

# Dr. Imran Javaid

Professor of Mathematics (Tenured)

Centre for Advanced Studies in Pure and Applied Mathematics (CASPAM)

Bahauddin Zakariya University, Multan, Pakistan

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Faculty Page

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## PROFILE

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Dr. Imran Javaid is a tenured Professor of Mathematics at the Centre for Advanced Studies in Pure and Applied Mathematics (CASPAM), Bahauddin Zakariya University, Multan, where he served as Director from 2019 to 2022. He earned his PhD from the Abdus Salam School of Mathematical Sciences, GC University Lahore (2007), and joined BZU in 2008.

His research began in metric and resolvability parameters of graphs — metric dimension, partition dimension, fault tolerance, fixing and distinguishing numbers — and grew into a body of work on rough sets, information granulation and attribute reduction in graphs and information systems. Recent papers in Information Sciences, Applied Soft Computing and the Journal of Applied Mathematics and Computing bring these ideas to pattern recognition, social-network dynamics and explainable decision support.

## ACADEMIC APPOINTMENTS

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|----------------|-------------------------------------------------------------------------------------------------|
| 2019 – present | <b>Professor (Tenured)</b> , CASPAM, Bahauddin Zakariya University                              |
| 2019 – 2022    | <b>Director</b> , CASPAM, Bahauddin Zakariya University                                         |
| 2015 – 2019    | <b>Associate Professor (Tenured)</b> , CASPAM, Bahauddin Zakariya University                    |
| 2014 – 2015    | <b>Assistant Professor (Tenured)</b> , CASPAM, Bahauddin Zakariya University                    |
| 2008 – 2014    | <b>Assistant Professor (Tenure Track)</b> , CASPAM, Bahauddin Zakariya University               |
| 2018           | <b>Visiting Lecturer, Mevlana Staff Exchange</b> , Abant İzzet Baysal University, Bolu, Türkiye |

## EDUCATION

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|             |                                                                                               |
|-------------|-----------------------------------------------------------------------------------------------|
| 2003 – 2007 | <b>PhD, Mathematics</b> , Abdus Salam School of Mathematical Sciences, GC University Lahore   |
| 2000 – 2002 | <b>MSc Mathematics (First Division)</b> , University of the Punjab, Lahore                    |
| 1997 – 2000 | <b>BSc Physics &amp; Mathematics (First Division)</b> , Bahauddin Zakariya University, Multan |

## RESEARCH INTERESTS

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Graph & Network Theory, Rough Sets & Granular Computing, AI, Machine Learning & Decision Science, Quantitative Finance & Business Analytics.

## AWARDS AND HONOURS

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|--------------------|----------------------------------------------------------------------------------------------------------------------|
| 2010 · 2011 · 2012 | <b>Research Productivity Award</b> , Pakistan Council for Science and Technology (three consecutive years)           |
| 2012 – 2015        | <b>Performance-Based Pay Increment</b> , BZU — awarded four consecutive years for five or more publications per year |
| PhD years          | <b>Second Prize, Young Speakers</b> , Third World Conference on 21st Century Mathematics, ASSMS, GCU Lahore          |

## RESEARCH GRANTS

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|      |                                                                                                                                   |
|------|-----------------------------------------------------------------------------------------------------------------------------------|
| 2023 | <b>Supply Chain Optimization Through Business Intelligence</b> , Bahauddin Zakariya University (PKR 0.35 m)                       |
| 2023 | <b>Investment Portfolio Optimization</b> , Bahauddin Zakariya University (PKR 0.35 m)                                             |
| 2018 | <b>Controllability in Graphs Using Node-Distinguishing Parameters</b> , Higher Education Commission (HEC), Pakistan (PKR 1.245 m) |
| 2012 | <b>Determining Number of Graphs and Hypergraphs</b> , Bahauddin Zakariya University (PKR 0.10 m)                                  |
| 2010 | <b>Total Vertex Irregular Labeling of Graphs</b> , Higher Education Commission (HEC), Pakistan (PKR 0.50 m)                       |

## JOURNAL PUBLICATIONS (69)

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### Impact Factor Bearing Journals (58)

