

## Dr. Muhammad Riaz (HEC Approved Supervisor)

### Associate Professor

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<https://scholar.google.com.pk/citations?hl=en&user=-veal1IAAAAJ>

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June 01, 2022

PERSONAL DATA:		SUMMARY (Teaching & Research):	
Name:	<b>Dr. Muhammad Riaz</b>	Teaching Experience:	<b>24+ years</b>
Father's Name:	<b>Muhammad Haneef</b>	Publications:	<b>106+</b>
Domicile:	Punjab	Citations:	<b>1850+</b>
City:	Lahore	Number of PhD supervised:	<b>05</b>
Gender (M/F):	Male	Number of M.Phil supervised:	<b>24</b>
Marital Status:	Married	Impact Factor:	<b>270+</b>
Contact:	+923004012299	Number of papers reviewed:	<b>150+</b>
Telephone Office:	+924299231241 Ext 115	Number of Journals as a reviewer:	<b>50+</b>
Postal Address:	Department of Mathematics, University of the Punjab, Quaid-e-Azam Campus, Lahore, Pakistan. Post Code: 54590	Member Editorial Board of International Journals:	<b>07</b>
		International Collaborations:	<b>15+</b>
		Book Chapter:	<b>03</b>

**Dr. Muhammad Riaz is one of top 2% researcher included in the global list released by Stanford University in various disciplines on October 09, 2021.** The ranking lists contain the names of over 100,000 top-scientists, researchers, doctors and engineers

[https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3?fbclid=IwAR2pxZOMQLPN913AgyB\\_khebGuIBlrPty4oFZE6HjAV2poMbp\\_hvCtCnM](https://elsevier.digitalcommonsdata.com/datasets/btchxktzyw/3?fbclid=IwAR2pxZOMQLPN913AgyB_khebGuIBlrPty4oFZE6HjAV2poMbp_hvCtCnM)

### EDUCATION:

#### Ph. D. in Mathematics (2014)

Ph. D. Notification. No. Ph.D(R)/87/2014.

Dated: 07-08-2014.

HEC Ph.D Country Directory. Serial/PCD No. 19675.

Institution: University of the Punjab, Lahore

Thesis title: **Certain Quadratic Fields under the Action of two Generator Groups**

Supervised by: **Dr. M. A. Malik** Associate Professor. Department of Mathematics, University of the Punjab, Lahore.

**Courses:** Spectral Theory in Hilbert Spaces I & II, Minimal Surfaces, Lattice Theory, BCK Algebra, BCI Algebra.

Courses Taught by Instructor's: Prof. Dr. Shaban Ali Bhatti, Prof. Dr. Bashir Sadiq, Dr. Bilal Masud

