

# **CURRICULUM VITAE**

**Dr. Tahir Mahmood**

S/o

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## **JOB OBJECTIVE**

An ambitious, qualified, committed, and enthusiastic academic with a range of teaching experience, aiming to broaden horizons in the field of Algebra.

## **AREAS OF INTEREST**

Mathematics, Algebraic Structures, Fuzzy Algebraic Structures, Soft Sets

## **ACADEMIC QUALIFICATION**

Degree/ Certificate	Institution	Session	Major Courses/Division
Ph.D. (Mathematics)	Quid-i-Azam University, Islamabad	2006-2012	Spectral Theory of Hilbert spaces, Homological Algebra-I, Theory of Semirings, Fuzzy Algebra, General Relativity, Numerical Solution of PD Eq
<b>Ph.D. Research Thesis Title: “Some Characterizations of Hemirings by the Properties of Their Fuzzy Ideals”</b>			
M.Phil (Mathematics)	Quid-i-Azam University, Islamabad	2003-2005	Semigroup Theory, Near Rings, Theory of Group Acts, Theory of Group Graphs, Theory of Complex Manifolds, Banach Algebra, Ring Theory-I, Ring Theory-II. / 1 <sup>st</sup> Div
M.Sc. (Mathematics)	Govt. Post Graduate College Asghar Mall, Rawalpindi	1995-1997	1 <sup>st</sup> Div
B.A.	Govt. Degree College, Talagang.	1992-1994	1 <sup>st</sup> Div
F.A.	Govt. Degree College, Fteh Jang.	1990-1992	2 <sup>nd</sup> Div
SSC	Govt. High School, Chakwal.	1988-1990	1 <sup>st</sup> Div

## **Awards:**

- 1) Won Mathematics Olympiad in 2005 organized by Federal Directorate of Education Islamabad.
- 2) Won NRPU project "Similarity measures of picture hesitant fuzzy sets and their applications" at total cost of Rs.1382383/-, numbered No: 5833/Federal/NRPU/R&D /HEC/2016
- 3) Won NRPU project "Group generalized q-rung orthopair fuzzy soft sets and their applications in decision making problems" of Rs. 3748500/- numbered 20-14662/NRPU/R&D/HEC/2021 2021 as Co-PI.
- 4) Awarded Rs. 70,000/- Research Incentive Award from International Islamic University Islamabad in the Year 2016.
- 5) Awarded Rs. 60,000/- Research Incentive Award from International Islamic University Islamabad in the Year 2017.
- 6) Awarded Rs. 60,000/- Research Incentive Award from International Islamic University Islamabad in the Year 2018.
- 7) Included in top 2% scientists of the world as per Stanford University USA list in 2021 and 2022.

## **Research Profile:**

### **Research Interests:**

**Mathematics, Fuzzy Sets and Their Generalizations, Soft Sets, Rough Sets, Decision Making, Algebraic Structures.**

**Total Impact Factor: 574.980 (Published: 489.431, Accepted: 85.549).**

<b>Publications</b>	<b>Published</b>	<b>Accepted</b>	<b>Total</b>
<b>Total Publications</b>	<b>246</b>	<b>20</b>	<b>266</b>
<b>Total International Publications</b>	<b>229</b>	<b>20</b>	<b>249</b>
<b>Impact Factor Publications</b>	<b>165</b>	<b>17</b>	<b>182</b>
<b>HEC Recognized (W, X &amp; Y)</b>	<b>194</b>	<b>19</b>	<b>213</b>

<b>Conference Papers</b>	<b>03</b>
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<b>Books Contributed</b>	<b>07</b>
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<b>Students Supervised</b>	<b>BS</b>	<b>MS</b>	<b>Ph.D.</b>
<b>Degree Completed</b>	<b>02</b>	<b>50</b>	<b>06</b>
<b>Degree Continued</b>	<b>Nil</b>	<b>05</b>	<b>04</b>

<b>Conferences Attended</b>	<b>13</b>
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### Departmental Duties (Other than Teaching):

- In charge Academic Affairs
- Time Table in charge: 2005-2021
- Member Time Table Committee: 2021-todate
- Member and convener of Examination committee: 2005-2021
- Member and convener of Admission committee: 2006-2021
- Convener of space allocation committee of FBAS: 2017-2021
- Convener of Examination committee of FBAS: 2017-2021
- Convener of Seminar Committee since December: 2019- todate.
- Secretary of Departmental Graduate Research Committee: 2021- todate
- Secretary of Departmental Board of Studies: 2021- todate

### Editorial Board Responsibilities:

1. Lead guest editor of the special issue “Decision Making Based on Intuitionistic Fuzzy Sets and their Generalizations” in the Journal “Journal of Mathematics” in 2020.
2. Guest editor of the special issue “Security Algorithms and Risk Management using Fuzzy Sets” in the Journal “Security and Communication Networks” at present.
3. Member editorial board: Scientific Reports
4. Member editorial board: Open Journal of Discrete Applied Mathematics.

### Book Chapters:

1. Qaisar Khan, **Tahir Mahmood**, Khizar Hayat, Muhammad Arif, Valentina Emilia Balas, and Oana Geman. *Application of Single-Valued Neutrosophic Power Maclaurin Symmetric Mean Operators in MADM*. In: Balas V., Jain L., Balas M., Shahbazova S. (eds) *Soft Computing Applications. SOFA 2018. Advances in Intelligent Systems and Computing*, vol 1222. Springer, Cham. **(Published)**.
2. **Tahir Mahmood**, Qaisar Khan, Kifayat Ullah, Naeem Jan. *Single valued neutrosophic finite state machine and switchboard state machine*, *New Trends in Neutrosophic Theory and Applications*, Volume II, Brussels, Belgium, EU, 2018. **(Published)**.
3. **Tahir Mahmood** and Zeeshan Ali, *Schweizer–Sklar Muirhead Mean Aggregation Operators Based on Pythagorean Fuzzy Sets and Their Application in Multi-Criteria Decision-Making*, *Pythagorean Fuzzy Sets: Theory and applications*, Springer, (2021) 235-259, (2021) 235-259, **(Published)**.
4. **Tahir Mahmood** and Zeeshan Ali, *Multi-Granulation Single-Valued Neutrosophic hesitant fuzzy rough sets*, *DECISION MAKING WITH NEUTROSOPHIC SET: THEORY AND APPLICATIONS*, Springer. **(Accepted)**.
5. Said Broumi, Kifayat Ullah, **Tahir Mahmood**, Mohamed Talea, Assia Bakali, Florentin Smarandache, D. Nagarajan, and M. Lathamaheswari, *Trends on Extension and Applications of Neutrosophic Graphs to Robots, Toward Humanoid Robots: The Role of Fuzzy Sets*, Springer, 2021, **(Published)**.

