science and
Technology, Islamabad-Pakistan. (<https://www.pcst.org.pk/docs/PSP2017.pdf>)
- 2018 **16th Most Productive Scientist of Pakistan in Mathematical Sciences**,
Directory of Productive Scientist of Pakistan, Pakistan Council for Science and
Technology, Islamabad-Pakistan. (<https://www.pcst.org.pk/docs/PSP2017.pdf>)
- 2017-2018 **Research Productivity Award in Category C**, Pakistan Council for Science &
Technology, Ministry of Science and Technology, Islamabad-Pakistan.

- 2016-2017 Research Productivity Award in Category B**, Pakistan Council for Science & Technology, Ministry of Science and Technology, Islamabad–Pakistan.
- 2015-2016 Research Productivity Award in Category A**, Pakistan Council for Science & Technology, Ministry of Science and Technology, Islamabad–Pakistan.
- 2014-2015 Research Productivity Award in Category B**, Pakistan Council for Science & Technology, Ministry of Science and Technology, Islamabad–Pakistan.
- 2014-2018 Maximum Research Incentive Award**, University of the Punjab, Lahore–Pakistan.
- 2012-2014 Indigenous Ph.D. Fellowship**, Higher Education Commission, Pakistan.
- 2011-2012 Departmental Doctoral Program Committee (DDPC) M.Phil. Merit Scholarship**, Department of Mathematics, University of the Punjab, Pakistan.

Practical Exposure

1. **Lecturer**, Department of Mathematics, University of the Punjab, Lahore. May, 2014 – Nov., 2015.
2. **Assistant Professor**, Department of Mathematics, University of the Punjab, Lahore. Nov., 2015 – present.
3. **Assistant Superintendent**, Maulana Muhammad Ali Johar Hall, University of the Punjab, Lahore. May, 2014 – Nov., 2016.
4. **Assistant Superintendent**, Allama Iqbal Hall, University of the Punjab, Lahore. Nov., 2016 – April, 2019.

Administrative Experiences

1. **Member** of Departmental Admission Committee, Department of Mathematics, University of the Punjab, Lahore (2014, 2015, 2016, 2017, 2018, 2019, 2020).
2. **Incharge**, General Accounts taking of Department of Mathematics, University of the Punjab, Lahore (2014 and 2016).
3. **Associate Secretary**, International Conference on Relativistic Astrophysics, University of the Punjab, Lahore (2015).
4. **Incharge**, Accounts and Stock taking of Departmental Computer Center, Department of Mathematics, University of the Punjab, 2015.
5. **Organizer**, One Day Conference on Gravitation and Cosmology, University

of the Punjab, Lahore (2015).

6. **Coordinator**, Computer Center, Department of Mathematics, University of the Punjab, Lahore (Sept., 2015 – May, 2016).
7. **Expert**, Self-Assessment Report, Master of Science in Mathematics, National Textile University, Faisalabad (2017).
8. **Editor** of the Departmental Magazine “*The Infinity*”, Department of Mathematics, University of the Punjab, Lahore (Feb., 2017– May, 2019)
9. **Coordinator**, Departmental Seminar Series, Department of Mathematics, University of the Punjab, Lahore (Nov., 2017 – Jan., 2019; May, 2019 – Sept. 20)
10. **Focal Person of the ORIC Advisor Committee**, Department of Mathematics, University of the Punjab, Lahore (Dec., 2017– Present)
11. **Focal Person for QS Subject Wise World Ranking Committee**, Department of Mathematics, University of the Punjab, Lahore (March, 2018 – Present)
12. **Assistant Coordinator MPhil/PhD Program** at Department of Mathematics, University of the Punjab, Lahore (May, 2018 – May, 2019; Sept., 2019 – Sept. 2020)
13. **Focal Person for QEC for Quality Enhancement Matters**, Department of Mathematics, University of the Punjab, Lahore (July, 2018 – May, 2019)
14. **Secretary**, 1st PU International Conference on Gravitation and Cosmology, University of the Punjab, Lahore (January 27– 31, 2019).
15. **Member**, Departmental Seminar Committee, Department of Mathematics, University of the Punjab, Lahore (May, 2019 – Present)
16. **Member**, MPhil/PhD Lab. Committee, Department of Mathematics, University of the Punjab, Lahore (May, 2019 – Present)
17. **Member**, Departmental Auction Committee, Department of Mathematics, University of the Punjab, Lahore (May, 2019 – Present)
18. **Local Scientific Organizer** for 6th UMT International Conference on Pure and Applied Mathematics, UMT, Lahore–Pakistan (February 21-23, 2020).