#### M. Phil. in Mathematics (1996-1998)

Institution: University of the Punjab, Lahore

Thesis Title: **Bounded Linear Operators and Fourier Transform Theory**

Research Supervisor: **Prof. Dr. G. M. Habibullah**

## Publications:

### Year 2022 (Published Papers)

1. M. Riaz, H. M. A. Farid, H. M. Shakeel and Danish Arif, Cost effective indoor HVAC energy efficiency monitoring based on intelligent decision support system under Fermatean fuzzy framework, *Scientia Iranica*, (2022), 1-30. DOI: 10.24200/SCI.2022.59197.6106. Dated: 26-05-2022. Category X, ISSN 1026-3098, JCR-SCIE, Impact Factor 1.435.
2. M. Riaz, S. Tanveer, D. Pamucar and D. S. Qin, Topological data analysis with spherical fuzzy soft AHP-TOPSIS for environmental mitigation system, *Mathematics*, 10(2022), 1-36. Dated: 26-05-2022. Category X, ISSN 2227-7390, JCR-SCIE, Impact Factor 2.258.  
<https://www.mdpi.com/2227-7390/10/11/1826>
3. M. Riaz, H. M. A. Farid, W. Wang and D. Pamucar, Interval-valued linear Diophantine fuzzy Frank aggregation operators with multi-criteria decision-making, *Mathematics*, 10(2022), 1-36. Dated: 25-05-2022. Category X, ISSN 2227-7390, JCR-SCIE, Impact Factor 2.258. DOI: 10.3390/math10111811.  
<https://www.mdpi.com/2227-7390/10/11/1811>
4. M. Riaz, K. Akmal, Y. Almalki, S. A. Alblowi, Cubic m-polar fuzzy topology with multi-criteria group decision-making, *AIMS Mathematics*, 7(7)(2022), 13019-13052. doi: 10.3934/math.2022721 Dated: 10-05-2022. Category X, ISSN 2473-6988, JCR-SCIE, Impact Factor 1.427.  
<https://www.aimspress.com/article/doi/10.3934/math.2022721>
5. M. Riaz and H. M. A. Farid, Hierarchical Medical Diagnosis Approach for COVID-19 Based on Picture Fuzzy Fairly Aggregation Operators, *International Journal of Biomathematics*, (2022), DOI: 10.1142/S1793524522500759. Dated: 29-04-2022. ISSN 1793-7159. JCR-SCIE Impact Factor 2.053.
6. M Riaz, S. Batool, Y. Almalki and D. Ahmad, Topological data analysis with cubic hesitant fuzzy TOPSIS approach, *Symmetry*, 14(5)(2022), 1-31. DOI: 10.3390/sym14050865. Dated: 22-04-2022. Category X, JCR-SCIE, Impact Factor 2.713. <https://www.mdpi.com/2073-8994/14/5/865>
7. M. Riaz, H. M. A. Farid, S. A. Alblowi, Y. Almalki, Novel Concepts of q-Rung Orthopair Fuzzy Topology and WPM Approach for Multicriteria Decision-Making, *Journal of Function Spaces*, 2022(2022), 1-16. DOI: 10.1155/2022/2094593. Dated: 13-04-2022. Category X, JCR-SCIE, Impact Factor 1.807. <https://www.hindawi.com/journals/jfs/2022/2094593/>
8. H. M. A. Farid, M. Riaz, M. J. Khan, P. Kumam and K. Sitthithakerngkiet, Sustainable thermal power equipment supplier selection by Einstein prioritized linear Diophantine fuzzy aggregation operators, *AIMS Mathematics* 7(6):11201-11242. DOI: 10.3934/math.2022627. Dated: 11-04-2022. Dated: 07-09-

2021. Category X, ISSN 2473-6988, JCR-SCIE, Impact Factor 1.427.  
<http://www.aimspress.com/article/doi/10.3934/math.2022627>
9. M. Riaz and H. M. A. Farid, Multicriteria decision- making with proportional distribution based spherical fuzzy fairly aggregation operators, International Journal of Intelligent Systems, (2022)  
DOI: 10.1002/int.22873. Dated 01-04-2022. JCR-SCIE, Category W, Impact Factor 8.709.  
<https://doi.org/10.1002/int.22873>
  10. M. Parimala, M. Karthika, S. Murali, F. Smarandache, M. Riaz, S. Jafari, Multi Criteria Decision Making Algorithm Via Complex Neutrosophic Nano Topological Spaces, International Journal of Neutrosophic Science, 17(2)(2021), 127-143. <https://doi.org/10.54216/IJNS.170204>.
  11. S. Ayub, M. Shabir, M. Riaz, W. Mahmood, D. Bozanic and D. Marinkovic, Linear Diophantine Fuzzy Rough Sets: A New Rough Set Approach with Decision Making, Symmetry, 14(3) (2022), 1-23.  
<https://doi.org/10.3390/sym14030525> Dated: 04-03-2022. Category X, ISSN 2073-8994. JCR-SCIE Impact Factor 2.645.
  12. M. Riaz, M. Riaz, N. Jamil and Z. Zararsiz, Distance and similarity measures for bipolar fuzzy soft sets with application to pharmaceutical logistics and supply chain management, Journal of Intelligent & Fuzzy Systems, 42 (2022) 3169–3188. DOI: 10.3233/JIFS-210873. Dated: 04-03-2022.
  13. M. Riaz, H. Garg, M. T. Hamid and Deeba Afzal, Modelling uncertainties with TOPSIS and GRA based on q-rung orthopair m-polar fuzzy soft information in COVID-19, Expert Systems, (2022), 1-22.  
<https://doi.org/10.1111/exsy.12940>. Dated: 09-02-2022. JCR-SCIE, Category W Impact Factor 2.587.
  14. H. M. A. Farid and M. Riaz, Pythagorean fuzzy prioritized aggregation operators with priority degrees for multi-criteria decision-making, International Journal of Intelligent Computing and Cybernetics, (2022), 1-30. [DOI: 10.1108/IJICC-10-2021-0224](https://doi.org/10.1108/IJICC-10-2021-0224). Dated: 09-02-2022.
  15. M. T. Hamid, M. Riaz and K. Naem, A study on weighted aggregation operators for q-rung orthopair m-polar fuzzy set with utility to multistage decision analysis, International Journal of Intelligent Systems, (2022), 1-34. <https://doi.org/10.1002/int.22847>. Dated 08-02-2021. JCR-SCIE, Category W, Impact Factor 8.709.
  16. N. Jamil and M. Riaz, Bipolar disorder diagnosis with cubic bipolar fuzzy information using TOPSIS and ELECTRE-I, International Journal of Biomathematics, (2022),  
<https://doi.org/10.1142/S1793524522500309> Dated: 04-02-2022. ISSN 1793-7159. JCR-SCIE Impact Factor 2.053.
  17. K. Prakash, M. Parimala, H. Garg and M Riaz, Lifetime prolongation of a wireless charging sensor network using a mobile robot via linear Diophantine fuzzy graph environment. Complex & Intelligent Systems, (2022), 1-16. <https://doi.org/10.1007/s40747-022-00653-5> Dated: 03-02-2022. ISSN 2199-4536, JCR-SCIE, HJRS Category X, Impact Factor 4.927.
  18. N. Demirtas, O. Dalkılıç and M. Riaz, A mathematical model to the inadequacy of bipolar soft sets