6. Zeeshan Ali, **Tahir Mahmood**, Florentin Smarandache, *Three-Way Decisions with Single-Valued Neutrosophic Uncertain Linguistic Decision-Theoretic Rough Sets Based on Generalized Maclaurin Symmetric Mean Operators*, *Neutrosophic Operational Research*, Springer, (2021) 71-101, **(Published)**.
7. Said Broumi, Kifayat Ullah, Assia Bakali, Mohamed Talea, Prem Kumar Singh, **Tahir Mahmood**, Florentin Smarandache, Ayoub Bahnasse, Santanu Kumar Patro and Angelo de Oliveira, *Novel System and Method for Telephone Network Planing based on Neutrosophic Graph*, *Collected Papers (on Neutrosophic Theory and Applications) Volume VI*.

### **Conference Papers:**

1. Faisal Mehmood, Khizar Hayat, **Tahir Mahmood** and Muhammad Arif, *Cubic Hesitant Fuzzy Heronian Mean Operators and Their Application in Multi Criteria Decision Making*, *Soft Computing Applications, Proceedings of the 8th International Workshop Soft Computing Applications (SOFA 2018)*, Vol. II, Springer.
2. Kifayat Ullah, **Tahir Mahmood**, Naeem Jan, *Some averaging aggregation operators for t-spherical fuzzy sets and their applications in multi-attribute decision making*. In *Proceedings of the International Conference on Soft Computing & Machine Learning (ICSCML)*, Wuhan, China, 26–28 April 2019.
3. Said Broumi, Mohamed Talea, Assia Bakali, Guennoun Asmae, **Tahir Mahmood**, Florentin Smarandache and Kifayat Ullah, *NSPP: A Novel algorithm for neutrosophic shortest path problem*, *2020 International Conference on Computer and Information Sciences*, October 13-15, Aljouf, Kingdom of Saudi Arabia.

### **Published Papers:**

- 1) Muhammad Shabir and **Tahir Mahmood**, *Hemirings characterized by the properties of their fuzzy ideals with thresholds, Quasigroups and Related Systems* (ISSN: 1561-2848), 18 (2010), 195 - 212. **(HEC Recognized)**.
- 2) Asghar Khan, Young Bae Jun and **Tahir Mahmood**, *Generalized Fuzzy Interior Ideals in Abel Grassmann's Groupoids*, *Int. J. of Mathematics and Mathematical Sciences*, (ISSN: 0161-1712), Volume 2010, Article ID 838392, 14 pages, **(HEC Recognized)**.
- 3) Muhammad Shabir and **Tahir Mahmood**, *Characterizations of Hemirings by Interval Valued Fuzzy Ideals, Quasigroups and Related Systems*, (ISSN:1561-2848), 19 (2011), 317-329. **(HEC Recognized)**.
- 4) Muhammad Shabir and **Tahir Mahmood**, *On Interval Valued  $(\alpha, \beta)$ -Fuzzy Ideals of Hemirings*, *East Asian Mathematical Journal*, (ISSN:1226-6973), 27 (2011), No. 3, pp. 349-372.
- 5) Muhammad Shabir and **Tahir Mahmood**, *Characterizations of Hemirings by  $(\in, \in \vee q_k)$ -Fuzzy Ideals*, *Computers and Mathematics with Applications*, (ISSN:0898-1221), 61 (2011) 1059-1078. **I. F. 2.670**.

- 6) Muhammad Shabir, Yasir Nawaz and **Tahir Mahmood**, Characterizations of Hemirings by  $(\bar{\epsilon}, \bar{\epsilon} \vee \bar{q})$ -Fuzzy Ideals, *Neural Computing and Applications*, (ISSN:0941-0643), 21 (Suppl 1) (2012) S93–S103. **I. F. 1.168.**
- 7) Muhammad Shabir and **Tahir Mahmood**, Hemirings Characterized by Interval Valued  $(\bar{\epsilon}, \bar{\epsilon} \vee \bar{q})$ -Fuzzy  $k$ -Ideals, *Mathematica Aeterna*, (ISSN:1314-3344), 2 (1) (2012) 1 - 19.
- 8) **Tahir Mahmood** and Muhammad Shabir Characterizations of  $h$ -hemiregular and  $h$ -semisimple Hemirings by interval valued fuzzy  $h$ -ideals, *World Applied Science Journal*, (ISSN:1818-4952), 17 (2012) 1821-1827.
- 9) Muhammad Shabir and **Tahir Mahmood**, Spectrum of  $(\epsilon, \epsilon \vee q)$ -fuzzy prime  $h$ -ideals of a hemiring, *World Applied Science Journal*, (ISSN:1818-4952), 17 (2012) 1815-1820.
- 10) Muhammad Shabir, Noshin Malik and **Tahir Mahmood**, On Interval Valued Fuzzy  $h$ -ideals in Hemirings, *East Asian Mathematical Journal*, (ISSN:1226-6973), 28 (1) (2012) 49-62.
- 11) Muhammad Shabir, Noshin Malik and **Tahir Mahmood**, Characterizations of hemirings by the properties of their interval valued fuzzy ideals, *Annals of Fuzzy Mathematics and Informatics*, (ISSN:2093-9310), 3 (2) (2012) 229- 242.
- 12) Muhammad Shabir, Noshin Malik and **Tahir Mahmood**, On Interval Valued Fuzzy ideals in Hemirings, *Annals of Fuzzy Mathematics and Informatics*, (ISSN:2093-9310), 4(1) (2012) 49- 62.
- 13) **Tahir Mahmood**, New Types of Interval Valued Fuzzy  $h$ -Ideals of Hemirings, *World Applied Science Journal*, (ISSN:1818-4952), 18 (2012) 1883-1889.
- 14) **Tahir Mahmood** and Muhammad Shabir Ideals Redefined to Characterize Hemirings, *World Applied Science Journal*, (ISSN:1818-4952), 18 (2012) 1870-1882.
- 15) **Tahir Mahmood** and Muhammad Aslam, On interval-valued  $(\epsilon_\gamma, \epsilon_\gamma \vee q_\delta)$ -fuzzy  $k$ -ideals in hemirings, *Neural Computing & Applications*, (ISSN:0941-0643), 21 (1)(2012) 231–244. **I. F. 1.168.**
- 16) Muhammad Shabir, **Tahir Mahmood** and Saqib Hussain, Hemirings Characterized by Interval Valued  $(\epsilon, \epsilon \vee q)$ -Fuzzy  $k$ -Ideals, *World Applied Sciences Journal*, (ISSN:1818-4952) 20(12)( 2012) 1678-1684.
- 17) **Tahir Mahmood**, Hemirings Characterized by the properties of their  $(\bar{\epsilon}, \bar{\epsilon} \vee \bar{q}_k)$ -fuzzy ideals, *Iranian Journal of Science and Technology*, (ISSN:1028-6276), 37 (2013) 265-275. **I. F. 0.217.**
- 18) **Tahir Mahmood** and Muhammad Munir, On Bipolar Fuzzy Subgroups,, *World Applied Sciences Journal*, (ISSN:1818-4952), 27(12)( 2013) 1806-