Trainings

1. **Faculty Orientation Program** by Institute of Administration Sciences, University of the Punjab, Lahore; August 19–22, 2014.
2. **Business Edge Course Titled Communicating Effectively** by International Finance Cooperation, World Bank Group, Lahore; August 20–21, 2014.
3. **Training Workshop on Scopus Database** by University of the Punjab Ranking Committee and Punjab University Library; February 20, 2019.
4. **ProQuest Ebook Central Advanced Training (Series)** by ProQuest Education & Higher Education Commission, Islamabad; September 16, 2020.
5. **ProQuest Ebook Central Advanced Training (Series)** by ProQuest Education & Higher Education Commission, Islamabad; September 23, 2020.
6. **ProQuest Ebook Central Advanced Training (Series)** by ProQuest Education & Higher Education Commission, Islamabad; September 30, 2020.

Research Projects

1. Obtained a research project from University of the Punjab entitled “***Role of Meridional Degrees of Freedom on the Existence of Axisymmetric Systems in $f(R)$ Gravity***” and successfully completed as a **principal investigator** during 2014–2015.
2. Obtained a research project from University of the Punjab entitled “***Relativistic Compact Stellar Bodies and Modified Gravity***” and successfully completed as a **principal investigator** during 2015–2016.
3. Working on a research project from University of the Punjab entitled “***A Class of Viable Stellar Models in the Einstein- Λ Gravity***” as a **principal investigator** during 2017–2018.
4. Working on a National Research Project for Universities from HEC entitled “***Existence of Celestial Structures in Galaxies***” as a **principal investigator** during 2019–2021.
5. Working on a National Research Project for Universities from HEC entitled “***Evolution of the Universe under the Influence of Higher order Gravitational Theories***” as a **Co-principal investigator** during 2019–2021.

Countries Visited

1. **France:** To attend XIIth Spontaneous Workshop on Cosmology « Hot Topics in Modern Cosmology » during May 2018 for ten days.
2. **Australia:** To attend Surveying the Cosmos, The Southern Cross Conference during June 2017 for two weeks
3. **United States of America:** To attend 21st International Conference on General Relativity and Gravitation during July 2016 for two weeks.

MS/MPhil Theses Supervised

- 2018-2020 Ms. Hamna Asad
Thesis Title: Analysis of Self-gravitating Objects with effective Matter Configurations
- 2018-2020 Ms. Komal Hassan
Thesis Title: Evolution and Complexity of Self-gravitating Fluids in $f(G,T)$ Gravity
- 2018-2020 Mr. Tayyab Naseer
Thesis Title: Effects of $f(R,T,R_{\mu\nu}T^{\mu\nu})$ Gravity on the Complexity factor of Relativistic Matter
- 2017-2019 Ms. Sobia Yaseen
Thesis Title: On the Role of Palatini $f(R)$ Gravity in the Dynamics of LTB Geometry
- 2017-2019 Mr. Usama Ghafoor
Thesis Title: Physical Features of Gravastar in $f(R,T)$ Gravity
- 2017-2019 Mr. Muhammad Fawad Malik
Thesis Title: Dynamical Variables of Tilted Szekeres Spacetime in Palatini $f(R)$ Gravity
- 2015-2017 Ms. Ume Farwa
Thesis Title: Spherical and Cylindrical Stellar Collapse in $f(R,T,R_{\mu\nu}T^{\mu\nu})$ Gravity
- 2015-2017 Ms. Aamna Rafaqat
Thesis Title: The Study of LTB Geometry with Tilted and Non-Tilted Congruences in Modified Gravity