in uncertainty environment: N-polar soft set, Computational and Applied Mathematics, 41(1)(2022), 1-19. <https://doi.org/10.1007/s40314-022-01759-9>

Dated: 24-01-2022. JCR-SCIE Impact Factor 2.239. HJRS Category X.

19. H. M. A. Farid and M. Riaz, Single-valued neutrosophic Einstein interactive aggregation operators with applications for material selection in engineering design: case study of cryogenic storage tank, Complex & Intelligent Systems, (2022), 1-19. <https://doi.org/10.1007/s40747-021-00626-0>

Dated: 15-01-2022. ISSN 2199-4536, JCR-SCIE, HJRS Category X, Impact Factor 4.927.

20. Z. Zararsız and M. Riaz, Bipolar fuzzy metric spaces with application, Computational and Applied Mathematics, 41(1)(2022), 1-19. <https://doi.org/10.1007/s40314-021-01754-6>

Dated: 13-01-2022. JCR-SCIE Impact Factor 2.239. HJRS Category X.

### Year 2021 (Published Papers)

21. M. Riaz, D. Pamucar, A. Habib and M. Riaz, A New TOPSIS Approach Using Cosine Similarity Measures and Cubic Bipolar Fuzzy Information for Sustainable Plastic Recycling Process, Mathematical Problems in Engineering, (2021), 1-18. Article ID 4309544. Dated: 15-12-2021. JCR-SCIE, Category W, Impact Factor 1.305. <https://doi.org/10.1155/2021/4309544>.

22. N. Khan, N. Yaqoob, M. Shams, Y. U. Gaba and M. Riaz, Solution of Linear and Quadratic Equations Based on Triangular Linear Diophantine Fuzzy Numbers, Journal of Function Spaces, (2021), 1-14. Article ID 8475863. Dated: 27-10-2021. Category X, JCR-SCIE, Impact Factor 1.807.

<https://doi.org/10.1155/2021/8475863>.

23. J. Ping, M. Atef, A. M. Khalil, M. Riaz, N. Hassan, Soft rough q-rung orthopair m-polar fuzzy sets and q-rung orthopair m-polar fuzzy soft rough sets and their applications, IEEE Access, 9(1), 139186-139200. Dated: 05-10-2021. DOI: 10.1109/ACCESS.2021.3118055. JCR-SCIE, Category W, Impact Factor 1.807. <https://ieeexplore.ieee.org/document/9559987>.