- 19) **Tahir Mahmood**, Characterizations of  $h$  -Hemiregular and  $h$  -Semisimple Hemirings by Interval Valued  $(\bar{\epsilon}, \bar{\epsilon} \vee \bar{q})$ -Fuzzy  $h$  -Ideals, *The Nucleus*, (ISSN:0029-5698), 51(1)(2014) 19-27. **(HEC Recognized)**.
- 20) Muhammad Shabir, Yasir Nawaz and **Tahir Mahmood**, Characterizations of Hemirings by  $(\epsilon, \epsilon \vee q)$  -Fuzzy Ideals, *East Asian Mathematical Journal*, (ISSN:1226-6973), 31(2015) 001-018.
- 21) **Tahir Mahmood** and Khizar Hayat, Characterizations of Hemi-Rings by their Bipolar-Valued Fuzzy  $h$ -Ideals, *Information Sciences Letter*, (ISSN:2090-9551), 4(2) (2015) 51-59.
- 22) **Tahir Mahmood** and Usman Tariq, Generalized  $k$ -Ideals in Semirings using Soft Intersectional Sets, *International Journal of Algebra and Statistics*, (ISSN:2314-4548), 4(1) (2015) 20-38.
- 23) Muhammad Irfan Ali, **Tahir Mahmood**, M. Muti ur Rahman and M. Fahim Aslam, On lattice ordered soft sets, *Applied Soft Computing*, (ISSN:1568-4946) 36 (2015) 499-505 **I. F. 2.857**.
- 24) **Tahir Mahmood** and Asim Ejaz, On Bipolar Valued Fuzzy  $k$ -Ideals in Hemirings, *The Nucleus*, (ISSN:0029-5698), 52 (3) (2015) 115-122. **(HEC Recognized)**.
- 25) **Tahir Mahmood**, Ayesha Waqas and M. A. Rana, Soft Intersectional Ideals in Ternary Semirings, *Science International*, (ISSN:1013-5316), 27 (5) 2015, 3929-3934.
- 26) **Tahir Mahmood** and Khizar Hayat, Applications of Soft Intersection Set in  $B$ -Algebra via  $SI$ -  $B$ - Ideals, *International Journal of Algebra and Statistics*, (ISSN:2314-4548), 4(2) (2015) 57-62.
- 27) **Tahir Mahmood**, Saleem Abdullah and Qaisar Khan, Regular Cubic Language and Regular Cubic Expression, *Advances in Fuzzy Sets and Systems*, (ISSN:0973-421X), 20(2) (2015) 97-132.
- 28) Saleem Abdullah, Wafa S. Al Shammakh, **Tahir Mahmood** and Muhammad Shahzad, Fuzzy soft set over a fuzzy topological space, *International Journal of Machine Learning and Cybernetics*, (ISSN:1868-8071), 7 (2016) 491-499. **I. F. 1.699**.
- 29) Khizar Hayat and **Tahir Mahmood**, Some Applications of Bipolar Soft Set: Characterizations of Two Isomorphic Hemi-Rings via  $BSI$ - $h$ -Ideals, *British Journal of Mathematics and Computer Science*, (ISSN:2231-0851), 13 (2) (2016) 1-21.
- 30) **Tahir Mahmood**, Qaisar Khan and Mohsin Ali,  $Q$ -Single Valued Neutrosophic Sets, *Journal of New Theory*, (ISSN:2149-1402), 13 (2016) 10-25.

- 31) **Tahir Mahmood**, Faisal Mehmood and Qaisar Khan, Cubic Hesitant Fuzzy Sets and Their Applications to Multi Criteria Decision Making, *International Journal of Algebra and Statistics*, (ISSN:2314-4548), 5 (1) (2016) 19-51.
- 32) Khizar Hayat, Bing-Yuan Cao, **Tahir Mahmood** and Kalim Ul-Haq Tariq, Applications of double-framed soft ideals in BE-algebras, *New Trends in Mathematical Sciences*, (ISSN:2147-5520), 4(2) (2016) 285-295.
- 33) **Tahir Mahmood**, Saleem Abdullah, Muhammad Bilal and Saeed ur Rashid, Multi Criteria Decision Making Based on Bipolar Valued Fuzzy Sets, *Annals of Fuzzy Mathematics and Informatics*, (ISSN:2093-9310), 11(6)(2016) 1003-1009.
- 34) **Tahir Mahmood** and Qaisar Khan Interval Neutrosophic finite switchboard state machine, *Afrika Matematika*, (ISSN:1012-9405),. 27 (2016) 1361-1376.
- 35) **Tahir Mahmood**, Ayesha Waqas, Muhammad Afzal Rana and Usman Tariq, Generalized Soft Intersectional Ideals in Ternary Semirings, *Journal of Advance Research in Mathematics and Mathematical Sciences*, (ISSN:2208-2409), 1(4) (2016) 1-9.
- 36) **Tahir Mahmood**, Faisal Mehmood and Qaisar Khan, Some Generalized Aggregation Operators for Cubic Hesitant Fuzzy Sets and Their Applications to Multi Criteria Decision Making, *Punjab University Journal of Mathematics*, (ISSN:1016-2526), 49 (1) (2017) 31-49 (**HEC Recognized**).
- 37) **Tahir Mahmood**, Jun Ye and Qaisar Khan, Multiple Attribute Decision-Making Method under Hesitant Single Valued Neutrosophic Uncertain Linguistic Environment, *Journal of Inequalities and Special Functions*, (ISSN:2217-4303), 2 (2017) 1-17.
- 38) **Tahir Mahmood**, Jun Ye and Qaisar Khan, Vector Similarity Measures for Simplified Neutrosophic Hesitant Fuzzy Set and Their Applications, *Journal of Inequalities and Special Functions*, (ISSN:2217-4303), 7 (4) (2016) 176-194.
- 39) Khizar Hayat, **Tahir Mahmood** and Bing-Yuan Cao, On Bipolar Anti Fuzzy  $h$ -Ideals in Hemi-rings, *Fuzzy Information and Engineering*, (ISSN:1616-8658), 9 (2017) 1-19.
- 40) **Tahir Mahmood**, Saleem Abdullah, Saeed ur Rashid and Muhammad Bilal, Multicriteria Decision Making Based on Cubic sets, *Journal of New Theory*, (ISSN:2149-1402), 16 (2017) 1-9.
- 41) Peide Liu, **Tahir Mahmood** and Qaisar Khan, Multi-Attribute Decision-Making Based on Prioritized Aggregation Operator under Hesitant Intuitionistic Fuzzy Linguistic Environment, *Symmetry*, (ISSN:2073-8994), 9(11) (2017) 270. **I. F. 1.457.**
- 42) Saqib Hussain, Janusz Sokol, Umer Farooq, Maslina Darus and **Tahir Mahmood**, APPLICATIONS OF CONVOLUTION AND SUBORDINATION TO

CERTAIN  $p$ -VALENT FUNCTIONS, *Bulletin of the Iranian Mathematical Society*, (ISSN: 1018-6301), 43 (6) (2017) 1739-1749. **I. F. 0.287.**

