



Dr. Shahid Zaman

Assistant Professor

Mathematical and Physical Sciences - Mathematics Section

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Time at UoN: Since 2024

Marital Status:

Dr. Shahid Zaman is serving as Assistant Professor of Mathematics, University of Nizwa. He received his PhD degree from School of mathematics and statistics, Central China Normal University, Wuhan-China in 2020. He has completed his B.S. (Hons.) and M.Phil. degrees in mathematics from Government College University Lahore, Pakistan. Prior to his appointment in University of Nizwa, Oman, he has worked as Assistant Professor of Mathematics in University of Sialkot, Pakistan. His research interests include Spectral Analysis of graphs, Matrix Analysis of graphs, Extremal problems of Graphs, Discrete Mathematics, Combinatorics, Mathematical Chemistry, Chemical Graph Theory, Fuzzy theory and Graph Labeling. He has published various research articles in a well reputed international journals. He is listed ``top 2% scientists of the world for the year 2024, released by Standford University, USA, and Elsevier``.

[Dr Shahid Zaman CV UoN.pdf](#)

Academic Qualifications

Ph.D, Central China Normal University, Wuhan, China, 2020

M.Phil, GC University, Lahore, Pakistan, 2015

BS(Hons.), GC University, Lahore, Pakistan, 2012

Teaching Activities

Graph theory and its applications

Spectral graph theory

Algebraic graph theory

Matrix theory

Advance Numerical Analysis

Graph labelling

Advance Algebra

Modern graph theory

Group Theory-II

Discrete structure

Vector and tensor analysis

Algebra III

Operations Research

Mathematical Methods

Rings and Fields

Integral Equations

Group Theory-I

Introduction to Statistics

Ordinary Differential Equations

Elementary graph theory

Probability Theory

Mathematical Spaces

Numerical Analysis I

Calculus III

Complex Analysis

Topology-I

Functional Analysis

Number Theory

Research Activities

- *Research Interests*

Spectral Analysis of graphs

Topological Indices

Extremal problems of graphs

Chemical graph theory

Graph Labeling

Fuzzy Graph theory

Algebraic graph theory

Machine learning

- *Conference Presentations*

1. Asad Ullah, Hameed Ali, Shahid Zaman, Summeira Meherban ``A comparative analysis of different topology description methods for 3D grains in polycrystalline microstructures``
Conference: 1st International Conference on Mathematics and Applied SciencesAt: Mehran UET, Shaheed Z.A. Bhutto Campus Khairpur Mir's Sindh Pakistan . , Conference: 1st International Conference on Mathematics and Applied Sciences , Mehran UET, Shaheed Z.A. Bhutto Campus Khairpur Mir's Sindh Pakistan , 28/09/2023
2. Anila Hamraz, Asad Ullah, Shahid Zaman ``Topological Characterization of SiliconCarbon molecular structures with respect to neighborhood molecular descriptors and entropy measures, 5th International Conference on Emerging Trends in Engineering, Management and Sciences (ICETEMS-2023, 17/07/2023
3. Salima Salman, Asad Ullah, Shahid Zaman ``Various Resistance distance indices of bipartite graphs with respect to diameter two and their sharp bounds, 5th International Conference on Emerging Trends in Engineering, Management and Sciences (ICETEMS-2023), Peshawer, Pakistan , 14/07/2023

- *Publications*

Article:

1. 2024 [Abdul Hakeem, Nek Muhammad Katbar, Rozina Chohan, Asad Ullah, Shahid Zaman, Hisamuddin Shaikh ``Computational modeling of triangular graphyne using advanced topological methods`` International Journal of Modern Physics B](#)

