

Dr. Zeeshan Yousaf

HEC Approved PhD Supervisor

List of Publications

Conference Proceedings

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

List of Journal Publications (Indexed by ISI-JCR)

2023

- 2023 **Z. Yousaf**, M. Z. Bhatti and U. Farwa: *Role of Strong Matter-Field Coupling on Axial Complex Systems*, *Fortschritte der Physik - Progress of Physics*, **2023**, 2300013 (2023).
- 2023 **Z. Yousaf**, M.Z. Bhatti, S. Khan, A. Malik, H. I. Alrebdi and A.-H. A.-Aty.: *Stability of Anisotropy Pressure in Self-gravitational Systems in $f(G)$ Gravity*, *Axioms*, **12**, 257 (2023).
- 2023 **Z. Yousaf**, M. Z. Bhatti and U. Farwa: *Complexity Factor of Static Axial Complex Structures in $f(R,T)$ Gravity*, *Symmetry - Basel*, **15**, 531 (2023).
- 2023 M.Z. Bhatti, **Z. Yousaf**, and Z. Tariq: *Dynamics of Charged Hyperbolically Symmetric Matter in Modified Gravity*, *Classical and Quantum Gravity*, **40**, 065011 (2023).
- 2023 **Z. Yousaf**, M.Z. Bhatti, H. Aman and PK Sahoo: *Non-Singular Bouncing Model in Energy Momentum Squared Gravity*, *Physica Scripta*, **98**, 035002 (2023).

- 2023 **Z.Yousaf**, M.Z. Bhatti, S. Rehman and K. Bamba: *Dynamics of Self-gravitating Systems in Non-linearly Magnetized Chameleonic Brans-Dicke Gravity*, *General Relativity and Gravitation*, **55**, 31 (2023).
- 2023 M.Z. Bhatti, M. Yousaf, and **Z.Yousaf**: *Novel Junction Conditions in $f(G, T)$ Modified Gravity*, *General Relativity and Gravitation*, **55**, 16 (2023).
- 2023 **Z. Yousaf**, M.Z. Bhatti, M. M. M. Nasir: *Complexity of Charged Anisotropic Spherically Symmetric Fluids in $f(G)$ Gravity*, *Communications in Theoretical Physics* **75**, 035401 (2023).
- 2023 **Z.Yousaf**, A. Farhat and A. Adeel: *Energy Density Inhomogenization in Relativistic Spheres with Maxwell- $f(G, T)$ Theory*, *Indian Journal of Physics*, **XX**, YYYYYY (2023). (in press)
DOI: [10.1007/s12648-022-02582-y](https://doi.org/10.1007/s12648-022-02582-y)
- 2023 M.Z. Bhatti, **Z. Yousaf** and M. Salman: *Quasi-Homologous Evolution of Celestial Objects in $f(T)$ Gravity*, *Chinese Journal of Physics*, **81**, 270 (2023).
- 2023 **Z.Yousaf**, M.Z. Bhatti and S. Rehman: *Self-gravitating Spherically Symmetric Systems with Q_h Condition in Chameleonic Brans-Dicke Gravity*, *Zeitschrift für Naturforschung A (ZNA)*, **78**, 161 (2023).
- 2023 A. Malik, **Z. Yousaf**, M. Jan, M. R. Shahzad, Z. Akram: *Analysis of Charged Compact Stars in $f(R, T)$ Gravity using Bardeen Geometry*, *International Journal of Geometric Methods in Modern Physics*, **xx**, YYYYY (2022). (in press)
Doi: [10.1142/S0219887823500615](https://doi.org/10.1142/S0219887823500615)
- 2023 M. M. M. Nasir, M.Z. Bhatti, **Z. Yousaf**: *Influence of EMSG on Complex Systems: Spherically Symmetric, Static case*, *International Journal of Modern Physics D*, **32**, 2350009 (2023).
- 2023 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *Cylindrical Gravastars Coupled with an Isotropic Matter in Modified Gravity*, *Indian Journal of Physics*, **XX**, YYYYYY (2023). (in press)
DOI: [10.1007/s12648-022-02488-9](https://doi.org/10.1007/s12648-022-02488-9)
- 2023 **Z.Yousaf**, M.Z. Bhatti and A. Farhat: *Causes of Energy Density Inhomogenization with $f(G)$ Formalism*, *Pramana*, **97**, 27 (2023).
- 2023 **Z. Yousaf**, A.M. Galal, M.Z. Bhatti and A. Farhat: *Sources of Irregular Energy*

Density in Energy Momentum Squared Gravity with Charge,
New Astronomy, **98**, 101930 (2023).