BS Project/Theses Supervised

- 2016-2020 Mr. Syed Mehroz Ali
Thesis Title: Cosmic Aspects of General Relativity-I
Department of Space Science, University of the Punjab, Lahore.
- 2016-2020 Ms. Aiman Hanif
Thesis Title: Cosmic Aspects of General Relativity-II
Department of Space Science, University of the Punjab, Lahore.
- 2016-2020 Mr. Muhammad Awais
Thesis Title: Cosmic Aspects of General Relativity-III
Department of Space Science, University of the Punjab, Lahore.

PhD Theses Supervised

1. Mr. Muhammad Ilyas,
Thesis Title: *Some Cosmological Aspects of Celestial Objects in Modified Gravity*,
Defense Date: September 27, 2018.

Memberships

1. Faculty member, **The Group of Gravitation and Cosmology**, Lahore–Pakistan.
2. Life time member, **Pakistan Physical Society**, Islamabad–Pakistan.

Academic and Research Interests

Cosmology,
Electromagnetic Field Theory,
Geometry, Special & General Relativity,
Modified Gravitational theories,
Mathematical Techniques,
Newtonian Dynamics
Relativistic Astrophysics.

PhD/MS/MSc/BS Courses Taught

Analytical Dynamics
Calculus-I
Calculus-II
Computer (Introduction and Applications)-COMP-111
Cosmology
Geometry
General Theory of Relativity
Linear Algebra
Partial Differential Equations
Quantum Mechanics
Real Analysis
Methods of Mathematical Physics
Numerical Analysis
Special Theory of Relativity
Vectors and Tensor Analysis

Computer and Software Skills

Math Packages Mathematica, Maple.
OS Windows, Mac OS X.
Typography MS Word, Latex.

Talks Delivered

1. **Some Exact Models of Relativity** at Department of Mathematics, University of the Punjab, Lahore; May 30, 2012.
2. **Electromagnetic Effects on the Stability of Spherical Relativistic Collapse in $f(R)$ Gravity** at Department of Mathematics, University of the Punjab, Lahore; November 6, 2013.
3. **Stability of Charged Spherical Dissipative Collapse in $f(R)$ Gravity** as a poster presentation in an international conference named "Symmetries, Differential Equations and Applications II" at School of Natural Sciences, NUST, Islamabad; January 27–30, 2014.
4. **Energy Density Inhomogeneities with Polynomial $f(R)$ Cosmology** at Department of Mathematics, University of the Punjab, Lahore; October 29, 2014.
5. **Dynamical Instability of Charged Spherical Radiating Collapse in $f(R)$ Gravity** at 1st National Conference on Mathematical Sciences, University of Malakand, Khyber Pakhtunkhwa; September 02–04, 2014.