1. H. Arshad, **I. Javaid**. Metric-based granular computing in networks. *Applied Soft Computing*, 202, Part C (October 2026), 115965. doi:10.1016/j.asoc.2026.115965
2. A. Fatima, **I. Javaid**, M. Akram. Rough Set Theory Applied to Group of Symmetries for Pattern Recognition. *New Mathematics and Natural Computation*, (2025), 1–20.
3. **I. Javaid**, A. Fatima, M. Akram. Symmetry-based granulation in networks associated with commutative rings: application in social network dynamics. *Journal of Applied Mathematics and Computing*, (2025), 1–26.
4. R. Alharbi, H. Arshad, **I. Javaid**, A. N. A. Koam, A. Haider. Distance-based granular computing in networks modeled by intersection graphs. *AIMS Mathematics*, 10(5), (2025), 10528–10553.
5. H. Arshad, **I. Javaid**, A. Fahad. Granular computing in zero-divisor graphs of  $Z_n$ . *Kuwait Journal of Science*, 51(3), (2024), 100231.
6. A. Fatima, **I. Javaid**. Rough set theory applied to finite dimensional vector spaces. *Information Sciences* 659 (2024) 120072.
7. M. N. Azhar, M. Fazil, **I. Javaid**, M. Murtaza. Graphs with distinguishing sets of size  $k$ . *Kuwait Journal of Science* 51 (2024) 100170.
8. **I. Javaid**, H. Benish, M. Murtaza. The fractional local metric dimension of graphs. *Contributions to Discrete Mathematics*, 19(3) (2024), 163–177.
9. **I. Javaid**, A. Haider, M. Salman, S. Mehtab. Resolvability in hypergraphs. *Contributions to Discrete Mathematics*, 18 (2) (2023), 176–187.
10. A. Shah, **I. Javaid**, S. Ur. Rehman. Symmetries and Symmetry-Breaking in arithmetic graphs. *Heliyon* 9 (2023) e19820.
11. S. Ur. Rehman, M. Imran, **I. Javaid**. On automorphism and fixing number of co-normal product of graphs. *Indian J Pure Appl Math* (2023). doi:10.1007/s13226-023-00421-2
12. W. Wang, H. Arshad, A. Fahad, **I. Javaid**. On some  $E_v$  and  $V_e$  degree dependent indices of Benes network and its derived classes. *Computer Modeling in Engineering & Sciences*, 135(2), 2023, 1685–1699.
13. **I. Javaid**, S. Ali, S. Ur Rehman, A. Shah. Rough sets in graphs using similarity relations. *AIMS Mathematics*, 7(4) 2022, 5790–5807.
14. M. Fazil, **I. Javaid**, M. Murtaza. On the fixing number of functigraphs. *Bulletin of the Korean Mathematical Society*, 58(1) 2021, 171–181.
15. M. Fazil, **I. Javaid**. On the fixatic number of graphs. *Ars Combinatoria*, 153(2020), 41–52.