2023 M.Z. Bhatti, **Z. Yousaf**, and M. Nazir: *Static Cylindrically Symmetric Wormhole Models in $f(R,T)$ Gravity,*
New Astronomy, **98**, 101897 (2023).

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2022 M.Z. Bhatti, **Z. Yousaf**, M. Yousaf: *Study of Nonstatic Anisotropic Axial Structures through Perturbation,*
International Journal of Modern Physics D, **31**, 2250116 (2022).

2022 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *Horizon Thermodynamics in $f(R,G)$ Gravity*
Fortschritte der Physik - Progress of Physics, **2022**, 2200113 (2022).

2022 **Z. Yousaf**, M.Z. Bhatti and M. Rasheed: *Spherically Symmetric Wormholes in Minimally Coupled $f(R,T)$ Gravity,*
Physica Scripta, **97**, 125307 (2022).

2022 H. Asad and **Z. Yousaf**: *Study of Anisotropic Fluid Distributed Hyperbolically in $f(R,T,Q)$ gravity,*
Universe, **8**, 630 (2022).

2022 **Z. Yousaf**, M.Z. Bhatti, and S. Khan: *Analysis of Hyperbolically Symmetric Fluid Configurations in Modified Gauss-Bonnet Gravity*
European Physical Journal C, **82**, 1077 (2022).

2022 U. Sheikh, **Z. Yousaf**, and N. Ramzan: *On Dynamical Stability and Information Loss of a Collapsing String Fluid in Rainbow Gravity,*
Modern Physics Letters A, **37**, 2250165 (2022).

2022 U. Farwa, **Z. Yousaf**, and M. Z. Bhatti: *Measure of Complexity for Axial Self-gravitating Static Fluids,*
Physica Scripta, **97**, 105307 (2022).

2022 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *A Novel Definition of Complexity in Torsion Based Theory,*
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2022 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *Gravastars with Cylindrical Spacetime in $f(G,T)$ Gravity,*
Pramana – Journal of Physics, **96**, 224 (2022).

- 2022 **Z. Yousaf**, M.Z. Bhatti and S. Khan: *Stability Analysis of Isotropic Spheres in Einstein Gauss-Bonnet Gravity*, *Annalen der Physik*, **2022**, 2200252 (2022).
- 2022 M. Z. Bani-Fwaz, M.Z. Bhatti, **Z. Yousaf**, U. Farwa and A.M. Galal: *Study of Generalized Lemaitre-Tolman- Bondi Spacetime in Palatini $f(R)$ Gravity*, *European Physical Journal C*, **82**, 631 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti and A. Farhat: *Existence of Energy Density Homogeneity for Radiating Spheres in $f(G,T)$ Gravity*, *Canadian Journal of Physics*, **xx**, yyyy (2022). (in press)
DOI: [10.1139/cjp-2022-0069](https://doi.org/10.1139/cjp-2022-0069)
- 2022 **Z. Yousaf**, M.Z. Bhatti and H. Aman: *Cosmic Bounce with Power Law $f(G,T)$ Model*, *International Journal of Geometric Methods in Modern Physics*, **19**, 2250206 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti and H. Aman: *The Bouncing Cosmic Behavior with Logarithmic Law $f(G,T)$ Model*, *Chinese Journal of Physics*, **79**, 275 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti and S. Khan: *Analysis of Charged Self-gravitational Complex Structures Evolving Quasi-Homologously*, *International Journal of Modern Physics D*, **31**, 2250099 (2022).
- 2022 **Z. Yousaf**, M. Z. Bhatti and U. Farwa: *Dissipative Collapse of Cosmic Structures in Modified Gravity*, *Chinese Journal of Physics*, **78**, 363 (2022).
- 2022 **Z. Yousaf**, G.G.L. Nashed, M. Z. Bhatti and H. Asad: *Significance of Charge on the Dynamics of Hyperbolically Distributed Fluids*, *Universe*, **8**, 337 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti and A. Farhat: *Various Phases of Irregular Energy Density in Charged Spheres*, *Annals of Physics*, **442**, 168935 (2022).
- 2022 M. Ilyas, A. R. Athar, **Z. Yousaf**, et al. (VI): *Compact Relativistic Geometries in $f(R,G)$ Gravity*, *International Journal of Geometric Methods in Modern Physics*, **19**, 2250126 (2022).
- 2022 M.Z. Bhatti, **Z. Yousaf**, M. Yousaf: *Effects of Non-minimally Coupled $f(R,T)$ Gravity on the Stability of a Self-gravitating Spherically Symmetric Fluid*,

