

List of Publications

Year 2024

1. S Akhter, G Muhiuddin, S Hameed, **U Ahmad**, A New Family of Graphs and Strong Antireciprocal Eigenvalue Property, Journal of Mathematics, 2024, <https://doi.org/10.1155/2024/8849362>
2. Y Rao, R Chen, H. Ahmad, **U Ahmad**, Reverse Zagreb Indices and Their Application in the Evaluation of Physiochemical Properties of Anticancer/Antibacterial Drugs, ACS Omega, 2024, 9, 28, 31056–31080
3. Z. Akram, **U. Ahmad**, J.C. R. Alcantud, Multi-Criteria Decision-Making for the Selection of Best Airport Ground Access Mode with a New Fuzzy Rough-Entropy Based Method, Engineering Applications of Artificial Intelligence, 2024, **135**, 108843
4. **U. Ahmad**, A. Khan, S. Shahazadi, Extended ELECTRE I method for decision-making based on 2-tuple linguistic q-rung picture fuzzy sets, Soft Computing, 2024 <https://doi.org/10.1007/s00500-023-09544-4>
5. **U. Ahmad**, S. Akhter, S. Hameed, On Graphs With Anti-Reciprocal Eigenvalue Property, Transactions On Combinatorics, 2024, 13(1) : 17-30.
6. M. Akram, **U. Ahmad**, M. M. Ali Al-Shamiri, A. Shareef, Algorithms for computing Pythagorean fuzzy average edge connectivity of Pythagorean fuzzy graphs, Journal of Applied Mathematics and Computing, 2024, **70**, 375–416, <https://doi.org/10.1007/s12190-023-01970-9>
7. S. Hameed, **U. Ahmad**, S. Ullah and A. G. Shah, Cubic fuzzy bridges and its application to traffic flow problem, 2023, Journal of Intelligent & Fuzzy Systems, 2024, 46: 2629-2647
8. A. Khan, **U. Ahmad**, Multi-criteria group decision-making based on 2-tuple linguistic q-rung picture fuzzy sets, Granular Computing, 2024, 9(1), Article No.8
9. Y. Rao, R. Chen, **U. Ahmad**, A. G. Shah, Generalized Connectivity in Cubic Fuzzy Graphs With Application in Trade Deficit Problem, Frontiers in Physics, 2024, 11: 1328116. doi: 10.3389/fphy.2023.1328116

10. T. Batool, **U. Ahmad**, A new approximation technique based on central bodies of rough fuzzy directed graphs for agricultural development, *Journal of Applied Mathematics and Computing*, 2024, **70**, 1673–1705 <https://doi.org/10.1007/s12190-024-02032-4>
11. M. A. Al-Shamir, **U. Ahmad**, A. Maryam, M. Akram, Application of Cubic Directed Graph in IT Company Selection, *Journal of Applied Mathematics and Computing*, 2024, **70(3)**, 2169-2196 <https://doi.org/10.1007/s12190-024-02046-y>

Year 2023

12. **U. Ahmad**, N.K. Khan, A. B. Saeid, Fuzzy topological indices with application to cybercrime problem. *Granul. Comput.*, 2023, **8**, 967–980 <https://doi.org/10.1007/s41066-023-00365-2>
13. **U. Ahmad**, M. Sabir, Multicriteria Decision Making based on the Degree and Distance Based Indices of Fuzzy Graphs, *Granular Computing*, 2023, **8**, 793–807 <https://doi.org/10.1007/s41066-022-00354-x>
14. **U. Ahmad**, M. Imran, A. M. Alanazi, R. Yousaf, and S. Hameed, On distance-based indices of regular dendrimers using automorphism group action, *Main Group Metal Chem.* **46 (1)**, 2023, 20220028. <https://doi.org/10.1515/mgmc-2022-0028>
15. **U. Ahmad**, I. Nawaz, S. Broumi, Connectivity Index of Directed Rough Fuzzy Graphs and its Application in Traffic Flow Network, *Granular Computing.*, 2023, **8**: 1561–1582 <https://doi.org/10.1007/s41066-023-00384-z>
16. **U. Ahmad**, A. Khan and A. B. Saeid, Integrated multi-criteria group decision-making methods based on q-rung picture fuzzy sets, *Soft Computing*, 2023, <https://doi.org/10.1007/s00500-023-08154-4>
17. **U. Ahmad**, S. Hameed, S. Akhtar, On weighted noncorona graphs with properties R and – SR, *Kuwait Journal of Science*, 50 (2A), 2023, 1-12.
18. **U. Ahmad**, T. Batool, Domination in rough fuzzy digraphs with application, *Soft Computing*, **27(2023)**: 2425–2442. <https://doi.org/10.1007/s00500-022-07795-1>
19. **U. Ahmad**, I. Nawaz, Wiener Index of a Directed Rough Fuzzy Graph and Application to Human Trafficking, *Journal of Intelligent & Fuzzy Systems*, 44, 2023, 1479–1495 DOI:10.3233/JIFS-221627