16. M. Murtaza, **I. Javaid**, M. Fazil. Covering codes of a graph associated to a finite vector space. *Ukrains' kyi Matemattychnyi Zhurnal*, 72(7) 2020, 952–959.
17. S. Rehman, M. Imran, **I. Javaid**. On the metric dimension of arithmetic graph of a composite number. *Symmetry*, 2020.
18. M. Murtaza, M. Fazil, **I. Javaid**. Locating-dominating sets of functigraphs. *Theoretical Computer Science*, 799(2019), 115–123.
19. H. Benish, **I. Javaid**, M. Murtaza. Automorphism related parameters of graph associated to a finite vector space. *Utilitas Mathematica*, 111(2019), 35–48.
20. S. Akhter, M. Imran, M. R. Farahani, **I. Javaid**. On topological properties of hexagonal and silicate networks. *Hacettepe Journal of Mathematics and Statistics*, 48(3) 2019, 711–723.
21. **I. Javaid**, M. Salman, M. Murtaza, F. Iftikhar, M. Imran. Weak total resolving sets in graphs. *Utilitas Mathematica*, 110(2019), 11–26.
22. **I. Javaid**, H. Benish, M. Imran, A. Khan, Z. Ullah. On some bounds of the topological indices of generalized Sierpiński and extended Sierpiński graphs. *Journal of Inequalities and Applications*, (2019) 2019:37. doi:10.1186/s13660-019-1990-1
23. **I. Javaid**, M. S. Aasi, I. Irshad, M. Salman. On fixing sets of composition and corona product of graphs. *Utilitas Mathematica*, 109(2018), 17–28.
24. M. Salman, **I. Javaid**, M. A. Chaudhry. Resolving share and topological index. *Utilitas Mathematica*, 108(2018), 89–105.
25. M. Fazil, M. Murtaza, Z. Ullah, U. Ali, **I. Javaid**. On the Distinguishing Number of Functigraphs. *Symmetry*, 2018, 10, 332. doi:10.3390/sym10080332
26. **I. Javaid**, S. Rehman, M. Imran. Bounds on the domination number and the metric dimension of co-normal product of graphs. *Journal of Inequalities and Applications* (2018) 2018:162. doi:10.1186/s13660-018-1752-5
27. M. Salman, **I. Javaid**, M. A. Chaudhry. Minimum Fault-Tolerant, local and strong metric dimension of graphs. *Ars Combinatoria* 138 (2018), 333–353.
28. M. N. Azhar, **I. Javaid**. Metric Basis in Circulant Networks. *Ars Combinatoria* 136 (2018), 277–286.
29. **I. Javaid**, M. Murtaza, M. Asif, F. Iftikhar. On the fixed number of graph. *Bulletin of Iranian Mathematical Society*, 43(7)(2017)2281–2292.
30. A. Younus, **I. Javaid**, A. Zohra. On Controllability and Observability of Fractional Continuous-Time Linear Systems with Regular Pencils. *Bulletin of the Polish Academy of Sciences Technical Sciences*, 3(65)(2017), 297–304.
31. M. Fazil, **I. Javaid**, M. Salman, U. Ali. Locating-dominating sets in hypergraphs. *Periodica Mathematica Hungarica*, 72(2016) , 224–234.

32. M. Imran, M. Salman, M. Rehmat, **I. Javaid**. The crossing number of chordal ring networks. *Periodica Mathematica Hungarica*, 2(71) (2015) 193–209.
33. K. Ali, I. Tomescu, **I. Javaid**. On path-sunflower Ramsey numbers. *Mathematical Reports* 17(67), 4(2015) 385–390.
34. U. Ali, F. Azam, **I. Javaid**, A. Haider. Braids with Trivial Simple Centralizer. *Algebra Colloquium* 22 : 4 (2015) 561–566.
35. **I. Javaid**, F. Khalid, A. Ahmad, M. Imran. On a weaker version of sum labeling of graphs. *Mathematical Reports*, 16(66), 3(2014), 413–420.
36. **I. Javaid**, M. Salman, M. A. Chaudhry. Graphs of order  $n$  with fault-tolerant partition dimension  $n-1$ . *U. P. B. Sci. Bull. Uni. Series A*, 3(76)(2014), 159–168.
37. **I. Javaid**, H. Benish, A. Haider, M. Salman. Determining and distinguishing number of hypergraphs. *U. P. B. Sci. Bull. Uni. Series A*, 2(76)(2014), 75–84.
38. H. U. Afzal, A. Q. Baig, M. Imran, **I. Javaid**. Super edge-magic labeling of volvox and pancyclic graphs. *Util. Math.* 93 (2014), 49–56.
39. S. Naz, M. Salman, U. Ali, **I. Javaid**, S. Ihtsham-ul-Haq Bukhary. On the Constant Metric Dimension of Generalized Petersen Graphs  $P(n,4)$ . *Acta Math. Sin. (Engl. Ser.)* 7(30) (2014), 1145–1160.
40. Z. Ullah, **I. Javaid**, M. A. Chaudhry. On generalized triple derivations on lattices. *Ars Combin.* 113 (2014), 463–471.
41. **I. Javaid**, A. Ismail, M. Salman, A. Ahmad, Slamin. Labeling of Chordal Rings. *Utilitas Mathematica*, 90(2013), 61–75.
42. A. Rauf, M. A. Chaudhry, **I. Javaid**. Derivations on semiprime  $\Gamma$ -rings. *Utilitas Mathematica*, 90(2013), 171–185.
43. Z. Ullah, **I. Javaid**, M. A. Chaudhry. Derivations involving centralizers. *Utilitas Mathematica*, 90(2013), 383–392.
44. M. Salman, M. A. Chaudhry, **I. Javaid**. On the locatic number of graphs. *International Journal of Computer Mathematics*, 5(90)(2013), 912–920.
45. S. Ahmad, **I. Javaid**, M. A. Chaudhry, M. Salman. On the metric dimension of generalized Petersen graphs. *Quaestiones Mathematicae*, 36(2013), 421–435.
46. M. Imran, A. Q. Baig, S. A. Bokhary, **I. Javaid**. On the metric dimension of circulant graphs. *Applied Mathematics Letters* 25(2012) 320–325.
47. A. Q. Baig, M. Imran, **I. Javaid**, Andrea Semanicova-Fenovcikova. Super edge-magic deficiency of graphs. *Utilitas Mathematica* 87(2012), 355–365.
48. **I. Javaid**, S. Ahmad, M. N. Azhar. On the Metric Dimension of Generalized Petersen Graphs. *Ars Combinatoria* 105(2012) 171–182.
49. M. A. Chaudhry, A. Rauf, **I. Javaid**. On  $(\alpha, \beta)$ -generalized derivations on lattices. *Ars Combinatoria* 105(2012) 525–533.