6. **Dynamical Instability of Relativistic Fluids in $f(R)$ Gravity** at International Conference on Relativistic Astrophysics by Department of Mathematics, University of the Punjab, Lahore; February 10–14, 2015.
7. **A Bird's Eye of $f(R)$ Gravity** at Department of Mathematics, University of the Punjab, Lahore; February 25, 2015.
8. **Energy Density Irregularities in $f(R)$ Gravity** at 1st UMT National Conference on Pure and Applied Mathematics, University of Management Technology, Lahore; March 07–08, 2015.
9. **Causes of Inhomogeneous Energy Density in Relativistic Fluids with $f(R)$ Background** at 14th Regional Conference on Mathematical Physics, Department of Mathematics, Quaid-i-Azam University, Islamabad; November 09–14, 2015.
10. **Compact Stars and their Evolution** at International Conference on Recent Advances in Applied Mathematics, Department of Mathematics, COMSATS Institute of Information Technology, Lahore; December 17–18, 2015.
11. **Unstable Phases of Collapsing Models** at 1st UMT International Conference in Pure and Applied Science, Centre for Mathematics and its Applications, University of Management Technology, Lahore; March 05–07, 2016.
12. **Dynamical Instability and Cavity Evolution** at 21st International Conference on General Relativity and Gravitation (GR21), Columbia Astrophysics Laboratory, Columbia University, New York–USA; July 10–15, 2016.
13. **An Overview on Cosmic Evolution** (*invited speaker*) at Research Seminar Program, UMT, Sialkot–Pakistan; Dec. 03, 2016.
14. **Differential Geometry, Vectors and Tensors** (*resource person*) at one day workshop organized by Higher Education Department, Punjab at Govt. Post Graduate College for Women, Gujranwala–Pakistan; Dec. 10, 2016.
15. **The Quest of Cosmic and Stellar Evolution** (*invited speaker*) at Bi-Monthly Seminar Series, UMT, Lahore–Pakistan; Dec. 15, 2016.
16. **Causes of Inhomogeneous Energy Density in Modified Gravity** at Southern Cross 2017: Surveying the Cosmos, The Science from Massively Multiplexed Surveys at Australian Astronomical Observatory, Sydney–Australia; June 06, 2017.
17. **Stellar Zoo, Past and Future** at 2nd UMT International Conference on Pure and Applied Sciences, UMT, Lahore–Pakistan; Oct. 05, 2017.

18. **Challenges: Our Understanding of the Universe** at 2017 International Conference on Mathematics and its Applications, Government College University Lahore–Pakistan; Nov. 14, 2017.
19. **Self-Gravitating Systems and their Stability Analysis** at 6th International Conference on Education, Science Beyond Classroom, University of Education, Lahore–Pakistan; March 16, 2018.
20. **Collapsing Relativistic Fluids and Hydrostatic Equilibrium** at 4th UMT International Conference on Pure and Applied Mathematics, UMT, Lahore–Pakistan; April. 02, 2018.
21. **Stability of Anisotropic Stellar Filaments**, (plenary talk) at XIIth Spontaneous Workshop on Cosmology, at Institut d’Etude Scientifique de Cargèse (IESC) Corsica, Cargèse, France; May 14, 2018
22. **Irregularities and Existence of Stellar Systems** at 5th UMT International Conference on Pure and Applied Mathematics, UMT, Lahore–Pakistan; March 31, 2019.
23. **Mathematical Modeling of Stellar Structures** at One Day International Seminar on Recent Trends in Pure and Applied Mathematics at Department of Mathematics, Government College University, Faisalabad–Pakistan; Nov. 09, 19
24. **Tilted Congruence and Regular Compact Objects** at 6th UMT International Conference on Pure and Applied Mathematics, UMT, Lahore–Pakistan; Feb. 22, 2020.

Conference Proceedings

- 2015 M. Sharif and **Z. Yousof**: *Dynamical Instability of Relativistic Fluids in $f(R)$ Gravity*, Proc. Int. Conf. Relativ. Astrophys 202-207 (2015).
- 2018 M. Sharif and **Z. Yousof**: *Causes of Inhomogeneous Energy Density in Relativistic Fluids with $f(R)$ Background*, Proc. 14th Reg. Conf. Math. Phys. 76-83 (2017).

Workshops, Conferences and Seminars

2010–Present **Weekly Departmental Seminar Series** in Department of Mathematics, at University of the Punjab, Lahore–Pakistan.