- 43) Murad Ullah, **Tahir Mahmood**, Muhammad Bilal Khan, Kifayat Ullah, On Twisted Soft Ideal of Soft Ordered Semigroups, *Journal of Information Communication Technologies and Robotic Applications*, (ISSN:2523-5729), 8(2) (2017) 74-85. **(HEC Recognized).**
- 44) **Tahir Mahmood**, Kifayat Ullah, Murad Ullah Khan, Naeem Jan, Irfan Deli, Qaisar Khan, Some Aggregation Operators for Bipolar-Valued Hesitant Fuzzy Information based on Einstein Operational Laws, *Journal of Engineering and Applied Sciences*, (ISSN:2518-4571), 36(2)(2017) 63-72. **(HEC Recognized).**
- 45) Muhammad Irfan Ali, **Tahir Mahmood** and Azmat Hussain, A study of generalized roughness in  $(\epsilon, \epsilon \vee q_k)$  -fuzzy filters of ordered semigroups, *Journal of Taibah University for Science*, (ISSN:1658-3655), 12(2)(2018) 163-172. **I. F. 1.640.**
- 46) Peide Liu, **Tahir Mahmood** and Qaisar Khan, Group Decision Making Based on Power Heronian Aggregation Operators Under Linguistic Neutrosophic Environment, *International Journal of Fuzzy Systems*, (ISSN:1562-2479), 20(3) (2018) 970-985, **I. F. 3.085.**
- 47) **Tahir Mahmood**, Peide Liu, Jun Ye and Qaisar Khan, Several hybrid aggregation operators for triangular intuitionistic fuzzy set and their application in multi-criteria decision making, *Granular Computing*, (ISSN:2364-4974), 3 (2018) 153-168.
- 48) Kifayat Ullah, **Tahir Mahmood**, Naeem Jan, Similarity Measures for T-Spherical Fuzzy Sets with Applications in Pattern Recognition, *Symmetry*, (ISSN:2073-8994), 10 (2018) 193, **I. F. 2.143.**
- 49) **Tahir Mahmood**, Muhammad Irfan Ali, Azmat Hussain, Generalized roughness in fuzzy filters and fuzzy ideals with thresholds in ordered semigroups, *Computational & Applied Mathematics*, (ISSN:2238-3603), 37(2018) 5013-5033, **I. F. 1.260.**
- 50) Qaisar Khan, Peide Liu and **Tahir Mahmood**, Some Generalized Dice Measures for Double-Valued Neutrosophic Sets and Their Applications, *mathematics*, (ISSN 2227-7390) 6 (2018) 121. **I. F. 1.105.**
- 51) **Tahir Mahmood**, Muhammad Irfan Ali, Muhammad Aamir Malik, Waseem Ahmad, On Lattice Ordered Intuitionistic Fuzzy Soft Sets, *International Journal of Algebra and Statistics*, (ISSN:2314-4548), 7 (2018) 46-61.
- 52) Qaisar Khan, Nasruddin Hassan and **Tahir Mahmood**, Neutrosophic Cubic Power Muirhead Mean Operators with Uncertain Data for Multi-Attribute Decision Making, *Symmetry*, (ISSN:2073-8994), 10 (2018) 444 (24 pages), **I. F. 2.143.**



- 53) Peide Liu, Qaisar Khan, Jun Ye and **Tahir Mahmood**, Group Decision-Making Method Under Hesitant Interval Neutrosophic Uncertain Linguistic Environment, *International Journal of Fuzzy Systems*, (ISSN:1562-2479), 20(7)(2018) 2337-2353 **I. F. 3.085**.
- 54) Qaisar Khan, Peide Liu, **Tahir Mahmood**, Florentin Smarandache and Kifayat Ullah, Some Interval Neutrosophic Dombi Power Bonferroni Mean Operators and Their Application in Multi Attribute Decision Making, *Symmetry*, (ISSN:2073-8994), 10(2018) 459 (31 pages), **I. F. 2.143**.
- 55) **Tahir Mahmood**, Zia Ur Rehman and Aslihan Sezgin, Lattice Ordered Soft Near Rings, *Korean Journal of Mathematics*, (ISSN:1976-8605), 26(3) (2018) 503-517.
- 56) Shahzaib Ashraf, **Tahir Mahmood**, Saleem Abdullah and Qaisar Khan, Picture Fuzzy Linguistic Sets and Their Applications for Multi-Attribute Group Decision Making Problems, *The Nucleus*, (ISSN:0029-5698), 55 (2) (2018) 66-73. **(HEC Recognized)**.
- 57) Kifayat Ullah, **Tahir Mahmood**, Naeem Jan, Said Broumi and Qaisar Khan, On Bipolar-Valued Hesitant Fuzzy Sets and Their Applications in Multi-Attribute Decision Making, *The Nucleus*, (ISSN:0029-5698), 55(2) (2018) 93-101. **(HEC Recognized)**.
- 58) Harish Garg , Muhammad Munir, Kifayat Ullah, **Tahir Mahmood**, Naeem Jan, Algorithm for T-Spherical Fuzzy Multi-Attribute Decision Making Based on Improved Interactive Aggregation Operators, *Symmetry*, (ISSN:2073-8994), 10(2018) 670 (24 pages) **I. F. 2.143**.
- 59) Muhammad Iftikhar and **Tahir Mahmood**, Some results on lattice ordered double framed soft semirings, *International Journal of Algebra and Statistics*, (ISSN:2314-4548), 7(2018)123-140.
- 60) Shahzaib Ashraf, Saleem Abdullah and **Tahir Mahmood**, GRA method based on spherical linguistic fuzzy Choquet integral environment and its application in multi-attribute decision making problems, *Mathematical Sciences*, (ISSN:2008-1359), 12 (2018) 263-275.
- 61) **Tahir Mahmood** and Naveed Ahmad Shah, Lattice Ordered Fuzzy Soft Groups, *Honam Mathematical Journal*, (ISSN:2288-6176), 40 (2018) 457-486.
- 62) Kifayat Ullah, **Tahir Mahmood**, Naeem Jan and Zeeshan Ali, A Note on Geometric Aggregation Operators in Spherical Fuzzy Environment and its Application in Multi-Attribute Decision Making, *Journal of Engineering and Applied Sciences*, (ISSN:1023-862X) 37(2) (2018) 75-86, **(HEC Recognized)**.
- 63) Kifayat Ullah, Zeeshan Ali, Naeem Jan, **Tahir Mahmood** and Shahid Maqsood, Multi-Attribute Decision Making Based on Averaging Aggregation Operators for Picture Hesitant Fuzzy Sets, *Technical Journal UET Taxila*, (ISSN: 1813-1786), 23 (4) (2018) 84-95, **(HEC Recognized)**.
- 64) Muhammad Bilal Khan, Vildan Cetkin, **Tahir Mahmood**, Naeem Jan, Kifayat Ullah and Halis Aygun Near, Rings in the View of double Framed

Soft Fuzzy Sets, *Sigma Journal of Engineering and Natural Sciences*, (ISSN:1304-7191), 37(1) (2019) 175-186.

