

## Dr. Asfand Fahad

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Nationality: Pakistan

Date of Birth: 1988-03-02



### Objectives:

Over the past decade, the role of computer science has surged dramatically, the advancements in computing power and artificial intelligence are transforming various sectors of daily life, including travel, shopping, design, administration, and education. The primary challenge universities are facing today is the modernization of their curricula to meet industry demands. With over a decade of multidisciplinary and conventional research experience, my current objective is to develop customized computational models in mathematics, based on Algorithms and AI, for solving problems.

### Career Summary:

- Currently working as an Associate Professor B. Z. University, Multan.
- More than **9 years post phd teaching experience** in multiple universities including Bahauddin Zakariya University, Multan, Pakistan and COMSATS University Islamabad, Vehari Campus, Pakistan.
- Has worked in 4 project as Principle investigator and CoPI/Assistant. The two of these project are funded in China (listed below) including The National Natural Science Foundation of China and Science and Technology Bureau of Pingdingshan, Henan Province.
- Published over **50 research articles in SCI journals**, over 40 articles during last 5 years. Has published 17 articles during last 2 years.
- Published papers in TOP Journals like **Information Sciences** and **Applied Mathematics and Computation**.
- Currently supervising 3 PhD scholars and 5 Master Scholars. Has supervised over 30 Master degree students.

### WORK / TEACHING EXPERIENCE

- **Associate Professor**  
Bahauddin Zakariya University, Multan  
September 05, 2025- Till Date  
Responsibilities: Teaching and Research.

- **Assistant Professor**  
Bahauddin Zakariya University, Multan  
January 2022- September 04, 2025  
Responsibilities: Teaching and Research.
- **Assistant Professor**  
COMSATS University Islamabad – Vehari Campus, Pakistan  
Sep 2016- January 2022  
Responsibilities: Teaching and Research.
- **Assistant Professor**  
Institute of Southern Punjab, Multan, Pakistan.  
July 2016 - Aug 2013  
Responsibilities: Teaching and Research.

## QUALIFICATION

**Post-Doctorate:** Zhejiang Normal University, Jinhua, China

**PhD Mathematics:** Abdus Salam School of Mathematical Sciences, GC University Lahore, Pakistan.

**M.Phil. Mathematics:** Abdus Salam School of Mathematical Sciences, GC University Lahore, Pakistan.

**BS Mathematics:** Bahauddin Zakariya University, Multan, Pakistan, Pakistan.

## RESEARCH PROJECTS

- Title: Henan International Joint Laboratory for multidimensional topology and carcinogenic characteristics analysis of atmospheric fine particulate matter PM 2.5, Funding Agency: Department of Science and Technology, Pingdingshang University, Science and Technology Bureau of Pingdingshan, Henan Province, China; Duration: 3 years, Worth 83831 USD (Ongoing)
- Title: Graph Parameters and their Applications, Funding Agency: Graduate Studies and Scientific Research Vice-Rectorate, Deanship of Scientific Research and Libraries Duration: 2 Years, Worth: 250,000 SAR
- Title: On Steffensen's Inequality and Montgomery's Identity, Funding Agency: Higher Education Commission of Pakistan, PI, Duration: 1 year, Worth: 0.426 Million PKR. (Completed).
- Title: Topological properties of Molecular Structures, Funding Agency: ORIC COMSATS University Islamabad, Co-PI, Duration 2 years, Worth: 0.2 Million PKR. (Completed).