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- 2022 M.Z. Bhatti, **Z. Yousaf** and M. Yousaf, *Stability Analysis of Restricted Non-Static Axial Geometry in $f(R,T)$ Gravity*, *Chinese Journal of Physics*, **77**, 2617 (2022).
- 2022 **Z. Yousaf**, K. Bamba, Z. Akhtar and W. Javed: *Few Thermodynamical Features of Charged Accelerating Rotating Black Holes*, *International Journal of Geometric Methods in Modern Physics*, **19**, 2250102 (2022).
- 2022 **Z. Yousaf**, K. Bamba and M.Z. Bhatti: *Symmetry Properties and Some Extensions of LTB Metric via Structure Scalars*, *International Journal of Modern Physics D*, **31**, 2250043 (2022).
- 2022 M. Ilyas, A. R. Athar, **Z. Yousaf**, B. Masud and F. Khan: *The Bouncing Behavior in $f(R)$ Gravity*, *Indian Journal of Physics*, **96**, 4007 (2022).
- 2022 **Z. Yousaf**, M. Z. Bhatti and H. Asad: *Matter-Curvature Gravity Modification and Formation of Cylindrical Isotropic Systems*, *Pramana*, **96**, 111 (2022).
- 2022 M.Z. Bhatti, **Z. Yousaf**, M. Yousaf and K. Bamba: *Dynamical Analysis of Charged Fluid under Non-Minimally Coupled Gravity Theory*, *International Journal of Modern Physics D*, **31**, 2240002 (2022).
- 2022 M.Z. Bhatti, **Z. Yousaf** and S. Khan: *Quasi-homologous Evolution of Relativistic Charged Objects within $f(G,T)$ Gravity*, *Chinese Journal of Physics*, **77**, 2168 (2022).
- 2022 F. Maqsood, **Z. Yousaf**, M. Z. Bhatti: *Electromagnetic Field and Spherically Symmetric Dissipative Fluid Models*, *Pramana*, **96**, 105 (2022).
- 2022 **Z. Yousaf**, M. Z. Bhatti and H. Asad: *Consequences of Electric Charge on Anisotropic Hyperbolically Symmetric Static Spacetime*, *Physica Scripta*, **97**, 055304 (2022).
- 2022 I. A. Aslam, **Z. Yousaf** and M. O. Ahmad, *Structure Scalars and Dissipative Fluids in Modified theory*, *Chinese Journal of Physics*, **77**, 2136 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti and M.M.M. Nasir: *On the Study of Complexity for Charged Self-Gravitating Systems*,

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- 2022 **Z. Yousaf**, M.Z. Bhatti and H. Aman: *Cosmic Bounce with $\alpha(e^{-\beta G} - 1) + 2\lambda T$ Model*, *Physica Scripta*, **97**, 055306 (2022).
- 2022 M.Z. Bhatti, **Z. Yousaf** and S. Hanif: *Electromagnetic Influence on Hyperbolically Symmetric Sources in $f(T)$ Gravity*, *European Physical Journal C*, **82**, 340 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti, S. Khan and P.K. Sahoo: *$f(G, T_{\alpha\beta} T^{\alpha\beta})$ Theory and Complex Cosmological Structures*, *Physics of the Dark Universe*, **36**, 101015 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti and H. Asad: *Electromagnetic Effects on Cylindrical Gravitars-Like Strings in $f(R, T, R_{\mu\nu} T^{\mu\nu})$ Gravity*, *International Journal of Geometric Methods in Modern Physics*, **19**, 2250070(2022).
- 2022 **Z. Yousaf**, M. Z. Bhatti and MMM Nasir: *Role of $f(G)$ Gravity in the Study of Non-static Complex Systems*, *Canadian Journal of Physics*, **100**, 185 (2022).
- 2022 **Z. Yousaf**, K. Bamba, M. Z. Bhatti and U. Farwa: *Quasi-static Approximation in the Study of Compact Stars*, *Chinese Journal of Physics*, **77**, 2014 (2022).
- 2022 **Z. Yousaf**, M.Z. Bhatti and S. Khan: *Non-Static Charged Complex Structures in $f(G, T^2)$ Gravity*, *European Physical Journal Plus*, **137**, 322 (2022).
- 2022 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *Analysis of Charged Gravastar in $f(R, G)$ Gravity*, *International Journal of Modern Physics D*, **31**, 2150124 (2022).
- 2022 M. Z. Bhatti, **Z. Yousaf** and M. Yousaf: *Dynamical Analysis for Cylindrical Geometry in Non-minimally Coupled $f(R, T)$ Gravity*, *International Journal of Geometric Methods in Modern Physics*, **19**, 2250018 (2022).
- 2022 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *Cylindrical Gravastar like-Structures in $f(G)$ Gravity*, *Galaxies*, **10**, 40 (2022).
- 2022 **Z. Yousaf**: *Spatially Hyperbolic Gravitating Sources in Λ -Dominated Era*, *Universe*, **8**, 131 (2022).