- 65) Naeem Jan, Lemnaouar Zedam, **Tahir Mahmood**, Kifiyat Ullah, Zeeshan Ali, Multiple Attribute Decision Making Method Under Linguistic Cubic Information, *Journal of Intelligent & Fuzzy Systems*, (ISSN:1064-1246), 36 (2019) 253-269. **I. F. 1.851.**
- 66) Peide Liu, Qaisar Khan and **Tahir Mahmood**, Application of Interval Neutrosophic Power Hamy Mean Operators in MAGDM, *INFORMATICA*, (ISSN:1822-8844), 30(2) (2019) 293-325, **I. F. 3.312.**
- 67) Shouzhen Zeng, Azmat Hussain, **Tahir Mahmood**, Muhammad Irfan Ali, Shahzaib Ashraf and Muhammad Munir, Covering based spherical fuzzy rough set model hybrid with TOPSIS for multi-attribute decision making, *Symmetry*, (ISSN:2073-8994), 11(2019) 547, **I. F. 2.645.**
- 68) Bijan Davvaz, Naeem Jan, **Tahir Mahmood** and Kifayat Ullah, Intuitionistic Fuzzy Graphs of  $n$ th Type with Applications, *Journal of Intelligent & Fuzzy Systems*, (ISSN:1064-1246), 36(4)(2019) 3923-3932, **I. F. 1.851.**
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- 230) **Tahir Mahmood** and Zeeshan Ali, Fuzzy Superior Mandelbort Sets, *Soft Computing*, (ISSN: 1432-7643), 26(2022)9011–9020, **(WoS Ranking: Q2, I.F.: 3.732, HJRS Ranking: W)**
- 231) **Tahir Mahmood** and Zeeshan Ali, A Novel Generalized Hybrid Aggregation Operators Based on Picture Hesitant Fuzzy Sets and Their Applications in Decision Making, *Technical Journal UET Taxila*, (ISSN: 1813-1786), 27(1)(2022) 82-94, **(HJRS Ranking: Y).**
- 232) Ubaid Ur Rehman and **Tahir Mahmood**, Complex Intuitionistic Fuzzy N-Soft Sets and Their Applications in Decision Making Algorithm, *Technical Journal UET Taxila*, (ISSN: 1813-1786), 27(1)(2022) 95-117, **(HJRS Ranking: Y).**
- 233) **Tahir Mahmood**, Zeeshan Ali and Majed Albaity, Aggregation Operators Based on Algebraic t-Norm and t-Conorm for Complex Linguistic Fuzzy Sets and Their Applications in Strategic Decision Making, *Symmetry*, ISSN:2073-8994), 14 (2022) 1990 (18 Pages) **(WoS Ranking: Q2, I.F.: 2.94, HJRS Ranking: W)**
- 234) **Tahir Mahmood** and Ubaid ur Rehman, Multi-attribute decision-making method based on bipolar complex fuzzy Maclaurin symmetric mean operators, *Computational & Applied Mathematics*, (ISSN:2238-3603), 41(2022) 331 (25 Pages) **(WoS Ranking: Q1, I.F.: 2.998: HJRS Ranking: W)**
- 235) **Tahir Mahmood**, Zeeshan Ali and Muhammad Aslam, Applications of complex picture fuzzy soft power aggregation operators in multi-attribute decision making, *Scientific Reports*, (ISSN:2045-2322)12 (2022)16449 (28 Pages) **(WoS Ranking: Q2, I.F.: 4.996: HJRS Ranking: W)**

- 236) Lemnaouar Zedam, Nimet Yapici Pehlivan, Zeeshan Ali and **Tahir Mahmood**, Novel Hamacher Aggregation Operators based on Complex T-Spherical Fuzzy Numbers for Cleaner Production Evaluation in Gold Mines, *International Journal of Fuzzy Systems*, (ISSN:1562-2479) 24(5) (2022) 2333-2353 (**WoS Ranking: Q2, I.F.: 4.085, HJRS Ranking: W**)
- 237) Azmat Hussain, **Tahir Mahmood**, Muhammad Irfan Ali and Aiyared Lampan, q-Rung orthopair fuzzy soft aggregation operators based on Dombi t-norm and t-conorm with their applications in decision making, *Journal of Intelligent & Fuzzy Systems*, (ISSN:1064-1246), 43(5) (2022) 5685-5702 (**HJRS Ranking: X, Q4, I.F: 1.737**)
- 238) **Tahir Mahmood**, Zeeshan Ali and Amrullah Awsar, Choquet-Frank Aggregation Operators Based on q-Rung Orthopair Fuzzy Settings and Their Application in Multiattribute Decision Making, *Computational & Applied Mathematics*, (ISSN:2238-3603), 41 (2022) 358 (33 Pages) (**WoS Ranking: Q1, I.F.: 2.998, HJRS Ranking: W**)
- 239) **Tahir Mahmood**, Zeeshan Ali, Samruam Baupradist and Ronnason Chinram, Complex Intuitionistic Fuzzy Aczel-Alsina Aggregation Operators and Their Application in Multi-Attribute Decision-Making, *Symmetry*, (ISSN:2073-8994), 14 (2022) 2255 (28Pages), (**WoS Ranking: Q2, I.F.: 2.94, HJRS Ranking: W**)
- 240) Jabbar Ahmmad, **Tahir Mahmood**, Nayyar Mehmood, Khamika Urawong and Ronnason Chinram, Intuitionistic Fuzzy Rough Aczel-Alsina Average Aggregation Operators and Their Applications in Medical Diagnoses, *Symmetry*, (ISSN:2073-8994), 14 (2022) 2255 (28Pages), (**WoS Ranking: Q2, I.F.: 2.94, HJRS Ranking: W**)
- 241) **Tahir Mahmood**, Zeeshan Ali, Samruam Baupradist and Ronnason Chinram, TOPSIS Method Based on Hamacher Choquet-Integral Aggregation Operators for Atanassov-Intuitionistic Fuzzy Sets and Their Applications in Decision-Making, *Axioms*, (ISSN: 2075-1680), 11(2022)715(20 Pages) (**HJRS Ranking: X, ESCI, Q2. I.F: 1.824**)
- 242) Harish Garg, Adeel Ahmed, Kifayat Ullah, **Tahir Mahmood** and Zeeshan Ali, Algorithm for multi-attribute decision-making using T-spherical fuzzy Maclaurin symmetric mean operator, *Iranian Journal of Fuzzy Systems*, (ISSN: 1735-0654), 19(2) (2022) 111-124, (**WoS Ranking: Q1, I.F.: 2.006, HJRS Ranking: X**)
- 243) **Tahir Mahmood**, Zeeshan Ali, Muhammad Aslam and Ronnason Chinram, A study on the Heronian mean operators for managing complex picture fuzzy uncertain linguistic settings and their application in decision making, *Journal of Intelligent & Fuzzy Systems*, (ISSN:1064-1246), 43(6) (2022) 7679-7716, (**HJRS Ranking: X, Q4, I.F: 1.737**)
- 244) **Tahir Mahmood**, Ubaid ur Rehman and Muhammad Naeem, Bipolar Complex Fuzzy Semigroups, *AIMS Mathematics*, (ISSN: 2473-6988), 8(1) (2023) 3997-4021, (**WoS Ranking: Q1, I.F.: 2.739, HJRS Ranking: W**)
- 245) **Tahir Mahmood**, Ubaid ur Rehman and Zeeshan Ali, Analysis and Application of Aczel-Alsina Aggregation operators Based on Bipolar Complex