24. H. Garg, M. Riaz, M. A. Khokhar and M. Saba, Correlation measures for cubic m-polar fuzzy sets with applications, Mathematical Problems in Engineering, (2021). 1-19. Dated: 28-09-2021. JCR-SCIE, Category W, Impact Factor 1.305. <https://doi.org/10.1155/2021/9112586>

25. M. Riaz, H. Garg, H. M. A. Farid and M. Aslam, Novel q-rung orthopair fuzzy interaction aggregation operators and their application to low-carbon green supply chain management, Journal of Intelligent & Fuzzy Systems, 41(2)(2021). 4109-4126. DOI: 10.3233/JIFS-210506. Dated: 15-09-2021. ISSN 1064-1246. JCR-SCIE, Category W, Impact Factor 1.851.

<https://content.iospress.com/articles/journal-of-intelligent-and-fuzzy-systems/ifs210506>

26. M. Riaz, A. Habib and M. Aslam, Cubic bipolar fuzzy Dombi averaging aggregation operators with application to multi-criteria decision-making, Journal of Intelligent & Fuzzy Systems, 41(2)(2021), 3373-3393. DOI: 10.3233/JIFS-210667. Dated: 15-09-2021. ISSN 1064-1246. JCR-SCIE, Category W, Impact

Factor 1.851.

<https://content.iospress.com/articles/journal-of-intelligent-and-fuzzy-systems/ifs210667>

27. M. Riaz, H. M. A. Farid, H. M. Shakeel, M. Aslam and S. H. Mohamed, Innovative q-Rung Orthopair Fuzzy Prioritized Aggregation Operators Based on Priority Degrees with Application to Sustainable Energy Planning: A Case Study of Gwadar, AIMS Mathematics, 6(11)(2021), 12795-12831.  
Doi: 10.3934/math.2021739. Dated: 07-09-2021. Category X, ISSN 2473-6988, JCR-SCIE, Impact Factor 1.427  
<http://www.aimspress.com/article/doi/10.3934/math.2021739?viewType=HTML>
28. M. Parimala, S. Jafari, M. Riaz and M. Aslam, Applying the Dijkstra Algorithm to Solve a Linear Diophantine Fuzzy Environment, Symmetry, 13(9)(2021), 1-19. Dated: 02-09-2021. Category X, ISSN 2073-8994. JCR-SCIE Impact Factor 2.645.  
<https://doi.org/10.3390/sym13091616>
29. M. Riaz, M. Saba, M. A. Khokhar and M. Aslam, Medical Diagnosis of Nephrotic Syndrome using m-Polar Spherical Fuzzy Sets, International Journal of Biomathematics, (2021). JCR-SCIE Impact Factor 2.053.  
Dated: 27-08-2021. ISSN 1793-7159.  
<https://doi.org/10.1142/S1793524521500947>
30. H. M. A. Farid and M. Riaz, Some generalized q-rung orthopair fuzzy Einstein interactive geometric aggregation operators with improved operational laws, International Journal of Intelligent Systems, 36(12)(2021), 7239-7273. DOI: 10.1002/int.22587. Dated 17-08-2021. JCR-SCIE, Category W, Impact Factor 8.709. <https://doi.org/10.1002/int.22587>
31. M. R. Hashmi, S. T. Tehrim, M. Riaz, D. Pamucar and G. Cirovic, Spherical Linear Diophantine Fuzzy Soft Rough Sets with Multi-Criteria Decision Making, Axioms, 10(3)(2021), 1-28. Dated: 13-08-2021.  
DOI: 10.3390/axioms10030185. Dated: 13-08-2021. Category Y, JCR-ESCI, Tracked for Impact Factor.
32. M. Riaz, N. Ali, B. Davvaz and M. Aslam, Novel multi-criteria decision-making methods with soft rough q-rung orthopair fuzzy sets and q-rung orthopair fuzzy soft rough sets, Journal of Intelligent & Fuzzy systems, (2021), 1-19. Dated: 25-06-2021. ISSN 1064-1246. Category W, JCR-SCIE Impact Factor 1.851.  
DOI: 10.3233/JIFS-202916.  
<https://content.iospress.com/articles/journal-of-intelligent-and-fuzzy-systems/ifs202916>
33. M. Riaz, M. Saba, M. A. Khokhar and M. Aslam, Novel concepts of m-polar spherical fuzzy sets and new correlation measures with application to pattern recognition and medical diagnosis, AIMS Mathematics, 6(10)(2021), 11346-11379. Doi: 10.3934/math.2021659. Dated: 03-08-2021. ISSN 2169-3536, Category W, JCR-SCIE Impact Factor 1.427. <https://www.aimspress.com/article/doi/10.3934/math.2021659>
34. M. Riaz, A. Habib, M. J. Khan and P. Kumam, Correlation coefficients for cubic bipolar fuzzy sets with applications to pattern recognition and clustering analysis, IEEE ACCESS, 9(2021). 109053-109066.  
Dated: 03-08-2021. ISSN 2169-3536, Category W, JCR-SCIE Impact Factor 3.745.