Oct., 2010 **Lecture Series on Black Holes**, at University of the Punjab, Lahore–Pakistan;

- Oct. 10–11, 2010.
- Nov., 2010 **Lecture Series on Cosmology**, at University of the Punjab, Lahore–Pakistan; Nov. 23–27, 2010.
- Feb., 2011 **5th World Conference on 21st Century Mathematics**, at Abdus Salam School of Mathematical Sciences, GCU, Lahore–Pakistan; Feb. 09–13, 2011.
- Nov., 2011 **NUST Conference on Mathematical Sciences**, at National University of Science and Technology, Islamabad–Pakistan; Nov. 17–19, 2011.
- Dec., 2011 **One Day Conference on Gravitation**, at University of the Punjab, Lahore–Pakistan; Dec. 17, 2011.
- Feb., 2013 **IV Italian-Pakistani Workshop on Relativistic Astrophysics**, at National University of Science and Technology, Islamabad–Pakistan; Feb. 15–17, 2013.
- March, 2013 **6th World Conference on 21st Century Mathematics**, at Abdus Salam School of Mathematical Sciences, GCU, Lahore–Pakistan; Nov. 06–09, 2013.
- Nov., 2013 **Lecture Series on Cosmology**, PU, Lahore–Pakistan.
- Jan., 2014 **Symmetries, Differential Equations and Applications II**, at National University of Science and Technology, Islamabad–Pakistan; Jan. 27–30, 2014.
- Sept., 2014 **1st National Conference on Mathematical Sciences**, at University of Malakand, Malakand–Pakistan; Sept. 05–09, 2014.
- Feb., 2015 **International Conference on Relativistic Astrophysics**, at University of the Punjab, Lahore–Pakistan; Feb. 10–14, 2015.
- March, 2015 **1st UMT National Conference on Pure and Applied Mathematics**, at University of Management and Technology, Lahore–Pakistan; March 07– 08, 2015.
- Nov., 2015 **14th Regional Conference on Mathematical Physics**, at Quaid-i-Azam, University, Islamabad–Pakistan; Nov. 09–14, 2015.
- Dec., 2015 **International Conference on Recent Advances in Applied Mathematics**, Department of Mathematics, COMSATS University Islamabad, Lahore Campus, Lahore–Pakistan; Dec. 17–18, 2015.
- March, 2016 **1st UMT International Conference in Pure and Applied Science**, Centre for Mathematics and its Applications, University of Management Technology, Lahore–Pakistan; March 05–07, 2016.

- July, 2016 **21st International Conference on General Relativity and Gravitation (GR21)**, Columbia Astrophysics Laboratory, Columbia University, New York-USA; July 10–15, 2016.
- Nov., 2016 **One Day conference on Gravitation and Cosmology**, PU, Lahore-Pakistan.26
- Nov., 2016 **Workshop on Relativistic Astrophysics and Cosmology**, Department of Mathematics, COMSATS University Islamabad, Lahore Campus; November 24 – 25, 2016.
- Dec, 2016 **Research Seminar Program**, University of Management and Technology, Sialkot–Pakistan.
- Dec, 2016 **One Day Workshop on Differential Geometry, Vectors and Tensors (Resource Person)**, Govt. Post Graduate College for Women, Gujranwala–Pakistan.
- Dec, 2016 **Bi-Monthly Seminar Series**, University of Management and Technology, Lahore–Pakistan
- June, 2017 **Southern Cross 2017: Surveying the Cosmos, The Science From Massively Multiplexed Surveys** at Australian Astronomical Observatory, Sydney–Australia; June 05–09, 2017.
- Oct., 2017 **2nd UMT International Conference on Pure and Applied Sciences**, at University of Management and Technology, Lahore–Pakistan; Oct. 05–07, 2017.
- Nov., 2017 **2017 International Conference on Mathematics and its Applications**, Government College University Lahore–Pakistan; Nov. 13–15, 2017.
- March, 2018 **6th International Conference on Education, Science Beyond Classroom**, at University of Education, Lahore–Pakistan; March 15–17, 2018.
- March, 2018 **Information, Black Holes and Quantum Theory: Theoretical physics at the Crossroads**, at ASSMS, Government College University, Lahore–Pakistan; March 26–30, 2018.
- April, 2018 **4th UMT International Conference on Pure and Applied Mathematics**, at University of Management and Technology, Lahore–Pakistan; March 31– April 02, 2018.
- May, 2018 **12th Spontaneous Workshop on Cosmology**, at Institut d'Etude Scientifique de Cargèse (IESC) Corsica, Cargèse, France; May 14–19, 2018.