## PUBLICATIONS

1. Akram, M. W., Iqbal, S., **Fahad, A.**, & Wang, Y. (2025). Hermite–Hadamard-Type Inequalities for h-Godunova–Levin Convex Fuzzy Interval-Valued Functions via Riemann–Liouville Fractional q-Integrals. *Fractal and Fractional*, 9(9), 578. **(SCI, JCR Q1, IF=3.3)**
2. **Fahad, A.**, Furuichi, S., Ali, Z., Wang, Y., & PLOS Manuscript Reassignment. (2025). Novel extensions of k-harmonically convex functions and their applications in information science. *PloS one*, 20(7), e0320192.**(SCI, JCR Q1, IF=2.6)**
3. **Fahad, A.**, Ali, Z., Furuichi, S., & Wang, Y. (2025). Novel fractional integral inequalities for GA-Cr-convex functions and connections with information systems. *Alexandria Engineering Journal*, 113, 509-515.**(SCI, JCR Q1, IF=6.8)**
4. Khan, D., Butt, S. I., **Fahad, A.**, Wang, Y., & Mohsin, B. B. (2025). Analysis of superquadratic fuzzy interval valued function and its integral inequalities. *AIMS Mathematics*, 10(1), 551-583.**(SCI, JCR Q1, IF=1.8)**
5. **Fahad, A.**, Wang, Y., Ali, Z., Hussain, R., Furuichi, S. (2024). Exploring properties and inequalities for geometrically arithmetically-Cr-convex functions with Cr-order relative entropy. *Information Sciences*, 120219. **(SCI TOP, JCR Q1, IF=8.1, H-index 154)**
6. **Fahad, A.**, Ayesha, Wang, Y., Butt, S. I., Jensen–Mercer and Hermite–Hadamard–Mercer Type Inequalities for GA- h-Convex Functions and Its Subclasses with Applications, *Mathematics*, 2023, 11, 278 **(SCI, JCR Q1, IF=2.4,H-index 55)**
7. Li, L., Yang, Y., Hui, Z. H., Jin, B. B., Wang, H., **Fahad, A.**, & Zhang, H. (2024). Algorithms for enumerating multiple leaf-distance granular regular  $\alpha$ -subtree of unicyclic and edge-disjoint bicyclic graphs. *Applied Mathematics and Computation*, 462, 128334.**(SCI TOP, JCR Q1, IF=4, H-index 125)**
8. **Fahad, A.**, Boulaaras, S. M., Rehman, H. U., Iqbal, I., & Chou, D. (2024). Probing nonlinear wave dynamics: Insights from the  $(2+ 1)$ -dimensional Konopelchenko–Dubrovsky System. *Results in Physics*, 57, 107370.**(SCI , JCR Q1, IF=5.3, H-index 27)**
9. **Fahad, A.**, Boulaaras, S. M., Rehman, H. U., Iqbal, I., Saleem, M. S., & Chou, D. (2023). Analysing soliton dynamics and a comparative study of fractional derivatives in the nonlinear fractional Kudryashov’s equation. *Results in Physics*, 55, 107114. **(SCI , JCR Q1, IF=5.3, H-index 27)**
10. **Fahad, A.**, Butt, S.I., Pečarić, J., Praljak, M. (2023). Generalized Taylor’s Formula and Steffensen’s Inequality. *Mathematics*, 11(16), 3570. **(SCI, JCR Q1, IF=2.4, H-index 55)**
11. Zhang, J., **Fahad, A.**, Mukhtar, M., & Raza, A. (2023). Characterizing Interconnection Networks in Terms of Complexity via Entropy Measures. *Symmetry*, 15(10), 1868. **(SCI , JCR Q1, IF=2.2, H-index 90)**
12. Yang, J., **Fahad, A.**, Mukhtar, M., Anees, M., Shahzad, A., & Iqbal, Z. (2023). Complexity analysis of Benes network and its derived classes via information functional based entropies. *Symmetry*, 15(3), 761. **(SCI , JCR Q1, IF=2.2, H-index 90)**
13. Wang, W., Nisar, A., **Fahad, A.**, Qureshi, M. I., & Alameri, A. (2022). Modified Zagreb connection indices for benes network and related classes. *Journal of Mathematics*, 2022(1), 8547332.**( SCI, JCR Q1, IF=1.555, H-index 24, JCR 2022)**
14. Tang, R., Rehman, S., Farooq, A., Kamran, M., Qureshi, M. I., **Fahad, A.**, & Liu, J. B. (2021). A comparative study of natural convection flow of fractional maxwell fluid with uniform heat flux and radiation. *Complexity*, 2021(1), 9401655. **( SCI, JCR Q1, IF=2.21, H-index 79)**