*Fuzzy Information in Multiple Attribute Decision Making, Information Sciences, (ISSN: 0020-0255), 619 (2023) 817-833, (WoS Ranking: Q1, I.F.: 8.233, HJRS Ranking: W)*

246) **Tahir Mahmood**, Ubaid ur Rehman and Muhammad Naeem, *A novel approach towards Heronian mean operators in multiple attribute decision making under the environment of bipolar complex fuzzy information, AIMS Mathematics, (ISSN: 2473-6988), 8(1) (2023) 1848-1870, (WoS Ranking: Q1, I.F.: 2.739, HJRS Ranking: W)*

247) **Tahir Mahmood**, Ubaid ur Rehman and Muhammad Naeem, *Prioritization of Strategies of Digital Transformation of Supply Chain Employing Bipolar Complex Fuzzy Linguistic Aggregation Operators, IEEE ACCESS, (ISSN:2169-3536), 11(2023) 3402-3415 (WoS Ranking: Q2, I.F.: 3.476, HJRS Ranking: W)*

## **Accepted Papers:**

1) Naeem Jan, Lemnaouar Zedam, **Tahir Mahmood**, Kifayat Ullah, Bijan Davvaz and Zeeshan Ali, *An Improved Clustering Algorithm for Picture Fuzzy Graphs and its Applications in Human Decision Making, International Journal of Fuzzy Systems, (ISSN:1562-2479) (WoS Ranking: Q2, I.F.: 4.085, HJRS Ranking: W)*

2) Talal Al-Hawary, **Tahir Mahmood**, Naeem Jan, Kifayat Ullah, Azmat Hussain, *On Intuitionistic Fuzzy Graphs and Some Operations on Picture Fuzzy Graphs, Italian Journal of Pure and Applied Mathematics, (ISSN:1126-8042). (HJRS Ranking: Y, ESCI)*

3) Naeem Jan, **Tahir Mahmood**, Lemnaouar Zedam, Lazim Abdullah and Kifayat Ullah, *Analysis of Double Domination by Using the Concept of Spherical Fuzzy Information with Application, Journal of Ambient Intelligence and Humanized Computing, (ISSN:1868-5137) .*

**(WoS Ranking: Q2, I.F.: 3.662, HJRS Ranking: W)**

4) Lemnaouar Zedam, Zeeshan Ali and **Tahir Mahmood**, *A Multi-Attribute Decision-Making Procedure Based on Complex q-Rung Orthopair Fuzzy Weighted Fairly Aggregation Information, International Journal of Fuzzy System Applications, (ISSN: 2156-177X), (HJRS Ranking: Y)*

5) Shouzhen Zeng, Yinyu Wang, Kifayat Ullah, **Tahir Mahmood**, Harish Garg, Lemnaouar Zedam and Xinsen Li, *Methods for Detecting COVID-19 Patients using Interval-valued T-Spherical Fuzzy Relations and Information Measures, International Journal of Information Technology & Decision Making, (ISSN: 0219-6220), (WoS Ranking: Q3, I.F.: 3.508, HJRS Ranking: W)*

- 6) Peide Liu, Zeeshan Ali and **Tahir Mahmood**, Archimedean Aggregation Operators Based on Complex Pythagorean Fuzzy Sets using Confidence Levels and Their Application in Decision-Making, *International Journal of Fuzzy Systems*, (ISSN:1562-2479) (**WoS Ranking: Q2, I.F.: 4.085, HJRS Ranking: W**)
- 7) **Tahir Mahmood**, Zeeshan Ali and Muhammad Naeem, Aggregation Operators and CRITIC-VIKOR Method for Confidence Complex  $q$ -Rung Orthopair Normal Fuzzy Information and Their Applications, *CAAI Transactions on Intelligence Technology*, (ISSN:2468-2322) (**HJRS Ranking: W, Q1, I.F.: 7.985**).
- 8) Xiaopeng Yang, **Tahir Mahmood** and Ubaid Ur Rehman, Analyzing the Effect of Different Types of Pollution with Bipolar Complex Power Fuzzy Bonferroni Mean Operator, *Frontiers in Environmental Science*, (ISSN: 2296-665X), (**WoS Ranking: Q2, I.F.: 5.411, HJRS Ranking: W**)
- 9) Harish Garg, Zeeshan Ali, **Tahir Mahmood**, and Mohamed R. Ali, TOPSIS-method based on generalized dice similarity measures with hamy mean operators and its application to decision-making process, *AEJ: Alexandria Engineering Journal*, (ISSN: 1110-0168), 65 (2023) 383-397, (**WoS Ranking: Q1, I.F.: 6.626, HJRS Ranking: W**)
- 10) Xin Dong, Zeeshan Ali, **Tahir Mahmood** and Peide Liu, Yager aggregation operators based on complex interval-valued  $q$ -rung orthopair fuzzy information and their application in decision making, *Complex & Intelligent Systems*, (ISSN:2199-4536), (**WoS Ranking: Q1, I.F.: 6.7, HJRS Ranking: X**)
- 11) Haolun Wang, **Tahir Mahmood** and Kifayat Ullah, Improved CoCoSo Method Based on Frank Softmax Aggregation Operators for T-Spherical Fuzzy Multiple Attribute Group, *International Journal of Fuzzy Systems*, (ISSN:1562-2479) (**WoS Ranking: Q2, I.F.: 4.085, HJRS Ranking: W**)
- 12) **Tahir Mahmood**, Zeeshan Ali and Ronnason Chinram, Multi-Attribute Decision-Making Problem Based on Complex  $q$ -Rung Orthopair Fuzzy 2-Tuple Linguistic Muirhead Mean Aggregation Operators, *Journal of Intelligent & Fuzzy Systems*, (ISSN:1064-1246), (**HJRS Ranking: X, Q4, I.F.: 1.737**)
- 13) Xiaoming Qi, Zeeshan Ali, **Tahir Mahmood** and Peide Liu, An Approach for Combining MULTIMOORA Method and Muirhead Mean Operators Based on the Complex Pythagorean Fuzzy Uncertain Linguistic Representation Model, *Applied Intelligence*, (ISSN: 0924-669X), (**HJRS Ranking: W, Q4, I.F.: 5.019**)
- 14) Xiaoming Qi, Zeeshan Ali, **Tahir Mahmood** and Peide Liu, Multi-Attribute Decision-Making Method Based on Complex Interval-Valued  $q$ -Rung Orthopair Linguistic Heronian Mean Operators and Their Application, *International Journal of Fuzzy Systems*, (ISSN:1562-2479) 24(5) (2022) 2333-2353 (**WoS Ranking: Q2, I.F.: 4.085, HJRS Ranking: W**)
- 15) Harish Garg, Zeeshan Ali, **Tahir Mahmood**, Mohamed R. Ali and Alhanouf Alburaikan, Schweizer-Sklar prioritized aggregation operators for intuitionistic fuzzy information and their application in multi-attribute decision-making, *AEJ: Alexandria Engineering Journal*, (ISSN: 1110-0168), 67 (2023) 229-240, (**WoS Ranking: Q1, I.F.: 6.626, HJRS Ranking: W**)