2. 2024 [Asad Ullah, Muhammad Nazir, Shahid Zaman, Y S Hamed and Safina Jabeen](#) ``Fractal configurations of zigzag hexagonal type coronoid molecules: Graph-theoretical modeling and its impact on physicochemical behavior`` Physica Scripta
3. 2024 [Wakeel Ahmed, Tamseela Ashraf, Dalal AlMutairi, Shahid Zaman, Shakeel Ahmed, Huma Ehsan](#) ``A Deep Dive into Machine Learning: The Roles of Neural Networks and Random Forests in QSPR Analysis`` BioNanoScience
4. 2024 [Abdul Hakeem, Asad Ullah, Shahid Zaman, Y. S. Hamed, Melaku Berhe Belay](#) ``Computational insights into favonoid molecular structures and their ``QSPR modeling via degree based molecular descriptors`` Chemical Papers
5. 2024 [Muhammad Danish, Tehreem Liaquat, Shahid Zaman, Parvez Ali](#) ``A Quantitative Structure-Property Relationship approach to predict the biological activities of newly discovered anti-cancer agents with applications in Implications of Drug Development`` Journal of Micromechanics and Molecular Physics
6. 2024 [Shahid Zaman, Sadaf Rasheed & Ahmed Alamer](#) `` A quadratic regression model to quantify certain latest corona treatment drug molecules based on coindices of M-polynomial`` The Journal of Supercomputing
7. 2024 [Wakeel Ahmed, Shahid Zaman, Eizzah Asif, Kashif Ali, Emad E. Mahmoud & Mamo Abebe Asheboss](#) ``Exploring the role of topological descriptors to predict physicochemical properties of anti-HIV drugs by using supervised machine learning algorithms`` BMC Chemistry
8. 2024 [Shahid Zaman, K. H. Hakami, Sadaf Rasheed & Fekadu Tesgera Agama.](#) ``Reduced reverse degree-based topological indices of graphyne and graphdiyne nanoribbons with applications in chemical analysis.`` Scientific Reports 547(2024)
9. 2024 [Shahid Zaman, Ahmed Raza, Asad Ullah](#) ``Some new version of resistance distance-based topological indices of complete bipartite networks.`` The European Physical Journal Plus
10. 2024 [Shahid Zaman, Asad Ullah, Rabia Naseer, Kavi Rasool.](#) ``Mathematical Concepts and Empirical Study of Neighborhood Irregular Topological Indices of Nanostructures TUC4C8 p , q and GTUC p , q.`` Journal of Mathematics
11. 2024 [Ali N. A. Koam, Ali Ahmad, Shahid Zaman, Ibtisam Masmali, and Haleemah Ghazwani.](#) ``Fundamental aspects of the molecular topology of fuchsine acid dye with connection numbers`` The European Physical Journal E
12. 2024 [Shahid Zaman, Muhammad Usamah Majeed, Wakeel Ahmed, Maliha Tehseen Saleem](#) ``On Neighborhood Eccentricity-Based Topological Indices with QSPR Analysis of PAHs Drugs.`` Measurement Interdisciplinary Research and Perspectives

13. 2024 [Shahid Zaman, Sonia Zafar, Asad Ullah, Muhammad Azeem. ``Computational and molecular characterization of Chitosan derivatives by means of graph-theoretic parameters .`` Partial Differential Equations in Applied Mathematics](#)
14. 2024 [Zunaira Kosar, Shahid Zaman, Asad Ullah, Muhammad Kamran Siddiqui, Melaku Berhe Belay. ``Computation of molecular description of supramolecular Fuch sine model useful in medical data.`` Scientific reports.](#)
15. 2024 [Muhammad Salman, Asad Ullah, Shahid Zaman, Emad E. Mahmoud, Melaku Berhe Belay. ``3D molecular structural modeling and characterization of indium phosphide via irregularity topological indices.`` BMC Chemistry](#)
16. 2024 [Muhammad Danish, Tehreem Liaquat, Farwa Ashraf, Shahid Zaman. ``Predictive modeling and regression analysis of diverse sulfonamide compounds employed in cancer therapy.`` Frontiers in Chemistry](#)
17. 2024 [Wakeel Ahmed, Kashi fAli, Shahid Zaman, Fekadu Tesgera Agama. ``A python based algorithmic approach to optimize sulfonamide drugs via mathematical modeling.`` Scientific Reports](#)
18. 2024 [Guofeng Yu, Shahid Zaman, Mah Jabeen, Xuewu Zuo. ``The study of pentagonal chain with respect to schultz index, modified schultz index, schultz polynomial and modified schultz polynomial.`` PLOS ONE](#)
19. 2024 [Wakeel Ahmed, Shahid Zaman, Farhana Khalid ``Analyzing Polycyclic Aro-matic Hydrocarbons using Topological Indices and QSPR Analysis to Reveal Molecular Complexity`` Journal of Micromechanics and Molecular Physics](#)
20. 2024 [Asifa Tassaddiq, Wakeel Ahmed, Shahid Zaman, Asma Raza, Usman Islam, Kwara Nantomah, ``A Modified Iterative Approach for Fixed Point Problem in Hadamard Spaces`` Journal of Function Spaces](#)
21. 2024 [Wakeel Ahmed, kashif Ali, Shahid Zaman, Asma Raza ``Molecular insights into anti-Alzheimer's drugs through predictive modeling using linear regression and QSPR analysis`` Modern Physics Letters B](#)
22. 2024 [Asad Ullah, Safina Jabeen, Shahid Zaman, Anila Hamraz, Summeira Meherban, ``Predictive potential of K-Banhatti and Zagreb type molecular descriptors in structure-property relationship analysis of some novel drug molecules`` Journal of the Chinese Chemical Society](#)
23. 2024 [Summeira Meharban, Asad Ullah, Shahid Zaman, Anila Hamraz, Abdul Razaq ``Molecular structural modeling and physical characteristics of anti-breastcancer drugs via some novel topological descriptors and regression models`` Current Research in Structural Biology](#)