15. Song, Y. Q., Farooq, A., Kamran, M., Rehman, S., Tamoor, M., Khan, R., **Fahad, A.** & Qureshi, M. I. (2021). Analytical Solution of Fractional Oldroyd-B Fluid via Fluctuating Duct. *Complexity*, 2021(1), 9576873. ( **SCI, JCR Q1 , IF=2.21, H-index 79**)
16. Li, X., **Fahad, A.**, Zhou, X., & Yang, H. (2020). Exact Values for Some Size Ramsey Numbers of Paths and Cycles. *Frontiers in Physics*, 8, 350. ( **SCI, JCR Q1, IF=3.56, H-index 56**)
17. **Fahad, A.**, Butt, S. I., & Pečarić, J. (2019). Generalized Steffensen's Inequality by Fink's Identity. *Mathematics*, 7(4), 329. ( **SCI, JCR Q1, IF=2.4, H-index 55**)
18. Fahad, A., Qian, Y., Ali, Z., & Younus, A. (2024). On Generalization of Hermite-Hadamard-Mercer Inequalities for Interval-Valued Functions with Generalized Geometric-Arithmetic Convexity. *International Journal of Geometric Methods in Modern Physics*. ( **SCI , JCR Q2, IF=2.1, H-index 42**)
19. **Fahad, A.**, Rehman, H. U., Iqbal, I., Qian, Y., & Saleem, M. S. (2024). Optimizing space curve motion in Kuralay model through diverse soliton approaches. *Optical and Quantum Electronics*, 56(5), 788. ( **SCI , JCR Q2, IF=3, H-index 51**)
20. **Fahad, A.**, Butt, S. I. Bayraktar, B., Anwar, M., Wang, Y., (2023). Some new Bullen-type inequalities obtained via fractional integral operators. *Axioms*, 12(7), 691.( **SCI, JCR Q2, IF=2, H-index 27**)
21. Rani, A. **Fahad, A.**, Hussain, I. F., Ali, U., Ashraf, M. (2023). A comparison between certain graph parameters of biswapped networks and their maximal twin-preserving subgraphs with applications in determining complexity. *Measurement Science and Technology*, 35(1), 015603. ( **SCI , JCR Q2, IF=2.4, H-index 156**)
22. Wang, W., **Fahad, A.**, Vladimir, M., Mujahid, N., Abisado, M. (2023) Interconnection network analysis through ve- degree-based information functional entropy and complexity. *The European Physical Journal Plus*, 138: 1109, 1-10.( **SCI , JCR Q2, IF=3.4, H-index 84**)
23. Sun, D., Liu, H., Yang, Y., Li, L., Zhang, H., & **Fahad, A.** (2024). Enumeration Of Subtrees Of Two Families Of Self-Similar Networks Based On Novel Two-Forest Dual Transformations. *The Computer Journal*, 67(5), 1652-1662.( **SCI , JCR Q2, IF=1.4, H-index 72**)
24. Arshad, H., Javaid, I., & Fahad, A. (2024). Granular computing in zero-divisor graphs of Zn. *Kuwait Journal of Science*, 51(3), 100231.( **SCI , JCR Q2, IF=1.2, H-index 20**)
25. Wei, J., **Fahad, A.**, Raza, A., Shabir, P., Alameri, A. (2024). On distance dependent entropy measures of poly propylene imine and zinc porphyrin dendrimers. *International Journal of Quantum Chemistry*, 124(1), e27322. ( **SCI, JCR Q2, IF=2.4, H-index 116**)
26. Hu, Y., Zhu, Z., Wu, P., Shao, Z., & **Fahad, A.** (2021). On investigations of graphs preserving the Wiener index upon vertex removal. *AIMS Mathematics*, 6(12), 12976-12985. ( **SCI, JCR Q2, IF=1.8, H-index 38**)
27. Ding, S., Qureshi, M. I., Shah, S. F., **Fahad, A.**, Jamil, M. K., & Liu, J. B. (2021). Face index of nanotubes and regular hexagonal lattices. *International Journal of Quantum Chemistry*, 121(19), e26761. ( **SCI, JCR Q2, IF=2.4, H-index 116**)
28. Rao, Y., Kanwal, A., Abbas, R., Noureen, S., **Fahad, A.**, & Qureshi, M. I. (2021). Some degree-based topological indices of caboxy-terminated dendritic macromolecule. *Main Group Metal Chemistry*, 44(1), 165-172.. ( **SCI, JCR Q2, IF=1.068, H-index 27**)