20. Z. Akram, **U. Ahmad**, A multi-criteria group decision-making method based on fuzzy rough, number for optimal water supply strategy, *Soft Computing*, 2023 <https://doi.org/10.1007/s00500-023-08942-y>
21. I. Nawaz and **U. Ahmad**, Certain Concepts in Directed Rough Fuzzy Graphs and its Application to Mergers of Companies, *Fuzzy Information and Engineering*, 2023, **15(3)**, 248–273.
22. S. Hameed, **U. Ahmad**, Z. Batool, Total Perfect and Total Efficient Domination in Intuitionistic Fuzzy Graphs, *Int. J. Appl. Comput. Math*, 2023, **9**, Article 60 <https://doi.org/10.1007/s40819-023-01538->
23. G. Fang, **U. Ahmad**, A. Rasheed, A. Khan, J. Shafi, Planarity in Cubic Intuitionistic Graphs and its Application to Control Air Traffic on a Runway, *Front. Phys. Sec. Statistical and Computational Physics*, 2023, **11**: Article No 1254647. doi: 10.3389/fphy.2023.1254647
24. G. Fang, **U. Ahmad**, S. Ikhtlaq, L. Asgharsharghi, Multi-Attribute Group Decision Making based on Spherical Fuzzy Zagreb Energy, *Symmetry* 2023, **15**, 1536. <https://doi.org/10.3390/sym15081536>
25. A. Shareef, **U. Ahmad**, S. Siddique and M. M. Ali Al-Shamiri, Pythagorean fuzzy incidence graphs with application in illegal wildlife trade, *AIMS Mathematics*, 2023, **8(9)**, 21793–21827.
26. A. Khan, **U. Ahmad**, S. Shahzadi, A new decision analysis based on 2-tuple linguistic q-rung picture fuzzy ITARA–VIKOR method, *Soft Computing*, 2023, <https://doi.org/10.1007/s00500-023-08263-0>
27. D. A. Alrowaili, **U. Ahmad**, S. Hameed, M. Javaid, Graphs with Mixed Metric Dimension three and Related Algorithms, *AIMS Mathematics*, 2023 8 (7), 16708-16723.
28. A. Khan, **U. Ahmad**, A. Farooq, M. M. A. Al-Shamiri, Combinative Distance based Assessment Method for Decision Making with 2-Tuple Linguistic q-Rung Picture Fuzzy Sets, *AIMS Mathematics*, 2023, 8(6), 13830-13874. doi: 10.3934/math.2023708
29. S. Xiaolong, S. Kosari, **U. Ahmad**, S. Hameed, S. Akhter, Evaluation of Various Topological Indices of Flabellum Graphs, *Mathematics*, 2023, **11(19)**: Article No 4167.

30. R. Ismail, S. Hameed, **U. Ahmad**, K. Majeed, M. Javaid, Unbalanced Signed Graphs with Eigenvalue Properties, *AIMS Mathematics*, 2023, **8(10)**: 24751-24763. doi: 10.3934/math.20231262
31. S. Akhter, S. Hameed, and **U. Ahmad**, Signed graphs with strong anti-reciprocal eigenvalue property, *Communications in Algebra*, 2023, 51(10), 4271–4279 <https://doi.org/10.1080/00927872.2023.2204357>
32. M. Akram, A. Khan, **U. Ahmad**, Extended MULTIMOORA method based on 2-tuple linguistic Pythagorean fuzzy sets for multi-attribute group decision-making, *Granular Computing*, 2023, **8**, 311–332 <https://doi.org/10.1007/s41066-022-00330-5>
33. A. Khan, M. Akram, **U. Ahmad** and M. M. A. Al-Shamiri, A new multi-objective optimization ratio analysis plus full multiplication form method for the selection of an appropriate mining method based on 2-tuple spherical fuzzy linguistic sets, *Mathematical Biosciences and Engineering*, 2023, 20(1): 456–488.