- March, 2019 **5th UMT International Conference on Pure and Applied Mathematics** at University of Management and Technology, Lahore–Pakistan; March 29– 31, 2019.
- August, 2019 **One Day Workshop on “How to Procure”** at Department of Economics, University of the Punjab, Lahore–Pakistan; August 07, 2019.
- Nov. 2019 **One Day International Seminar on Recent Trends in Pure and Applied Mathematics** at Department of Mathematics, Government College University, Faisalabad–Pakistan; Nov. 09, 2019.
- Dec., 2019 **One Day Workshop on Geometry and its Applications** at NISA Girls College, Sialkot–Pakistan; Dec. 13, 2019
- Feb., 2020 **6th UMT International Conference on Pure and Applied Mathematics** at University of Management and Technology, Lahore–Pakistan; Feb. 21– 23, 2020.

List of Journal Publications (Indexed by ISI-JCR)

- 2020 **Z. Yousaf**, M. Y. Khlopov, M.Z. Bhatti and T. Naseer: *Influence of Modification of Gravity on the Complexity Factor of Static Spherical Structures*, *Monthly Notices of the Royal Astronomical Society*, **495**, 4334 (2020).
- 2020 **Z. Yousaf**: *Definition of Complexity Factor for Self-Gravitating Systems in Palatini $f(R)$ Gravity*, *Physica Scripta*, **95**, 075307 (2020).
- 2020 **Z. Yousaf**, M.Z. Bhatti and T. Naseer: *Measure of Complexity for Dynamical Self-gravitating Structures* *International Journal of Modern Physics D*, **29**, 2050061 (2020).
- 2020 M.Z. Bhatti, **Z. Yousaf** and A. Khadim: *Dynamical Analysis of Self-gravitating Stars in Modified Gauss-Bonnet Gravity*, *Physical Review D*, **101**, 104029 (2020).
- 2020 **Z. Yousaf**, M.Z. Bhatti, T. Naseer and I. Ahmad: *The Measure of Complexity in Charged Celestial Bodies in $f(R, T, R_{\mu\nu}T^{\mu\nu})$ Gravity*, *Physics of the Dark Universe*, **29**, 100581 (2020).
- 2020 **Z. Yousaf**, M. Z. Bhatti and K. Hassan: *Complexity for Self-gravitating Fluid Distributions in $f(G, T)$ Gravity*, *European Physical Journal Plus*, **135**, 397 (2020).
- 2020 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *Gravastars in $f(R, G)$ Gravity*,