50. M. Salman, **I. Javaid**, M. A. Chaudhry. Resolvability in circulant graphs. *Acta Mathematica English Series* 9(28) (2012) 1851–1864.
51. M. Salman, **I. Javaid**, M. A. Chaudhry. 2-size resolvability in graphs. *Appl. Math. Inform. Sci.* 6(2)(2012), 371–376.
52. A. Ahmad, **I. Javaid**, M. F. Nadeem. Further results on super edge magic deficiency of unicyclic graphs. *Ars Combinatoria* 99(2011), 129–138.
53. M. T. Rahim, K. Ali, **I. Javaid**. On antimagic total labelings of some families of graphs. *Ars Combinatoria* 95(2010), 225–234.
54. M. A. Chaudhry, **I. Javaid**, M. Salman. Fault-tolerant metric and partition dimension of graphs. *Utilitas Mathematica* 83 (2010), 187–199.
55. **I. Javaid**, M. Salman, M. A. Chaudhry, S. Shokat. Fault-Tolerance in Resolvability. *Utilitas Mathematica* 80(2009) 263–275.
56. **I. Javaid**, M. T. Rahim, K. Ali. Families of regular graphs with constant metric dimension. *Utilitas Mathematica* 75 (2008), 21–33.
57. I. Tomescu, **I. Javaid**. On the metric dimension of Jahangir graph. *Bulletin Mathematique de la Societe des Sciences Mathematiques de Roumanie* 50(2007) 371–376.
58. I. Tomescu, **I. Javaid**, Slamin. On the partition dimension and connected partition dimension of wheels. *Ars Combinatoria* 84 (2007), 311–317.

### ISI Listed Journals (5)

1. S. A. U. H. Bokhary, M. Imran, **I. Javaid**. On vertex irregularity strength of rotationally symmetric polytopes. *Science International Lahore* 24(3)(2012), 251–256.
2. A. Rauf, **I. Javaid**, M. A. Chaudhry. Permuting Tri-Derivations on Incline Algebras. *World Applied Science Journal*, 19(11)(2012), 1649–1652.
3. **I. Javaid**, N. K. Raja, M. Salman, M. N. Azhar. The Partition Dimension of Circulant Graphs. *World Applied Science Journal*, 18(12)(2012), 1705–1717.
4. **I. Javaid**, M. N. Azhar, M. Salman. Metric Dimension and Determining Number of Cayley Graphs. *World Applied Science Journal*, 18(12)(2012), 1800–1812.
5. **I. Javaid**, F. Iftikhar, M. Salman. Total resolvability in graphs. *Middle East Journal of Scientific Research*, 11 (12)(2012), 1649–1658.

### International Journals (3)

1. A. R. Khan, M. A. Chaudhry, **I. Javaid**. Some results on prime and semiprime  $\Gamma$ -rings. *Analele Universității Oradea Fasc. Matematica, Tom XXIII (2016), Issue No. 1*, 177–187.
2. A. Ahmad, K. M. Awan, **I. Javaid**, Slamin. Total vertex irregularity strength of wheel related graphs. *Austr. Journal of Combinatorics*, 51(2011) 147–156.

3. A. Ahmad, M. F. Nadeem, **I. Javaid**, R. Hasni. On the super edge-magic deficiency of some families related to ladder graphs. *Austr. Journal of Combinatorics*, 51(2011), 201–208.