Year 2022

34. **U. Ahmad**, I. Nawaz, Directed rough fuzzy graph with application to trade networking, *Computational and Applied Mathematics*, 2022, **41**:366 (pages 1-26) <https://doi.org/10.1007/s40314-022-02073-0>
35. **U. Ahmad**, S. Akbari, S. Hameed, M. A. Nematollahi, F. Saeed, Addendum to "Spectral characterizations of signed cycles", *Linear Algebra and its Applications*, 2022, 651, 83-89.
36. **U. Ahmad**, S. Ahmed, M. Javaid, M. N. Alam, Computing Fault-tolerant Metric Dimension of Connected Graphs, *Journal of Mathematics*, Volume **2022**, Article ID 9773089, 6 pages <https://doi.org/10.1155/2022/97730892022>
37. S. Hameed, **U. Ahmad**, Inverse of the adjacency matrices and strong anti-reciprocal eigenvalue property, *Linear and Multilinear Algebra*, 2022, 70(14), 2739-2764
38. M. Akram, **U. Ahmad**, Rukhsar, S. Samanta, Threshold Graphs Under Pythagorean Fuzzy Information, *Journal of Multiple-Valued Logic and Soft Computing*, 2022, **35**(5-6), 547-574.
39. M. Akram, **U. Ahmad**, Rukhsar, Threshold graphs under picture Dombi fuzzy information, *Granular Computing* 2022, **7**, 691–707 <https://doi.org/10.1007/s41066-021-00291-1>
40. M. Akram, A. Khan, **U. Ahmad**, J. C. R. Alcantud, M. M. A. Al-Shamiri, A new group decision-making framework based on 2-tuple linguistic complex q -rung picture fuzzy sets,

- Mathematical Biosciences and Engineering, 2022, 19(11): 11281–11323, DOI: 10.3934/mbe.2022526
41. M. Imran, S. Akhtar, **U. Ahmad**, S. Ahmad, A. Bilal, On Extremal Graphs of Degree Distance Index by Using Edge-Grafting Transformations Method, *Combinatorial Chemistry & High Throughput Screening*, 2022, **25(3)**, 560 - 567
<https://doi.org/10.2174/1386207323666201224123643>
42. M. Akram, **U. Ahmad**, Rukhsar, F. Karaaslan, Complex Pythagorean fuzzy threshold graphs with application in petroleum replenishment, *Journal of Applied Mathematics and Computing*, 2022, **68**, 2125-2150
43. M. Javaid, M. Ibraheem, E. Bonyah, **U. Ahmad** and S. Wang, First General Zagreb Co-Index of Graphs under Operations, *Journal of Mathematics*, Volume **2022**, Article ID 5094929, 11 pages, <https://doi.org/10.1155/2022/5094929> (Impact factor: 1.55)
44. S. Hameed, A. Alamer, M. Javaid and **U. Ahmad**, An estimation of HOMO-LUMO gap for a class of molecular graphs, *Main Group Metal Chem.* 2022, **45**:100–105.
45. G. Muhiuddin, S. Hameed, A. Rasheed, **U. Ahmad**, Cubic Planar Graphs with Application to Road Network, *Journal: Mathematical Problems in Engineering*, Volume **2022**, Article ID 5251627, 12 pages, <https://doi.org/10.1155/2022/5251627>
46. G. Muhiuddin, S. Hameed, A. Maryam and **U. Ahmad**, Cubic Pythagorean Fuzzy Graphs, *Journal of Mathematics*, 2022, Volume **2022**, Article ID 1144666, <https://doi.org/10.1155/2022/1144666>

Year 2021

47. **U. Ahmad**, S. Hameed, S. Jabeen, Noncorona graphs with strong anti-reciprocal eigenvalue property, *Linear and Multilinear Algebra*, 2021, **69(10)**, 1878-1888.
48. S. Siddique, **U. Ahmad**, M. Akram, A Decision-Making Analysis with Generalized m-Polar Fuzzy Graphs, *Journal of Multiple-Valued Logic and Soft Computing*, 2021, **37**, 409-436
49. S. Siddique, **U. Ahmad**, M. Akram, .A study on generalized graphs representations of complex neutrosophic information. *J. Appl. Math. Comput.*, 2021, **65**, 481–514
50. M. Javaid, M. Ibraheem, **U. Ahmad**, J. Liu, Sharp Bounds of First Zagreb Coindex for -Sum Graphs, *Journal of Mathematics*, vol. **2021**, Article ID 9984412, 19 pages, 2021.
<https://doi.org/10.1155/2021/9984412>.