- Physics of the Dark Universe*, **29**, 100561 (2020).
- 2020 K. Majeed, **Z. Yousaf**, and G. Abbas: *Effects of Electromagnetic Field on the Stability of Locally Isotropic Gravastars*, *New Astronomy*, **80**, 101397 (2020).
- 2020 **Z. Yousaf**, M.Z. Bhatti and T. Naseer: *New Definition of Complexity Factor in $f(R, T, R_{\mu\nu} T^{\mu\nu})$ Gravity*, *Physics of the Dark Universe*, **28**, 100535 (2020).
- 2020 **Z. Yousaf**, M.Z. Bhatti and T. Naseer: *Study of Charged Spherical Stellar Structure in $f(R, T, R_{\mu\nu} T^{\mu\nu})$ Gravity*, *European Physical Journal Plus*, **135**, 323 (2020).
- 2020 **Z. Yousaf**, M.Z. Bhatti and H. Asad: *Gravastars in $f(R, T, R_{\mu\nu} T^{\mu\nu})$ Gravity*, *Physics of the Dark Universe*, **28**, 100527 (2020).
- 2020 **Z. Yousaf**: *Construction of Charged Cylindrical Gravastar-like Structures* *Physics of the Dark Universe*, **28**, 100509 (2020).
- 2020 M. Z. Bhatti, **Z. Yousaf** and M. Yousaf: *Stability of Self-gravitating Anisotropic fluids in $f(R, T)$ Gravity*, *Physics of the Dark Universe*, **28**, 100501 (2020).
- 2020 **Z. Yousaf**, A. Ikram, M. Ilyas and M. Z. Bhatti: *Existence of Dynamical Wormholes in $f(R)$ Gravity*, *Canadian Journal of Physics*, **98**, 474 (2020).
- 2020 M. Z. Bhatti, **Z. Yousaf** and M. Nawaz: *Spherical Collapse with Heat Dissipation in $f(R, T, R_{\mu\nu} T^{\mu\nu})$ Gravity*, *International Journal of Geometric Methods in Modern Physics*, **17**, 2050017 (2020).
- 2019 M. Z. Bhatti, **Z. Yousaf** and Zarnoor: *Stability Analysis of Neutron Stars in Palatini $f(R, T)$ Gravity*, *General Relativity and Gravitation*, **51**, 144 (2019).
- 2019 **Z. Yousaf**: *Hydrodynamic Properties of Dissipative Fluids Associated with Tilted Observers*, *Modern Physics Letters A*, **34**, 1950333 (2019).
- 2019 M. Z. Bhatti, K. Bamba, **Z. Yousaf** and M. Nawaz: *Dissipative Self-Gravitating Systems in Modified Gravity*, *Journal of Cosmology and Astroparticle Physics*, **09**, 011 (2019).

- 2019 **Z. Yousaf**, M. Z. Bhatti and M. F. Malik: *Non-reversible Evolution of Tilted Szekeres Spacetimes with $f(R)$ Gravity*
European Physical Journal Plus, **134**, 470 (2019).
- 2019 **Z. Yousaf**, K. Bamba, M. Z. Bhatti and U. Ghafoor: *Charged Gravastars in Modified Gravity*,
Physical Review D, **100**, 024062 (2019).
- 2019 **Z. Yousaf**, M. Z. Bhatti and S. Yaseen: *Tilted Shear-free Axially Symmetric Fluids in $f(R)$ Gravity*,
European Physical Journal Plus, **134**, 487 (2019).
- 2019 M. Z. Bhatti, **Z. Yousaf** and Zarnoor: *Stability of Charged Neutron Star in Palatini $f(R)$ Gravity*,
Modern Physics Letters A, **33**, 1950252 (2019).
- 2019 M. Z. Bhatti, **Z. Yousaf** and M. Ajmal: *Thin Shell Gravastars with Cylindrical Space-time*,
International Journal of Modern Physics D, **28**, 1950123 (2019).
- 2019 **Z. Yousaf**: *On the Role of $f(G,T)$ terms in Structure Scalars*,
European Physical Journal Plus, **134**, 245 (2019).
- 2019 M. Z. Bhatti, **Z. Yousaf** and A. Yousaf: *Energy Content of a Collapsing Sphere with $f(R)$ Gravity*,
International Journal of Geometric Methods in Modern Physics, **16**, 1950041 (2019).
- 2019 M. Shahzadi, **Z. Yousaf** and S. U. Khan: *Circular Motion and Energy Extraction in a Rotating Black Hole*,
Physics of the Dark Universe, **24**, 100263 (2019).
- 2019 M. Ilyas, **Z. Yousaf** and M. Z. Bhatti: *Bounds on Higher Derivative $f(R, \square R, T)$ Gravity from Energy Conditions*,
Modern Physics Letters, A, **34**, 1950082 (2019).
- 2019 **Z. Yousaf**, M. Z. Bhatti and R. Saleem: *Electromagnetic Field and Dark Dynamical Scalars for Spherical Systems*,
European Physical Journal Plus, **134**, 142 (2019).
- 2019 M. Z. Bhatti, **Z. Yousaf** and A. Yousaf: *Tolman Mass of a Spherical Fluids with Electromagnetic Field*,
Modern Physics Letters A, **34**, 1950012 (2019).
- 2018 M. Z. Bhatti, M. Sharif, **Z. Yousaf** and M. Ilyas: *Role of $f(G,T)$ Gravity on the Evolution of Relativistic Stars*,