24. 2024 [Asma Jabeen, Shahzad Ahmad, Shahid Zaman, ``The study of regression model based on CoM-polynomial in blood cancer drug properties`` Partial Differential Equations in Applied Mathematics](#)
25. 2024 [Mimoon Ismael, Shahid Zaman, Kashif Elahi, Ali N.A. Koam, Ansa Bashir, ``Analytical Expressions and Structural Characterization of Some Molecular Models Through Degree Based Topological Indices`` Mathematical Modelling of Engineering Problems](#)
26. 2024 [Asad Ullah, Salima Salman, Shahid Zaman. ``Resistance distance and sharp bounds of two-mode electrical networks.`` Physica Scripta](#)
27. 2024 [Shahid Zaman, Mahnoor Mushtaq, Muhammad Danish, Parvez Ali, Sadaf Rasheed.``Topological Characterization of Some New Anti-Viral Drugs for Cancer Treatment.`` BioNanoScience](#)
28. 2024 [Wakeel Ahmed, Shahid Zaman, Sana Ashraf.``Topological characterization of three classes of complex networks and their graphical representation and Analysis.`` Journal of Micromechanics and Molecular Physics](#)
29. 2024 [Shahid Zaman ``Statistical Evaluation of Cancer Drugs by QSPR Modeling.`` NANO](#)
30. 2024 [Asad Ullah, Salima Salman, Shahid Zaman. ``Resistance distance and sharp bounds of two-mode electrical networks.`` Physica Scripta](#)
31. 2024 [Wakeel Ahmed, Kashif Ali, Shahid Zaman, Farooq Ahmad, and Mamo Abebe Ashebo. ``Molecular Insights into Anti-Alzheimer's Drugs Through Eccentricity-Based Predictive Mathematical Modeling Using Regression and QSPR Analysis.`` Journal of Molecular and Engineering Materials](#)
32. 2024 [Xiaofang Li, Muzafar Jamal, Asad Ullah, Emad E. Mahmoud, Shahid Zaman & Melaku Berhe Belay. ``Computational insights into zinc silicate MOF structures: topological modeling, structural characterization and chemical predictions.`` Scientific Reports](#)
33. 2023 [Shahid Zaman and Asad Ullah. ``Kemeny's constant and global mean first passage time of random walks on octagonal cell network.`` Mathematical Methods in the Applied Sciences.](#)
34. 2023 [Shahid Zaman, Mehreen Mustafa, Asad Ullah and Muhammad Kamran Siddiqui. ``Study of mean-first-passage time and Kemeny's constant of a random walk by normalized Laplacian matrices of a penta-chain network`` The European Physical Journal Plus.](#)
35. 2023 [Shahid Zaman, Aisha Kamboh, Asad Ullah and Jia-Bao Liu. ``Development of some novel resistance distance based topological indices for certain special types of graph](#)

[networks.`` Physica Scripta](#)