### National Journals (3)

1. A. I. Pitafi, A. R. Khan, R. A. Memon, **I. Javaid**, M. S. Ullah. An Identity Related to Generalized Derivations on Semiprime  $\Gamma$ -Rings. *Sindh Univ. Res. Jour. (Sci. Ser.)* 48 (4) (2016) 855–858.
2. **I. Javaid**, S. Shokat. On the partition dimension of some wheel related graphs. *Journal of Prime Research in Mathematics*, 4 (2008), 154–164.
3. **I. Javaid**, M. Fazil, U. Ali, M. Salman. On some parameters related to fixing sets in graphs. *Journal of Prime Research in Mathematics*, 14(2018), 1–12.

### PHD SUPERVISION (13)

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|           |                                                                                                                             |
|-----------|-----------------------------------------------------------------------------------------------------------------------------|
| Ongoing   | <b>Ruby Jabbar</b>                                                                                                          |
| Ongoing   | <b>Hafiza Iqra Anum Yasin</b> — On discernibility matrices and discernibility functions of some graphs and data tables      |
| Ongoing   | <b>Hibba Arshad</b> — On some granular computing techniques in graphs and information systems associated to decision making |
| Submitted | <b>Abeer Fatima</b> — Information granulation and attribute reduction in some families of graphs and information tables     |
| Submitted | <b>Aqsa Shah</b> — Graph theoretic distinguishability parameters and controllability of networks                            |
| 2019      | <b>Muhammad Murtaza</b> — Distinguishability parameter in graphs                                                            |
| 2019      | <b>Hira Benish</b> — Distinguishing graphs by distance, automorphisms and related parameters                                |
| 2018      | <b>Muhammad Naeem Azhar</b> — Distinguishing sets in graphs                                                                 |
| 2018      | <b>Shahid ur Rehman</b> — Conditional resolving sets in graphs                                                              |
| 2017      | <b>Muhammad Fazil</b> — Determining sets and related parameters in graphs                                                   |
| 2015      | <b>Muhammad Salman</b> — Resolvability parameters in graphs                                                                 |
| 2015      | <b>Abdul Rauf</b> — Derivations on $\Gamma$ -rings and Lattice ordered rings                                                |
| 2015      | <b>Muhammad Zafarullah</b> — Generalized derivations on rings and lattices                                                  |

## MPHIL SUPERVISION (74)

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|------|-------------------------------------------------------------------------------------------------------------------------------|
| 2024 | <b>Kaneez Fatima</b> — Quantitative analysis of stock trading strategies                                                      |
| 2024 | <b>Mudassar Waheed</b> — Portfolio optimization using time series models                                                      |
| 2024 | <b>Aneeb Khalid</b> — Risk management with time series analysis                                                               |
| 2024 | <b>Shan Faisal</b> — Exploring marketing trends using advanced analytics                                                      |
| 2024 | <b>Shahzaib</b> — Optimizing pricing strategies using machine learning techniques                                             |
| 2023 | <b>M. Shahbaz</b> — Trend forecasting using variants of rough sets                                                            |
| 2023 | <b>Umme Habiba</b> — Indiscernibility parameters in relational information systems and their usage in supply chain management |
| 2023 | <b>Masoom Zahra</b> — On some demand forecasting methods and decision support system for supply chain management              |
| 2022 | <b>Kainat Fatima</b> — Granular computing in hypergraphs using distance                                                       |
| 2022 | <b>Mehwish Ali</b> — Rough set theory applied to hypergraphs using similarity relations                                       |
| 2022 | <b>M. Umar</b> — Granular computing in power graphs                                                                           |
| 2022 | <b>Fariha Gull</b> — Soft sets applied to non-zero component graphs                                                           |
| 2020 | <b>Abeer Fatima</b> — On decision making problems using regression and rough sets                                             |
| 2020 | <b>Sidra Nisar</b> — On some relations between graphs and rough sets                                                          |
| 2020 | <b>Nida Zeenat</b> — On some decision making problems using multigranulation rough sets                                       |
| 2020 | <b>Hibba Arshad</b> — On some attribute selection problems using variants of rough sets                                       |
| 2020 | <b>Tooba Fatima</b> — On some attribute reduction techniques with applications                                                |
| 2020 | <b>Shahroz Ali</b> — Approximation of some group related graphs and their controllability                                     |
| 2020 | <b>Muhammad Amjad</b> — On some feature selection problems using set theoretic techniques                                     |
| 2019 | <b>Nimra Akhtar</b> — Variants of metric dimension of some graphs of algebraic structures                                     |
| 2019 | <b>Maria Shehzadi</b> — Controllability of some electrical circuit                                                            |
| 2019 | <b>Arooj Zahra</b> — Some uncertainty parameters associated to graphs                                                         |
| 2019 | <b>Maham Ramzan</b> — Controllability of some families of graphs                                                              |
| 2019 | <b>Amir Hussain</b> — Rough sets with some applications in decision making                                                    |
| 2019 | <b>Muhammad Zulqarnain</b> — Variants of rough sets with applications                                                         |
| 2019 | <b>Nuzhat Perveen</b> — Fractional domination in Cayley graphs                                                                |