<https://ieeexplore.ieee.org/document/9505621>

35. (Book Chapter) K. Naeem and M. Riaz, Pythagorean Fuzzy Soft Sets-Based MADM. In: Garg H. (eds) Pythagorean Fuzzy Sets. Springer, Singapore, (2021), 407-442.  
[https://doi.org/10.1007/978-981-16-1989-2\\_16](https://doi.org/10.1007/978-981-16-1989-2_16). Dated: 23-07-2021.
36. A. Iampan, G. Santos Garcia, M. Riaz, H. M. A. Farid and R. Chinram, Linear Diophantine fuzzy Einstein aggregation operators for multi-criteria decision making problems, Journal of Mathematics, (2021), 1-31.  
<https://doi.org/10.1155/2021/5548033>. Dated: 17-07-2021. Category Y, ISSN 2314-4785. JCR-SCIE Impact Factor 0.971.
37. K. Naeem, M. Riaz and F. Karaaslan, A mathematical approach to medical diagnosis via Pythagorean fuzzy soft TOPSIS, VIKOR and generalized aggregation operators, Complex & Intelligent Systems, DOI: [10.1007/s40747-021-00458-y](https://doi.org/10.1007/s40747-021-00458-y). Dated: 16-07-2021. ISSN 2199-4536, JCR-SCIE, Category X, Impact Factor 4.927.  
<https://link.springer.com/article/10.1007%2Fs40747-021-00458-y>
38. M. Riaz, H. M. A. Farid, M. Aslam, D. Pamucar and D. Bozanic, Novel approach for third-party reverse logistic provider selection process under linear Diophantine fuzzy prioritized aggregation operators, Symmetry, 13(7)(2021), <https://doi.org/10.3390/sym13071152> Dated: 27-06-2021. Category X, ISSN 2073-8994. JCR-SCIE Impact Factor 2.645.
39. M. Riaz, M. R. Hashmi, Diagnosis of lumbar degenerative disc disease by using  $L^p$ -spaces related to generalized interval-valued m-polar neutrosophic Choquet integral operator, International Journal of biomathematics, 14(8)(2021), 1-43. Dated: 28-05-2021. ISSN 1793-7159. JCR-SCIE Impact Factor 2.053.  
<https://doi.org/10.1142/S1793524521500637>
40. S. Ayub, M. Shabir, M. Riaz, M. Aslam and R. Chinram, Linear Diophantine fuzzy relations and their algebraic properties with decision making, Symmetry, (2021), 13(6), 1-18.  
<https://doi.org/10.3390/sym13060945>. Dated: 26-05-2021. Category X, ISSN 2073-8994. JCR-SCIE Impact Factor 2.645.
41. M. Riaz, M. A. Razzaq, M. Aslam and D. Pamucar, M-Parameterized N-Soft topology-based TOPSIS approach for multi-attribute decision making, Symmetry, 13(5)(2021), 1-31. Dated: 25-04-2021. Category X, ISSN 2073-8994. JCR-SCIE Impact Factor 2.645.  
<https://doi.org/10.3390/sym13050748>
42. M. Riaz, H. Garg, H.M.A. Farid and R. Chinram, Multi-criteria decision making based on bipolar picture fuzzy operators and new distance measures, Computer Modeling in Engineering & Sciences, 127(2)(2021), 771-800. doi:10.32604/cmcs.2021.014174. Dated: 19-04-2021. ISSN 1526-1492, Category X, JCR-SCIE Impact Factor 1.593.  
<https://www.techscience.com/CMES/v127n2/42222>
43. M. Riaz, M. A. Khokhar, D. Pamucar and M. Aslam, Cubic M-polar Fuzzy Hybrid Aggregation Operators

with Dombi's T-norm and T-conorm with Application, *Symmetry*, 13(4)(2021), 1-28. Dated: 11-04-2021. Category X, ISSN 2073-8994. JCR-SCIE Impact Factor 2.645.