36. 2023 [Xiaodong Yu, Shahid Zaman, Asad Ullah, Ghulamullah Saeedi and Xiujun Zhang``Matrix Analysis of Hexagonal Model and Its Applications in Global Mean-First-Passage Time of Random Walks`` IEEE ACCESS](#)
37. 2023 [Zunaira Kosar, Shahid Zaman, Muhammad Kamran Siddiqui,``Structural characterization and spectral properties of hexagonal phenylene chain network`` European Physical Journal Plus](#)
38. 2023 [Tao Yan, Zunaira Kosar, Adnan Aslam, Shahid Zaman, Asad Ullah. ``Spectral techniques and mathematical aspects of K4 chain graph.`` Physica Scripta](#)
39. 2023 [Shahid Zaman, Wakeel Ahmed, Atash Sakeena, Kavi Rasool & Mamo Abebe Ashebo. ``Mathematical modeling and topological graph description of dominating David derived networks based on edge partitions.`` Scientific Reports](#)
40. 2023 [Shahid Zaman, Asad Ullah & Afia Shafaqat. ``Structural modeling and topological characterization of three kinds of dendrimer networks.`` The European Physical Journal E](#)
41. 2023 [Shahid Zaman, Hafiza Sana Arbab Yaqoob, Asad Ullah & Mariam Sheikh. ``QSPR Analysis of Some Novel Drugs Used in Blood Cancer Treatment Via Degree Based Topological Indices and Regression Models.`` Polycyclic Aromatic Compounds](#)
42. 2023 [Shahid Zaman, Mehwish Jalani, Asad Ullah, Wakeel Ahmad & Ghulamullah Saeedi. ``Mathematical analysis and molecular descriptors of two novel metal-organic models with chemical applications.`` Scientific Reports](#)
43. 2023 [Shahid Zaman, Zunaira Kosar, Saif Ullah, Adeela Nawaz, ``Mathematical aspects and molecular descriptors for anti-tumour and anti-COVID drugs medications`` Molecular Physics](#)
44. 2023 [Shahid Zaman, Mehwish Jalani, Asad Ullah, Mubashir Ali, Tayyba Shahzadi ``On the topological descriptors and structural analysis of cerium oxide nanostructures`` Chemical Papers](#)
45. 2023 [Shahid Zaman, Muhammad Salman, Shahzad Ahmad, Asad Ullah and Mohammed Salaheldeen Abdelgader Abas. ``Three-Dimensional Structural Modelling and Characterization of Sodalite Material Network concerning the Irregularity Topological Indices.`` Journal of Mathematics](#)
46. 2023 [Asad Ullah, Shahid Zaman, Arshad Hussain, Asma Jabeen, Melaku Berhe Belay ``Derivation of mathematical closed form expressions for certain irregular topological indices of 2D nanotubes`` Scientific reports](#)
47. 2023 [Asad Ullah, Shahid Zaman, Anila Hamraz, Muniba Muzammal . ``On the](#)

[construction of some bioconjugate networks and their structural modeling via irregularity topological indices.`` The European Physical Journal E](#)

48. 2023 [Zunaira Kosar, Shahid Zaman, Wajid Ali, Asad Ullah ``The Number of Spanning Trees in a K5 Chain Graph`` Physica Scripta](#)

49. 2023 [Xiujun Zhang, Zainab Saeed Bajwa, Shahid Zaman, Sidra Munawar & Dan Li ``The study of curve fitting models to analyze some degree-based topological indices of certain anti-cancer treatment`` Chemical Papers](#)

50. 2023 [Asad Ullah, Zohra Bano , Shahid Zaman. ``Computational aspects of two important biochemical networks with respect to some novel molecular descriptors`` Journal of Biomolecular Structure and Dynamics](#)

51. 2023 [Asad Ullah, Shams udin, Shahid Zaman, Anila Humraz. ``Zagreb connection topological descriptors and structural property of the triangular chain structures`` Physica Scripta.](#)

52. 2023 [Abdul Hakeem Phulpoto, Asad Ullah, Shahid Zaman ``Computation of some important degree based topological indices for graphyne and Zigzag graphyne nanoribbon`` Molecular Physics](#)

53. 2023 [Asad Ullah, Muzafar Jamal, Shahid Zaman, Shams Udin ``Connection based novel AL topological descriptors and structural property of the Zinc Oxide Metal Organic Frameworks`` Physica Scripta](#)