51. M. Akram, S. Siddique, **U. Ahmad**, Mengers Theorem for m-Polar Fuzzy Graphs and Application of m-Polar Fuzzy Edges to Road Network, *Journal of Intelligent & Fuzzy Systems*, 2021, **41**, 1553 – 1574.
52. M. Javaid , M. Ibraheem, **U. Ahmad**, Q. Zhu, Computing Bounds for Second Zagreb Coindex of Sum Graphs, *Mathematical Problems in Engineering*, Volume 2021, Article ID 4671105, 19 pages, <https://doi.org/10.1155/2021/4671105>

Year 2020

53. **U. Ahmad**, S. Hameed and S. Jabeen, Class of weighted graphs with strong anti-reciprocal eigenvalue property, *Linear and Multilinear Algebra*, 2020, **68(6)**, 1129-1139.
54. **U. Ahmad**, M. Arooj, Combinatorial Properties of Power Graphs of Finite Groups of Prime Order Elements, *Communications in Algebra*, 2020, **48(2)**, 708-716.
55. S. Siddique, **U. Ahmad**, W. Salam, M. Akram, F. Smarandache, Representation of Competitions by Complex Neutrosophic Information, *Journal of Intelligent & Fuzzy Systems*, 2020, **39**, 7881–7897
56. J. Wei, **U. Ahmad**, S. Hameed and J. Hanif. Locating-Total Domination Number of Cacti Graphs, *Mathematical Problems in Engineering* Volume 2020, Article ID6197065, 10 pages, <https://doi.org/10.1155/2020/6197065>

Year 2019

57. S. Hameed, **U. Ahmad**, Extremal values in a class of basic peri-condensed benzenoids with respect to VDB topological indices, *Ars Combinatoria: A Canadian Journal of Combinatorics*, 2019, **145**, 367-376.
58. S. Hameed, **U. Ahmad**, Minimal Energy Tree with 4 Branched Vertices, *Open Chemistry*, 2019, **17**, 198-205
59. J. Xu, J. Liu, A. Bilal, **U. Ahmad**, H. M. A. Siddiqui, B. Ali, M. R. Farahani, Distance Degree Index of Some Derived Graphs, *Mathematics* 2019, **7(3)**, 283 <https://doi.org/10.3390/math7030283>

Year 2018

60. **U. Ahmad**, S. Hameed, Bounds of HOMO-LUMO gap for certain nanotubes and nanotori, *Journal of Informatics and Mathematical Sciences*. **10(3)** (2018), 391-398

61. **U. Ahmad**, S. M. Husnine, The Power Digraphs of finite groups, *Utilitas Math* **106** (2018), 319-339

Year 2017

62. **U. Ahmad**, M. Moeen, The digraphs arising by the power maps of generalized Quaternion groups, *Journal of algebra and its applications*, **16(9)** 1750179 (2017) [12 pages], DOI: 10.1142/S0219498817501791
63. **U. Ahmad**, A. Sarfraz, R. Yousaf, Computation of Zagreb and Atom bond connectivity Indices of Certain Families of Dendrimers by using Automorphism Group Action, *J. Serb. Chem.Soc.* **82(2)** (2017), 151-162.

Year 2016

64. **U. Ahmad**, M. Moeen The classification of finite groups by using iteration digraphs, *Czechoslovak Math. J.*, **66(4)** (2016), pp. 1103-1117
65. **U. Ahmad**, S. M. Husnine, The Power Digraphs of Safe Primes, *Bull. Iranian Math. Soc.*, **42(3)** (2016), 749-759
66. S. Ahmad, **U. Ahmad**, M. Imran and N. Farah, The Omega and Sadhana polynomials of nanotube TUC4[p,q], *Can. J. Chem.* **94** (2016), 490–493
67. Y. Huo, J. Liu, S. Ahmad, N. Farah, **U. Ahmad**, M. R. Farahani, M. Imran, “On certain topological indices of TUC5C8 nanotubes” *Journal of Computational and Theoretical Nanoscience*, **13** (2016), 9158-9161.

Years 2012- 2015

68. **U. Ahmad**, The Power Digraphs Associated with Generalized Dihedral Groups, *Discrete Mathematics, Algorithms and its Applications*, 7(4)(2015), 1550057(14 pages) DOI: 10.1142/S1793830915500573
69. **U. Ahmad**, S.Husnine, On the heights of Power Digraphs modulo n , *Czechoslovak Math. J* **62**, 2 (2012), 541 - 566.
70. **U. Ahmad**, S. Husnine, Characterization of Power Digraphs modulo n , *Coment. Math. Univ. Carolin*, **52**, 3 (2011), 359 - 367.

71. S. Husnine, **U. Ahmad**, L. Somer, On Symmetries of Power Digraphs, *Utilitas Mathematica* **85** (2011), 257 - 271.