<https://doi.org/10.3390/sym13040646>

44. M. Riaz, K. Naeem, R. Chinram and A. Iampan, Pythagorean m-polar fuzzy weighted aggregation operators and algorithm for the investment strategic decision making, *Journal of Mathematics*, 2021(2021), 1-19. Dated: 25-02-2021. Category Y, ISSN 2314-4785. JCR-SCIE Impact Factor 0.971.

<https://doi.org/10.1155/2021/6644994>.

45. M. Riaz, M. T. Hamid, D. Afzal, D. Pamucar and Y. M. Chu, Multi-criteria decision making in robotic agri-farming with q-rung orthopair m-polar fuzzy sets, *Plos One*, 16(2)(2021), 1-30. Dated: 25-02-2021. ISSN 1932-6203, Category W, JCR-SCIE Impact Factor 2.740.

<https://doi.org/10.1371/journal.pone.0246485>.

46. M. Riaz, M. R. Hashmi, D. Pamucar and Y. M. Chu, Spherical linear Diophantine fuzzy sets with modeling uncertainties in MCDM, *Computer Modeling in Engineering Sciences*, 126(3)(2021), 1125-1164. DOI: 10.32604/cmescs.2021.013699. Dated: 19-02-2021. ISSN 1526-1492, Category X, JCR-SCIE Impact Factor 1.593. <https://www.techscience.com/CMES/online/detail/17966>

47. M. Saqlain, M. Riaz, M. A. Saleem, M. S. Yang, Distance and similarity measures for neutrosophic hypersoft set (NHSS) with construction of NHSS-TOPSIS and applications, *IEEE Access*, 9(2021), 30803-30816. DOI: 10.1109/ACCESS.2021.3059712. Dated: 16-02-2021. ISSN 2169-3536, Category W, JCR-SCIE Impact Factor 3.745.

<https://ieeexplore.ieee.org/document/9354787>

48. M. Sitara, M. Akram and M. Riaz, Decision-making analysis based on q-rung picture fuzzy graph structures, *Journal of Applied Mathematics and Computing*, (2021), <https://doi.org/10.1007/s12190-020-01471-z>. Dated: 20-01-2021. ISSN 1598-5865, Category X, JCR-SCIE Impact Factor 1.242.

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## Year 2020 (Published)

49. M. Riaz, K. Naeem, M. Aslam, D. Afzal, F. A.A. Ahmed and S.S. Jamal, Multi-criteria group decision making with Pythagorean fuzzy soft topology, *Journal of Intelligent & Fuzzy systems*, 39(5)(2020), 6703-6720. DOI: 10.3233/JIFS-190854. Dated: 19-11-2020. ISSN 1064-1246. Category W, JCR-SCIE Impact Factor 1.851.

<https://content.iospress.com/articles/journal-of-intelligent-and-fuzzy-systems/ifs190854>

50. M. Riaz, M. T. Hamid, H.M.A. Farid and D. Afzal, TOPSIS, VIKOR and aggregation operators based on q-rung orthopair fuzzy soft sets and their applications, *Journal of Intelligent & Fuzzy Systems*, 39(5)(2020), 6903-6917, DOI:10.3233/JIFS-192175. Dated: 19-11-2020. JCR-SCIE, Category W, Impact Factor 1.851. ISSN 1064-1246. JCR-SCIE Impact Factor 1.851.

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51. M. R. Hashmi, M. Riaz and F. Smarandache, m-Polar neutrosophic generalized weighted and m-polar neutrosophic generalized Einstein weighted aggregation operators to diagnose Coronavirus (COVID-19), Journal of Intelligent & Fuzzy Systems, 39(5)(2020), 7381-7401. DOI: 10.3233/JIFS-200761. Dated: 19-11-2020. ISSN 1064-1246. JCR-SCIE, Category W, Impact Factor 1.851.