- 2022 **Z. Yousaf**, M.Z. Bhatti and H. Asad: *Hyperbolically Symmetric Sources in $f(R,T)$ Gravity*,
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- 2022 **Z. Yousaf**, M.Z. Bhatti, M.Y. Khlopov, and H. Asad: *A Comprehensive Analysis of Hyperbolical Fluids in Modified Gravity*,
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- 2022 **Z. Yousaf**, M. Y. Khlopov, M.Z. Bhatti and H. Asad: *Hyperbolically Symmetric Static Charged Cosmological Fluid Models*,
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- 2022 **Z. Yousaf**: *Structure of Spherically Symmetric Objects: A Study Based on Structure Scalars*,
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- 2022 **Z. Yousaf**, K. Bamba, M. Z. Bhatti and U. Farwa: *Quasi Static Evolution of Compact Objects in Modified Gravity*,
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- 2022 M.Z. Bhatti, **Z. Yousaf**, S. Hanif: *Hyperbolically Symmetric Sources, A Comprehensive Study in $f(T)$ Gravity*,
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- 2022 **Z. Yousaf**, M. Z. Bhatti and U. Farwa: *Evolution of Axially and Reflection Symmetric Source in Energy Momentum Squared Gravity*,
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- 2021 M. Z. Bhatti, **Z. Yousaf** and T. Ashraf: *Charged Gravastars in Modified Gauss-Bonnet Gravity*,
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- 2021 **Z. Yousaf**, M.Z. Bhatti and A. Ali: *Electromagnetic field and Quasi-Homologous Constraint for Spherical Fluids in $f(R,T)$ Gravity*,
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- 2021 M.Z. Bhatti, **Z. Yousaf** and F. Hussain: *Generalized Lemaitre-Tolman-Bondi Spacetime under the Influence of Electric Charge and Palatini $f(R)$ Gravity*,

- European Physical Journal C*, **81**, 853 (2021).
- 2021 **Z. Yousaf**, M. Z. Bhatti and U. Farwa: *Axially and Reflection Symmetric Systems and Structure Scalars in $f(R,T)$ Gravity*, *Annals of Physics*, **433**, 168601 (2021).
- 2021 M.Z. Bhatti, **Z. Yousaf**, S. Khan: *Role of Quasi-Homologous Condition to Study of Complex Systems in $f(G,T)$ Gravity* *European Physical Journal Plus*, **136**, 975 (2021).
- 2021 M. Z. Bhatti, **Z. Yousaf** and Z. Tariq, *Influence of Electromagnetic Field on Hyperbolically Symmetric Source*, *European Physical Journal Plus*, **136**, 857 (2021).
- 2021 **Z. Yousaf**, M.Z. Bhatti and A. Ali, *Quasi-Homologous Evolution of Relativistic Stars* *Annals of Physics*, **432**, 168570 (2021).
- 2021 **Z. Yousaf**, M.Z. Bhatti and A. Rehman: *Electrically Charged String-like Axially Symmetric Object Composition in $f(R,G)$ Gravity*, *Chinese Journal of Physics*, **73**, 493 (2021).
- 2021 M.Z. Bhatti, M. Y. Khlopov, **Z. Yousaf**, S. Khan: *Electromagnetic Field and Complexity of Relativistic Fluids in $f(G)$ Gravity*, *Monthly Notices of the Royal Astronomical Society*, **506**, 4543 (2021).
- 2021 M.Z. Bhatti, **Z. Yousaf**, S. Khan: *Influence of $f(G)$ Gravity on the Complexity of Relativistic Self-Gravitating Fluids* *International Journal of Modern Physics D*, **30**, 2150097 (2021).
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- 2021 M. Z. Bhatti, **Z. Yousaf**, T. Ashraf: *Gravastars in Modified Gauss-Bonnet Gravity*, *Chinese Journal of Physics*, **73**, 167 (2021).
- 2021 M. Z. Bhatti, and **Z. Yousaf**: *Dynamical Instability of Charged Self-Gravitating Stars in Modified Gravity*, *Chinese Journal of Physics*, **73**, 115 (2021).
- 2021 **Z. Yousaf**, W. Javed, and I. Nawazish, *Inflationary Anisotropic Phases with Bianchi -I Cosmic Model*, *New Astronomy*, **89**, 101650 (2021).
- 2021 **Z. Yousaf** and M. Z. Bhatti: *Charged Gravastars in $f(R,T,R_{\mu\nu}T^{\mu\nu})$ Gravity*, *International Journal of Modern Physics D*, **30**, 2150084 (2021).