54. 2022 [Shahid Zaman and He X, . ``Relation between the inertia indices of a complex unit gain graph and those of its underlying graph`` Linear and Multilinear Algebra](#)

55. 2022 [Shahid Zaman. ``Spectral analysis of three invariants associated to random walks on rounded networks with \$2n\$ -pentagons`` International Journal of Computer Mathematics](#)

56. 2022 [Shahid Zaman, Ali N. A. Koam, Ali Al Khabyah, Ali Ahmad ``The Kemeny's Constant and Spanning Trees of Hexagonal Ring Network`` Computers, Materials & Continua](#)

57. 2022 [Ali Al Khabyah, Shahid Zaman, Ali N. A. Koam, Ali Ahmad and Asad Ullah. ``Minimum Zagreb Eccentricity Indices of Two-Mode Network with Applications in Boiling Point and Benzenoid Hydrocarbons`` Mathematics](#)

58. 2022 [Javeria Dinar, Zahid Hussain, Shahid Zaman, Shams Ur Rehaman ``Wiener index for an intuitionistic fuzzy graph and its application in water pipeline network`` Ain Shams Engineering Journal](#)

59. 2022 [Shahid Zaman, Mehwish Jalani, Asad Ullah and Ghulamullah Saeedi ``Structural Analysis and Topological Characterization of Sudoku Nanosheet``. Journal of Mathematics](#)

60. 2022 [Asad Ullah, Muhammad Qasim, Shahid Zaman and Asad Khan. ``Computational and comparative aspects of two carbon nanosheets with respect to some novel topological indices.`` Ain Shams Engineering Journal](#)
61. 2022 [Asad Ullah, Aurang Zeb, Shahid Zaman ``A new perspective on the modeling and topological characterization of H-Naphtalenic nanosheets with applications`` Journal of Molecular Modeling](#)
62. 2022 [Asad Ullah, Shamsudin, Shahid Zaman, Anila Hamraz, Ghulamullah Saeedi ``Network-Based Modeling of the Molecular Topology of Fuchsine Acid Dye with Respect to Some Irregular Molecular Descriptors`` Journal of Chemistry](#)
63. 2021 [Shahid Zaman. ``Cacti with maximal general sum connectivity index.`` Journal of Applied Mathematics and Computing](#)
64. 2021 [Shahid Zaman and Ali Akbar. ``On the Connected Graphs Having Maximum Connective Eccentricity Index.`` Journal of Applied Mathematics and Computing](#)
65. 2021 [Shahid Zaman, Fouad A. Abolaban, Ali Ahmad and Muhammad Ahsan Asim. ``Maximum H-index of bipartite network with some given parameters.`` AIMS Mathematics](#)
66. 2021 [Shahid Zaman, Jawad Alam and Asma Jabeen. ``SUPER FACE MAGIC LABELING OF SUBDIVIDED PRISM GRAPH.`` Jordan Journal of Mathematics and Statistics \(JJMS\)](#)
67. 2020 [Li Q, Shahid Zaman, Sun.W and Jawad Alam. ``Study on the normalized Laplacian of a penta-graphene with applications.`` International Journal of Quantum Chemistry,](#)
68. 2020 [Wang.G, Yan.L, Shahid Zaman and Zhang.M. ``The connective eccentricity index of graphs and its applications to octane isomers and benzenoid hydrocarbons.`` International Journal of Quantum Chemistry](#)

Faculty Administrative Experience

- 2016 - 2017: Head Department of Mathematics - University of Sialkot-Pakistan
- 2015 - 2017: PT member of Quality Enhancement Cell (QEC) - University of Sialkot-Pakistan
- 2015 - 2017: Member of discipline committee - University of Sialkot-Pakistan
- 2015 - 2016: Program Manager of Physical Science - University of Sialkot-Pakistan

Award and Recognitions

2022 • HEC Approved PhD Supervisor, Ref. HEC/HRD/ASA/2022/91123.

2019 • Achieved Excellent CCNU International Student Award, for the year 2019 in Central China Normal University Wuhan-China.

2017 • Awarded Chinese Government Scholarship, for the year 2017

2012 • Awarded HEC Pakistan Scholarship in BS level, at GC University, Lahore Pakistan

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