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52. K. Naeem, M. Riaz and F. Karaaslan, Some novel features of Pythagorean m-polar fuzzy sets with applications, Complex & Intelligent Systems, 7(1)(2020), 459–475.

doi.org/10.1007/s40747-020-00219-3. Dated: 01-11-2020. ISSN 2199-4536, JCR-SCIE, Category X, Impact Factor 4.927. <https://link.springer.com/article/10.1007/s40747-020-00219-3>

53. M. Riaz and S. T. Tehrim, On bipolar fuzzy soft topology with decision-making, Soft Computing, 24(24)(2020), 18259-18272. DOI: 10.1007/s00500-020-05342-4. Dated: 16-10-2020.

ISSN 1432-7643, SCIE-JCR, Category W, Impact Factor 3.643.

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54. M. Riaz, F. Karaaslan, I. Nawaz and M. Sohail, Soft multi-rough set topology with applications to multi-criteria decision-making problems, Soft Computing, 25(1)(2021), 799-815.

doi.org/10.1007/s00500-020-05382-w. Dated: 29-10-2020. ISSN 1432-7643, SCIE-JCR, Category W, Impact Factor 3.643. <https://www.springer.com/journal/500>

<https://doi.org/10.1007/s00500-020-05382-w>

55. A. Fahmi, M. Aslam and M. Riaz, New approach of triangular neutrosophic cubic linguistic hesitant fuzzy aggregation operators, Granular Computing 5(1)(2020),527-543. doi.org/10.1007/s41066-019-00177-3. International, Published Dated October 2020, ISSN 2364-4966.

<https://link.springer.com/article/10.1007/s41066-019-00177-3>

56. M. Riaz, M. R. Hashmi, m-Polar neutrosophic soft mapping with application to multiple personality disorder and its associated mental disorders, Artificial Intelligence Review, 54(4)(2021), 2717-2763. DOI: 10.1007/s10462-020-09912-8. Online Dated 24-09-2020. ISSN 1573-7462, JCR-SCIE Impact Factor 8.139.

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#### Year 2016

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#### Year 2012

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#### Year 2011

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#### Research Experience/Research Supervision/ M.Phil and Ph.D Supervised:

##### PhD Students Supervised:

1. **Dr. Syeda Tayyba Tehrim, Ph.D. Mathematics (2016-2020).**  
Title of Ph.D. Thesis: **Bipolar Fuzzy Soft Topology with Applications in Decision Making**  
(Ph.D Completed) Ph. D. Notification Ph.D. (R)/175/2020 Dated: 20-10-2020.
2. **Dr. Masooma Raza Hashmi, Ph.D. Mathematics (2017-2020).**  
Title of Ph.D Thesis: **Some Hybrid Structures of m-polar Neutrosophic Set with Applications**  
(Ph.D Completed) Ph. D. Notification Ph.D. (R)/266/2020 Dated: 31-12-2020.
3. **Dr. Khalid Naeem, Ph.D. Mathematics (2016-2020).**  
Title of Ph.D Thesis: **Some Contributions to Pythagorean Fuzzy sets and Neutrosophic Sets with Applications.**  
Ph.D Completed. Ph. D. Notification No. Ph.D:/021/011 Dated: 22-03-2021.  
Supervisors: Dr. Deeba Afzal and Dr. Muhammad Riaz
4. **Dr. Muzzamil Sitara, Ph.D. Mathematics (2017-2021)**  
Title: **Extensions of Graph Structures Under q-Rung picture Fuzzy Environment.**  
Ph.D Completed. Ph. D. Notification No. Ph.D. (R)/107/2021 Dated: 28-05-2021.  
Supervisors: Prof. Dr. Muhammad Akram and Dr. Muhammad Riaz
5. **Dr. Muhammad Tahir Hamid, Ph.D. Mathematics (2017-2021).**  
Title of Ph.D Thesis: **Some Contributions to q-Rung Orthopair m-Polar Fuzzy Sets and Neutrosophic Sets with Applications.**  
Ph.D Completed. Ph. D. Defense Dated: 23-09-2021.  
Supervisors: Dr. Deeba Afzal and Dr. Muhammad Riaz

##### PhD Students Supervising:

6. **Hafiz Muhammad Athar Farid. Session 2020-2023**  
Title: Bipolar picture fuzzy aggregation operators
7. **Ayesha Razzaq. Session 2020-2023**  
Title: M-Parameterized N-Soft topology with applications
8. **Nimra Jamil. Session 2020-2023**  
Title: Information measures under hesitant spherical fuzzy sets