29. Chu, Y. M., Abid, M., Qureshi, M. I., **Fahad, A.**, & Aslam, A. (2021). Irregular topological indices of certain metal organic frameworks. *Main Group Metal Chemistry*, 44(1), 73-81.. **( SCI, JCR Q2, IF=1.068, H-index 27)**
30. Rao, Y., Zafar, A., Korkmaz, A., **Fahad, A.**, & Qureshi, M. I. (2020). On Tzitéica type nonlinear equations for multiple soliton solutions in nonlinear optics. *AIMS Mathematics*, 5(6), 6580-6593. **( SCI, JCR Q2, IF=1.8, H-index 38)**
31. Wan, C., Shao, Z., Dehgardi, N., Khoelilar, R., Soroudi, M., & **Fahad, A.** (2020). Mixed domination and 2-independence in trees. *AIMS Mathematics*, 5(6), 5564-5571. **( SCI, JCR Q2, IF=1.8, H-index 38)**
32. Chaudhry, M. A., **Fahad, A.**, Rao, Y., Qureshi, M. I., & Gulzar, S. (2020). Branchwise solid generalized BCH-algebras. *AIMS Mathematics*, 5(3), 2424-2432.. **( SCI, JCR Q2, IF=1.8, H-index 38)**
33. Zhao, D., Iqbal, Z., Irfan, R., Chaudhry, M. A., Ishaq, M., Jamil, M. K., & **Fahad, A.** (2019). Comparison of irregularity indices of several dendrimers structures. *Processes*, 7(10), 662. **( SCI, JCR Q2, IF=2.847, H-index 72)**
34. **Fahad, A.**, & Pečarić, J. (2019). Generalized Steffensen's inequality by montgomery identities and green functions. *Mathematical Inequalities and Applications*, 22(4), 1303-1317.. **( SCI, JCR Q2, IF=1.25, H-index 48)**
35. **Fahad, A.**, Jakšetić, J., & Pečarić, J. (2019). On Rabier's result and nonbounded montgomery's identity. *Mathematical Inequalities and Applications*, 22(1), 175-180. **( SCI, JCR Q2, IF=1.25, H-index 48)**
36. Zheng, J., Iqbal, Z., **Fahad, A.**, Zafar, A., Aslam, A., Qureshi, M. I., & Irfan, R. (2019). Some eccentricity-based topological indices and polynomials of poly (EThyleneAmidoAmine)(PETAA) dendrimers. *Processes*, 7(7), 433. **( SCI, JCR Q2, IF=2.847, H-index 72)**
37. Butt, S. I., Fahad, A., Naseer, A., & Pečarić, J. (2019). Generalized Steffensen's inequality by Montgomery identity. *Journal of Inequalities and Applications*, 2019, 1-23. **( SCI, JCR Q2, IF=2.491, H-index 65)**
38. Fahad, A., Pečarić, J., & Imran Qureshi, M. (2018). Generalized Steffensen's inequality by Lidstone interpolation and Montogomery's identity. *Journal of inequalities and applications*, 2018, 1-21.. **( SCI, JCR Q2, IF=2.491, H-index 65)**
39. **Fahad, A.**, Pečarić, J., & Praljak, M. (2016). Hermite Interpolation of composition function and Steffensen-type Inequalities. *J. Math. Inequal*, 10(4), 1051-1062. **( SCI, JCR Q2, IF=1.225, H-index 36)**
40. Fahad, A., Pecaric, J., & Praljak, M. (2015). Generalized Steffensen's inequality. *J. Math. Inequal*, 9(2), 481-487. **( SCI, JCR Q2, IF=1.225, H-index 36)**
41. **Fahad, A.**, Nosheen, A., Khan, K. A., Tariq, M. , Mabela, R. M., Alzaidi, A. (2024). Some novel inequalities for Caputo Fabrizio fractional integrals involving  $(\alpha, s)$ -convex functions with applications. *Mathematical and Computer Modelling of Dynamical Systems*, 30(1), 1-15. **( SCI, JCR Q3, IF=1.9, H-index 29)**
42. Wang, W., Arshad, H., **Fahad, A.**, Javaid, I., On Some Ev-Degree and Ve- Degree Dependent Indices of Benes Network and Its Derived Classes, *Computer Modelling in Engineering and Sciences* 2023, 135 (2), 1685-1699. **( SCI, JCR Q3, IF=2.2, H-index 66)**