- International Journal of Modern Physics D*, **27**, 1850044 (2018).
- 2018 **Z. Yousaf**, M. Z. Bhatti and M. Ilyas: *Existence of Compact Structures in $f(R, T)$ Gravity*,
European Physical Journal C **78**, 307 (2018).
- 2018 **Z. Yousaf**, M. Sharif, M. Ilyas, M. Z. Bhatti: *Energy Conditions in Higher Derivative $f(R, \square R, T)$ Gravity*,
International Journal of Geometric Methods in Modern Physics, **15**, 1850146 (2018).
- 2018 W. Javed, **Z. Yousaf** and Z. Akhtar: *Thermodynamics and Glassy Phase Transition of Some Regular Black Holes*,
Modern Physics Letters A, **33**, 1850089 (2018).
- 2018 **Z. Yousaf** and M. Z. Bhatti: *Some Anisotropic Planar Stellar Models*,
International Journal of Geometric Methods in Modern Physics, **15**, 1850160 (2018).
- 2018 **Z. Yousaf**, K. Bamba, M. Z. Bhatti and U. Farwa: *Dynamical Instability of Spherical Anisotropic Sources in $f(R, T, R_{\mu\nu}T^{\mu\nu})$ Gravity*,
European Physical Journal A, **54**, 122 (2018).
- 2018 **Z. Yousaf**: *Structure Scalars of Dissipative Fluids with $f(G, T)$ Gravity*,
Astrophysics and Space Science, **363**, 226 (2018).
- 2018 M. Z. Bhatti, **Z. Yousaf** and M. Ilyas: *Existence of Wormhole Solutions and Energy Conditions in $f(R, T)$ Gravity*,
Journal of Astrophysics and Astronomy, **39**, 69 (2018).
- 2017 M. Ilyas, **Z. Yousaf**, M. Z. Bhatti and B. Masud: *Existence of Relativistic Structures in $f(R, T)$ Gravity*,
Astrophysics and Space Science, **362**, 237 (2017).
- 2017 M. Z. Bhatti and **Z. Yousaf**: *Stability of Anisotropic Stellar Filaments*,
Annals of Physics, **387**, 253 (2017).
- 2017 **Z. Yousaf**, M. Sharif, M. Ilyas, M. Z. Bhatti, *Influence of $f(R)$ Models on the Existence of Anisotropic Self-Gravitating Systems*,
European Physical Journal C, **691**, 77 (2017).
- 2017 M. Z. Bhatti, **Z. Yousaf** and M. Ilyas: *Evolution of Compact Stars and Dark Dynamical Variables*,
European Physical Journal C, **690**, 77 (2017).
- 2017 **Z. Yousaf**, M. Ilyas and M. Z. Bhatti: *Influence of Modification of Gravity on Spherical Wormhole Models*,
Modern Physics Letters A, **32**, 1750163 (2017).

- 2017 K. Bamba, M. Ilyas, M. Z. Bhatti and **Z. Yousaf**: *Energy Conditions in Modified $f(G)$ Gravity*,
General Relativity and Gravitation, **49**, 112 (2017).
- 2017 M. Z. Bhatti, **Z. Yousaf** and S. Ashraf: *Charged Black String Thin-shell Wormholes in Modified Gravity*,
Annals of Physics, **383**, 439 (2017).
- 2017 **Z. Yousaf**, M.Z. Bhatti and A. Razaqat: *Evolution of Inhomogeneous LTB Geometry with Tilted Congruences and Modified Gravity*,
Canadian Journal of Physics, **95**, 1246 (2017).
- 2017 **Z. Yousaf**, M.Z. Bhatti and U. Farwa: *Stability Analysis of Stellar Radiating Filaments*,
Classical and Quantum Gravity, **34**, 145002 (2017).
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