##### M.Phil Students Supervising:

##### M.Phil Students Supervised:

1. **Muhammad Abdullah Khokhar. Session 2019-2021**  
Title: **Cubic m-Polar Fuzzy Aggregation Operators with Multi-Criteria Decision-Making Problems**

2. **Maryam Saba. Session 2019-2021**  
Title: [m-Polar Spherical Fuzzy Topology with Applications in Decision-Making](#)
3. **Anam Habib. Session 2019-2021**  
Title: [Cubic Bipolar Fuzzy Aggregation Operators with Multi-Criteria Decision-Making Methods](#)
4. **Mishal Riaz. Session 2019-2021**  
Title: [Bipolar Picture Fuzzy Information Measures with Applications in Decision-Making](#)
5. **Hafiz Muhammad Athar Farid, M.Phil Mathematics. Session 2018-2020. Roll No. MPF18-06**  
Title of M.Phil Thesis: [Some q-Rung Orthopair Fuzzy Aggregation Operators with Multi-Criteria Decision Making Problems](#)
6. **Ayesha Razzaq, M.Phil Mathematics. Session 2018-2020. Roll No. MPF18-24**  
Title of M.Phil Thesis: [Certain Properties of Fuzzy Parameterized N-Soft Topology With Applications](#)
7. **Nawazish Ali, M.Phil Mathematics. Session 2018-2020. Roll No. MPF18-31**  
Title of M.Phil Thesis: [Pythagorean Fuzzy Soft Rough Set Topology with Multi-Criteria Decision Making Methods](#)
8. **Iqra Zareef, M.Phil Mathematics (2017-2019)**  
Title of M.Phil Thesis: [N-Soft Topology and its Applications to Multi-Criteria Decision Making](#)
9. **Iqra Nawaz, M.Phil Mathematics (2017-2019)**  
Thesis titled [Soft Multi Rough Set Topology with Applications to Group Decision Making](#)
10. **Mahwish Sohail, M.Phil Mathematics (2017-2019)**  
Thesis titled [Soft Expert Topology and its Applications to Multi-Attribute Decision Making](#)
11. **Atiqa Firdous, M.Phil Mathematics (2016-2018)**  
Thesis titled [Certain Properties of Soft Rough Set Topology with Decision Making Problems](#)
12. **Atiqa Fakhar, M.Phil Mathematics (2016-2018)**  
Thesis titled [Properties of Hesitant Fuzzy Soft Topology with Multi-Attribute Decision Making Methods](#)
13. **Nabeela Wali, M.Phil Mathematics (2016-2018)**  
Thesis titled [Soft Multi-Set Theory and Soft Multi-Set Topology with Applications](#)
14. **Amna Mushtaq, M.Phil Mathematics (2016-2018)**  
Thesis titled [Certain Properties of Intuitionistic Fuzzy Soft Topology](#)
15. **Masooma Raza Hashmi, M.Phil Mathematics (2015-2017)**  
Thesis titled [Properties of Fuzzy Parameterized Fuzzy Soft Topology](#)
16. **Zain Fatima, M.Phil Mathematics (2014-2016)**  
Thesis titled [Some Properties of Soft Cone Metric Spaces](#)
17. B.Sc. (Hons) Project (2005-2006) “Applications of Complete Normed Linear Spaces”. Department of Mathematics, University of the Punjab, Lahore.
18. B.Sc. (Hons) Project (2006-2007) “Applications of Graph Theory”. Department of Mathematics, University of the Punjab, Lahore.

#### **Research Supervision (other students)**

19. **Anam Aslam, M.Phil Mathematics (2015-2017)**, Thesis titled “Soft Topology and Soft Separation Axioms”. Department of Mathematics, University of Lahore.
20. **Sana Pervez, M.Phil Mathematics (2015-2017)**, Thesis titled “Properties of soft connected and Soft Compact Spaces”. Department of Mathematics, University of Lahore.
21. **Khalid Naeem, M.Phil Mathematics (2014-2016)**, Thesis titled “Soft Set Theory and Soft Sigma Algebras”. Department of Mathematics, University of Lahore