43. Lee, J. R., Hussain, A., **Fahad, A.** Raza, A., Qureshi, M. I., Mahboob, A., Park, C. (2021), On ev and ve-Degree Based Topological Indices of Silicon Carbides, *Computer Modelling in Engineering & Sciences*, 130, no. 2, 1-10 ( **SCI, JCR Q3, IF=2.2, H-index 66**)
44. Zafar, A., Raheel, M., Bekir, A., **Fahad, A.**, & Qureshi, M. I. (2021). Analytical study of two nonlinear Schrödinger equations via optical soliton solutions. *International Journal of Modern Physics B*, 35(28), 2150288. ( **SCI, JCR Q3, IF=1.4, H-index 81**)
45. Zhao, D., Zahid, M. A., Irfan, R., Arshad, M., Fahad, A., Ahmad, Z., & Li, L. (2021). Banhatti, revan and hyper-indices of silicon carbide  $Si_2C_3$ -III [n, m]. *Open Chemistry*, 19(1), 646-652. ( **SCI, JCR Q3, IF=1.1.55, H-index 34**)
46. Hussain, A., Numan, M., Naz, N., Butt, S. I., Aslam, A., & Fahad, A. (2021). On topological indices for new classes of benes network. *Journal of Mathematics*, 2021(1), 6690053. ( **SCI, JCR Q3, IF=1.555, H-index 24, JCR 2021**)
47. Zhang, X., Raza, A., **Fahad, A.**, Jamil, M. K., Chaudhry, M. A., Iqbal, Z.,(2020). On Face index of Silicon Carbides, *Discrete Dynamics in nature and Society*, Article ID 6048438, 8 pages. ( **SCI, JCR Q3, IF=1.348, H-index 52**)
48. Ye, A., Javed, A., Jamil, M. K., Abdul Sattar, K., Aslam, A., Iqbal, Z., & Fahad, A. (2020). On computation of face index of certain nanotubes. *Discrete Dynamics in nature and Society*, 2020(1), 3468426. ( **SCI, JCR Q3, IF=1.348, H-index 52**)
49. Luo, L., Dehgardi, N., & Fahad, A. (2020). Lower bounds on the entire Zagreb indices of trees. *Discrete Dynamics in Nature and Society*, 2020(1), 8616725. ( **SCI, JCR Q3, IF=1.348, H-index 52**)
50. Ye, A., Qureshi, M. I., **Fahad, A.**, Aslam, A., Jamil, M. K., Zafar, A., & Irfan, R. (2019). Zagreb connection number index of nanotubes and regular hexagonal lattice. *Open Chemistry*, 17(1), 75-80. ( **SCI, JCR Q3, IF=1.55, H-index 34**)
51. Qureshi, M. I., **Fahad, A.**, Jamil, M. K., & Ahmad, S. (2021). Zagreb connection index of drugs related chemical structures. *Biointerface Research in Applied Chemistry*, 11, 11920-11930. ( **SCIE, Q4, H-index 30**)
52. **Fahad, A.**, Qureshi, M. I., Noureen, S., Iqbal, Z., Zafar, A., & Ishaq, M. (2021). Topological descriptors of poly propyl ether imine (PETIM) dendrimers. *Biointerface Research in Applied Chemistry*, 11(3), 10968-10978. ( **SCIE, Q4, H-index 30**)
53. **Fahad, A.**, Aslam, A., Qureshi, M. I., Jamil, M. K., & Jaleel, A. (2021). Zagreb connection indices of some classes of networks. *Biointerface Research in Applied Chemistry*, 11(3), 10074-10081. ( **SCIE, Q4, H-index 30**)
54. Zafar, A., Khalid, B., **Fahad, A.**, Rezazadeh, H., & Bekir, A. (2020). Analytical behaviour of travelling wave solutions to the Van der Waals model. *International Journal of Applied and Computational Mathematics*, 6(5), 131.( **Scopus, Q4, H-index 32**)
55. **Fahad, A.**, & Pečarić, J. (2019). Generalized Steffensen-type inequalities by Abel-Gontscharoff polynomial J. *Math. Anal*, 10(4), 11-25.( **SCI, Q4, H-index 5**)