- 2021 **Z. Yousaf**, K. Bamba, and M. Z. Bhatti: *Formation of Cylindrical Gravastars in Modified Gravity*,
International Journal of Geometric Methods in Modern Physics, **18**, 2150167 (2021)
- 2021 M. Z. Bhatti, **Z. Yousaf** and Z. Tariq, *Role of Structure Scalars on the evolution of Compact Objects in Palatini $f(R)$ Gravity*,
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- 2021 Z. Tariq, M. Z. Bhatti and **Z. Yousaf**, *On the Stability of Pressure Isotropy Condition in Palatini $f(R)$ Gravity*
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- 2021 **Z. Yousaf**, *Stable Charged Radiating Systems Associated with Tilted Observers*,
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- 2021 U. Sheikh, S. Liaquat, **Z. Yousaf** and M.Z. Bhatti: *Information Paradox for a Collapsing String Cloud in Rainbow Gravity*,
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- 2021 **Z. Yousaf**, K. Bamba, M.Z. Bhatti and K. Hassan: *Measure of Complexity in Self-Gravitating Systems using Structure Scalars*,
New Astronomy, **84**, 101541 (2021).
- 2021 M. Z. Bhatti, **Z. Yousaf**, Z. Tariq: *Structure Scalars and their Evolution for Massive Objects in $f(R)$ Gravity*,
European Physical Journal C, **81**, 16 (2021).
- 2021 U. Sheikh, M. Z. Bhatti and **Z. Yousaf**: *Gravitational Collapse of a Self-gravitating Unidirectional Fluid Flow*,
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- 2020 **Z. Yousaf**, M. Z. Bhatti and T. Naseer: *Evolution of the Charged Dynamical Radiating Spherical Structures*,
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- 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*,

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- 2020 **Z. Yousaf**, M.Z. Bhatti and T. Naseer: *Measure of Complexity for Dynamical Self-gravitating Structures*
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- 2020 M.Z. Bhatti, **Z. Yousaf** and A. Khadim: *Dynamical Analysis of Self-gravitating Stars in Modified Gauss-Bonnet Gravity*,
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- 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*,
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- 2020 **Z. Yousaf**, M. Z. Bhatti and K. Hassan: *Complexity for Self-gravitating Fluid Distributions in $f(G, T)$ Gravity*,
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- 2020 M.Z. Bhatti, **Z. Yousaf** and A. Rehman: *Gravastars in $f(R, G)$ Gravity*,
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- 2020 K. Majeed, **Z. Yousaf**, and G. Abbas: *Effects of Electromagnetic Field on the Stability of Locally Isotropic Gravastars*,
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- 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).
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- 2020 **Z. Yousaf**, M.Z. Bhatti and T. Naseer: *Study of Static Charged Spherical Stellar Structure in $f(R, T, R_{\mu\nu}T^{\mu\nu})$ Gravity*,
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- 2020 **Z. Yousaf**, M.Z. Bhatti and H. Asad: *Gravastars in $f(R, T, R_{\mu\nu}T^{\mu\nu})$ Gravity*,
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- 2020 **Z. Yousaf**: *Construction of Charged Cylindrical Gravastar-like Structures*
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- 2020 **Z. Yousaf**, A. Ikram, M. Ilyas and M. Z. Bhatti: *Existence of Dynamical Wormholes*

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2019 **Z. Yousaf**, K. Bamba, M. Z. Bhatti and U. Ghafoor: *Charged Gravastars in Modified Gravity*,
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2019 **Z. Yousaf**: *On the Role of $f(G, T)$ terms in Structure Scalars*,
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- 2019 M. Z. Bhatti, **Z. Yousaf** and A. Yousaf: *Energy Content of a Collapsing Sphere with $f(R)$ Gravity*,
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- 2019 M. Ilyas, **Z. Yousaf** and M. Z. Bhatti: *Bounds on Higher Derivative $f(R, \square R, T)$ Gravity from Energy Conditions*,
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