- 16) **Tahir Mahmood**, Jabbar Ahmmad, Zeeshan Ali and Miin-Shen Yang, Confidence Level Aggregation Operators Based on Intuitionistic Fuzzy Rough Sets and Their Applications in Medical Diagnosis, *IEEE ACCESS*, (ISSN:2169-3536), 10 (2022) 74702-74721, **(WoS Ranking: Q2, I.F.: 3.476, HJRS Ranking: W)**
- 17) **Tahir Mahmood**, Zeeshan Ali and Dragan Pamucar, Applications to Biogas-Plant Implementation Problem Based on Type-2 Picture Fuzzy Matrix Game under New Minkowski Type Measures, *Journal of Intelligent & Fuzzy Systems*, (ISSN:1064-1246), **(HJRS Ranking: X, Q4, I.F: 1.737)**
- 18) Zeeshan Ali, **Tahir Mahmood**, Jeonghwan Gwak and Naeem Jan, A Novel Extended TODIM and Archimedean Bonferroni Mean Operators Based on Prospect Theory to Select Green Supplier with Complex q-Rung Orthopair Fuzzy Information, *CAAI Transactions on Intelligence Technology*, (ISSN:2468-2322) **(HJRS Ranking: W, Q1, I.F: 7.985).**
- 19) **Tahir Mahmood** and Zeeshan Ali, Multi-Attribute Decision-Making Methods Based on Aczel-Alsina Power Aggregation Operators for Managing Complex Intuitionistic Fuzzy Sets Computational & Applied Mathematics, (ISSN:2238-3603), **(WoS Ranking: Q1, I.F.: 2.998, HJRS Ranking: W)**

## **Refereeing and Reviewing**

- 1) *IEEE Transactions on Fuzzy Systems*
- 2) *Information Sciences*
- 3) *Computers and Mathematics with Applications*
- 4) *Neural Computing and Applications*
- 5) *International Journal of Intelligent Systems*
- 6) *Computational & Applied Mathematics*
- 7) *Journal of Intelligent & Fuzzy Systems*
- 8) *Journal of Intelligent System*
- 9) *IEEE ACCESS*
- 10) *Journal of Mathematics (Hindawi)*
- 11) *Journal of Applied Mathematics and Computing*
- 12) *Complexity (Hindawi)*
- 13) *Mathematical Problems in Engineering*
- 14) *AIMS Mathematics*
- 15) *Journal of Functions Spaces*
- 16) *World Applied Sciences Journal*
- 17) *International Journal of Algebra and Statistics*
- 18) *The Nucleus*
- 19) *African Journal of Mathematics and Computer Science Research*
- 20) *Cogent Mathematics*
- 21) *Springer Plus*
- 22) *TWMS Journal of Applied and Engineering Mathematics*
- 23) *Asian Journal of Mathematics and Computer Research*
- 24) *Journal of Statistics and Mathematical Sciences*
- 25) *International Journal of System Sciences*
- 26) *Complex & Intelligent Systems*
- 27) *Annals of Fuzzy Mathematics and Informatics*
- 28) *Songklanakarin Journal of Science and Technology*
- 29) *Technical Journal, UET Taxila.*
- 30) *CAAI Transactions on Intelligence Technology*

## Thesis Supervision of Ph. D. Students:

Sr.	Name of Student	Title of Thesis	Status
1	Qaisar Khan	Generalizations of Neutrosophic Sets with Applications in Decision Making	Completed in March 2019
2	Kifayat Ullah	Generalizations of Intuitionistic Fuzzy Sets And their Comparative Study	Completed in July 2020
3	Naeem Jan	Generalizations of Intuitionistic Fuzzy Sets And Their Applications in Graph Theory	Completed in July 2020
4	Muhammad Munir	Some Generalizations of Picture Fuzzy Sets and Their Applications	Completed in December 2020
5	Azmat Hussain	Some Contributions to Orthopair Fuzzy Sets and Their Applications	Completed in December 2020
6	Muhammad Naeem	Analysis and applications of Convolution And Subordination in Geometric Function Theory	Completed in December 2020
7	Zeeshan Ali	Analysis and Applications of Complex Fuzzy Sets and Their Generalizations	In progress
8	Ubaid ur Rehman	Some Contributions to Complex Fuzzy Sets and Their Applications	In progress
9	Jabbar Ahmmad	Analysis and Applications of Picture Fuzzy Soft Sets and Their Generalizations	In progress
10	Abdul Jaleel	Title not yet finalized	In progress

## Thesis Supervision of MS Students:

Sr.	Name of Student	Title of Thesis	Year
1	Qaisar Khan	Cubic Finite Automata and Cubic Language	2014
2	Muhammad Muti Ur Rehman	Study of Soft Sets with Ordered Set of Parameters	2014
3	Asim Ejaz	Bi-Polar Valued Fuzzy k-Ideals of Hemirings	2014



4	Muhammad Fahim Aslam	Study of fuzzy soft sets with some order on set of parameters	2014
5	Khizar Hayat	Bipolar valued fuzzy h-ideals in hemirings	2015
6	Muhammad Naeem	Interval valued fuzzy ideals in ternary semirings	2015
7	Usman Tariq	Ideal Theory in Semiring Based on Soft Sets	2015
8	Muhammad Bilal	Decision Making Based on Bipolar Valued Fuzzy Sets	2015
9	Muhammad Saeed ur Rashid	Decision Making Based on Cubic Sets	2015
10	Muhammad Munir	On Bipolar Valued Fuzzy Ideals in Ternary Semirings	2015
11	Ayesha Anum	Soft Intersectional Ideals in Ternary Semirings	2015
12	Azhar Rauf Khan	A Study of Soft Matrices	2016
13	Mohsin Ali Khan	Some Extensions of Q-Fuzzy Soft Sets	2016
14	Asim Zamir	Characterizations of Ternary Semirings by their Soft Intersectional Ideals	2016
15	Kifayat Ullah	Decision Making Based on Bipolar Valued Hesitant Fuzzy Sets	2016
16	Naeem Jan	On Lattice Ordered Soft Groups	2016
17	Muhammad Mubashar Rafique Abbasi	Some Contribution in Lattice Ordered Soft Semigroups	2016
18	Faisal Mehmood	Decision Making Based on Cubic Hesitant Fuzzy Sets	2016
19	Shahzaib Ashraf	Some Contribution in Generalization of Fuzzy Sets	2017
20	Naveed Ahmed Shah	Some Contribution in Lattice Ordered Fuzzy Soft Sets	2017
21	Zia Ur Rehman	On Lattice Ordered Soft Near Rings	2017
22	Muhammad Aamir Malik	On Lattice Ordered Intuitionistic Fuzzy Soft Sets	2017
23	Zulekha Parveen	Normal and Non-Normal Pairs of Coxeter Groups	2017
24	Abdul Jaleel	Roughness of Soft Ideals of Rings	2018
25	Arsalan Ahmed	Roughness of Soft Ideals of Ordered Semigroups	2018
26	Muhammad Bilal Khan	Some Contributions in Soft Semigroups	2018
27	Mohsin Khan	Some Results in Lattice Ordered Fuzzy Soft Near Rings	2018
28	Chaudhry Sami Ullah Khan	On Lattice Ordered Soft Vector Spaces	2018
29	Umar Ashfaq	A Study of Rough Soft Groups	2018
30	Muhammad Nadeem Qureshi	A Study of Lattice Ordered Soft Modules	2018
31	Ajllal Ahmad	A Study of Neutrosophic Soft Semigroups with Ordered Set of Parameters	2018
32	Zeeshan Ali	A Study of Picture Fuzzy Sets	2018
33	Muhammad Iftikhar	A Study of Double Framed Soft Semirings	2018
34	Muhammad Umer	On Lattice Ordered Soft Expert Sets	2019
35	Haider Faizan	Application of Intuitionistic Fuzzy Values in Multicriteria Decision Making	2019