#### **Reviewing Services for Journals and other Research Organizations:**

- Journal of Inequalities and Applications

- Mathematical Reviews/MathSciNet
- Symmetry
- Heliyon
- IEEE Access
- Discrete Dynamics in Nature and Society
- Open Journal of Discrete Applied Mathematics
- Journal of Mathematics

### **CONFERENCE / SCHOOL / RESEARCH SEMINAR TALKS DELIVERED**

1. On Inequalities for Interval-Valued Functions and Their Applications, Invited Speaker, 2023 International Conference on Mathematical Analysis, Applications and Computational Simulation, Shanghai, China, November 22-26, 2023.
2. Generalization of Hermite-Hadamard Mercer Inequalities for Certain Interval-valued functions, The 10th International Congress on Industrial and Applied Mathematics, Waseda University, Tokyo, Japan, August 20 – 25, 2023.
3. Generalized Steffensen's Inequality by Montgomery's Identity and Green's Functions, Mathematical Inequalities and Application Conference 2018, July 4-8, Zagreb, Croatia.
4. 1st Workshop on Teaching Undergraduate Mathematics August 28, 2017 at Bahauddin Zakariya University Multan.
5. Presented the work in CICMA 2017: International Conference on Mathematics and Applications 2017 November 6-7, 2017. Bahauddin Zakariya University Multan.
6. Participated in First Winter Workshop on Advanced Topics in Mathematics: Commutative Algebra and Banach Space December 26-29, 2017 at National Center for Mathematics Pakistan & Abdus Salam School of Mathematical Sciences, GC University, Lahore.
7. Generalized Steffensen Inequality, RAMMMA 16, Lahore School of Economics, 9-10 April, 2016.
8. Lidstone interpolation of composition function and Steffensen's-type inequalities, Abstract Published in Abstract book of conference on Mathematical Inequalities and Applications (MIA 2015) Mostar, Bosnia (2015).
9. Generalization of Steffensen Inequality by way of two-point Taylor Form, Presented (by co-author) and part of abstract book of V Congress of Mathematicians of Macedonia, Ohrid, R. Macedonia (2014).
10. On Dentability in locally convex vector spaces, Presented (by co-author) and part of abstract book of 22th Summer St. Petersburg Meeting in Mathematical Analysis, Euler International Mathematical Institute (St. Petersburg, Russia) (2013).
11. On Dentability in locally convex vector spaces, Presented and part of the abstract book of 6<sup>th</sup> World Conference on 21<sup>st</sup> Century Mathematics, Abdus Salam School of Mathematical Sciences (2013).

### **PHD SUPERVISOR**

Professor **Dr. Josip Pecaric**

**Dissertation Title:** Generalization of Steffensen's Inequality and Related Results.

**M. Phil. SUPERVISOR**

Professor **Dr. Oleg Reinov**

**Dissertation Title:** Dentability and Radon Nikodym Property in Locally Convex Vector Spaces

**COMPUTER SKILLS**

Java script, Python