36	Imran Mahmood	A Study of Intuitionistic Fuzzy Sets in Decision Making Problems	2019
37	Jasim Tariq	A Study of Double Framed Soft Rings with Ordered Set of Parameters	2019
38	Muhammad Saad	A Study of Single Valued Neutrosophic Hesitant Fuzzy Graphs	2019
39	Shahzaib Shahbaz	Roughness of $(\alpha', \beta')$ -Fuzzy Filters in Ordered Semigroups	2019
40	Iftekhhar Ahmad	A Study of Picture Fuzzy Sets and their Applications	2019
41	Zeeshan Ahmad	Similarity Measures of Picture Hesitant Fuzzy Sets	2019
42	Muhammad Ilyas	Analysis and Applications of Similarity Measures for Spherical Fuzzy Sets	2020
43	Jabbar Ahmmad	Some Aggregation Operators for Intuitionistic Fuzzy and Their Generalizations	2020
44	Wajid Ali	Aggregation Operators and Similarity Measures for Intuitionistic Hesitant Fuzzy Sets	2020
45	Muhammad Ahsen	Some Contributions in Picture Hesitant Fuzzy Sets	2020
46	Ubaid ur Rehman	A Study of Complex Hesitant Fuzzy Sets	2020
47	Mudassir Ali Khan	A Study of Aggregation Operators for Spherical Fuzzy Sets	2021
48	Hafiz Muhammad Waqas	Some Contribution in Picture Fuzzy Sets and Their Generalizations	2021
49	Muhammad Saad Warraich	A Study of Picture Fuzzy sets and Their Generalizations	2021
50	Muhammad Rizwan Azmi	Some Contributions to Hesitant Fuzzy Sets and Their Generalizations	2021
51	Izatmand	A Study of Aggregation Operators in Linear Diophantine Fuzzy Sets	2022
52	Hamza Iftikhar	Aggregation Operators for Complex Fuzzy Sets and Their Generalizations	2022
53	Hafiz Muhammad Tahir Hafeez	Aggregation Operators for Picture Fuzzy Sets and Their Generalizations	2022
54	Kashif Hussain	A Study of Bipolar Soft Sets and Their Generalizations	2022
55	Abdul Mateen	Some Contributions in Bipolar Complex Fuzzy Sets	In Prog.
56	Azam	Title yet not approved	In Prog.
57	Zamran Ali	Title yet not approved	In Prog.
58	Muhammad Asif	Title yet not approved	In Prog.
59	Muhammad Nasarullah	Title yet not approved	In Prog.

Project Supervision of BS Students:

Sr.	Name of Student	Title of Project	Year
1	Muhammad Munir	On Bipolar Fuzzy Subgroups	2013
2	Abdus Subhan	On Soft Topological Spaces	2013

### **Seminars Delivered:**

- 1) Department of Mathematics, Quaid-i-Azam University Islamabad Seminar Series, January 12, 2010.
- 2) Department of Mathematics, Quaid-i-Azam University Islamabad Seminar Series, April 14, 2010.

### **CONFERENCES ATTENDED**

- 1) 5<sup>th</sup> International Pure Mathematics Conference 2004
- 2) 6<sup>th</sup> International Pure Mathematics Conference 2005
- 3) 8<sup>th</sup> International Pure Mathematics Conference 2007
- 4) 9<sup>th</sup> International Pure Mathematics Conference 2008
- 5) 10<sup>th</sup> International Pure Mathematics Conference 2009
- 6) 11<sup>th</sup> International Pure Mathematics Conference 2010
- 7) 12<sup>th</sup> International Pure Mathematics Conference 2011
- 8) All Pakistan Mathematical Conference 2011
- 9) Recent Trends in Mathematical Sciences-II, 2019
- 10) Recent Trends in Mathematical Sciences-III, 2020
- 11) Math Unit First Symposium, Dhofar University Oman, 2021
- 12) International Conference on Classical and Constructive Nonassociative Algebraic Structures: Foundations and Applications – CaCNAS:FA 2021, Serbia.
- 13) 21<sup>st</sup> International Pure Mathematics Conference 2021

### **CONFERENCES ORGANIZED**

- 1) Two Days Conference on Mathematical Sciences (IIUI) 2013
- 2) Two Days Conference on Mathematical Sciences (IIUI) 2017

## **Teaching and Research Experience**

Lecturer (Mathematics)	Pakistan Advanced College of Excellence (PACE), Rawalpindi Cantt.	Aug 03, 1998 - Sep 25, 2000	Taught Maths of F.Sc. and of BS(Calculus, Discrete Mathematics, Numerical Analysis )
Lecturer (Mathematics)	Federal Directorate of Education, Islamabad	Sep 26, 2000 – Oct 01, 2005	Mathematics
Lecturer (Mathematics)	International Islamic University, Islamabad	Oct 03, 2005 – Jun 25, 2007	Teaching Maths of BS and M.Sc. (Calculus, Real Analysis, Group Theory, Linear Algebra, Topology, Numerical Analysis )
Assistant Professor (Mathematics)	International Islamic University, Islamabad	Jun 26, 2007 – todate	Teaching Maths of BS and M.Sc. (Calculus, Real Analysis, Group Theory, Linear Algebra, Topology, Numerical Analysis, Rings and Fields) and MS, Ph.D. (Fuzzy Algebra, Theory of Semirings, Near Rings, Topics in Algebra)

<b>Total Teaching Experience:</b>	<b>23+ Years (Continued)</b>
<b>Post Graduate &amp; University Teaching Exp.:</b>	<b>16+ Years (Continued)</b>

**REFERENCES**

<p>Dr. Muhammad Shabir Professor, Department of Mathematics, Quaid-i-Azam University, Islamabad, Pakistan</p>	<p>Dr. Nasruddin Hassan Professor, School of Mathematical Sciences, Faculty of Science and Technology, Universiti Kebangsaan Malaysia, UKM Bangi, Selongar DE 43600, Malaysia</p>
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