- 2018 **Ruby Jabbar** — The fixing number of zero divisor graph
- 2018 **Najam ul Sahar Sharif** — On domination related parameters in power graphs
- 2018 **Zoya Zulfiqar** — On location-domination of zero divisor graph
- 2018 **Sajida Azeem** — Symmetry and controllability in power graphs
- 2018 **Hafiza Iqra Anum Yasin** — Graph theoretic concepts and controllability in graphs
- 2018 **Nimra Anjum Lak** — Zero forcing set and related parameters in non-zero component graphs
- 2018 **Saman Younis** — On some metric dimension related parameters of intersection graph
- 2017 **Shehla Andleeb** — Dominating and locating dominating sets in some families of regular graphs
- 2017 **Muhammad Imran** — On resolvability and roughness in graphs associated to groups
- 2017 **Muhammad Kashif Farooq** — On some parameters related to uncertainty and resolvability in graphs
- 2017 **Hafiza Nayab Aisha** — On domination related parameters in graphs and fuzzy graphs
- 2017 **Syeda Ramsha Noor Sherazi** — Uncertainty parameters in graphs and groups
- 2017 **Abdul Majeed** — On some metric dimension related parameters in graphs
- 2017 **Mehnaz Gul** — Locating dominating sets of gear graphs
- 2017 **Shahid Hussain** — Total metric dimension of some families of graphs
- 2017 **Iqra Ahsan** — Locating dominating and locating total dominating sets of circulant graphs
- 2017 **Muhammad Azhar Baig** — Weak total metric dimension of some families of graphs
- 2017 **Sidra Siddiqui** — On the super edge-magic deficiency of Toeplitz graphs
- 2017 **Muhammad Abid Saleem** — Topological indices of linear polycene parallelogram benzenoid
- 2017 **Muhammad Fahad** — Some fixed point type iterative methods and polynomiography
- 2017 **Fazilat Shaheen** — Edge irregularity strength of circulant graphs
- 2016 **Aisha Anwar** — On some degree related topological indices of graphs
- 2016 **Iqra Irshad** — Controllability and distinguishability in graphs
- 2016 **Amna Khan** — On some distance and degree related parameters in graphs

- 2016 **Sara Rasheed** — On the locating-dominating sets in generalized Petersen graphs
- 2016 **Atif Mehmood** — t metric antidimension and the local metric dimension of some graphs
- 2016 **Ifra Bashir Sial** — On some topological indices related to distances in graphs
- 2016 **Saba Fatima** — On resolvability in graphs with weaker condition
- 2016 **Qurat ul Ain** — On locating sets in graphs with conditions
- 2015 **Muhammad Asif Shehzad** — Fault-tolerant metric dimension of some families of graphs
- 2015 **Maria Batool** — Zero forcing sets in graphs
- 2015 **Naila Mehreen** — Fixing sets in some graph products
- 2014 **Shahbaz Aasi** — Fixing sets of lexicographic product of graphs
- 2014 **Sadaf Khadim** — On conditional resolving sets in graphs
- 2013 **Farheen Iftikhar** — Total resolvability in graphs
- 2013 **Hira Benish** — Determining sets and distinguishing partitions in graphs and hypergraphs
- 2012 **Shahabuddin** — On the metric dimension and determining number of graphs
- 2012 **Nayab Khalid** — On the partition dimension of circulant graphs
- 2012 **Shahid ur Rehman** — On locatic partitions of graphs
- 2011 **Mezab Rehmat** — Crossing number of chordal rings
- 2011 **Sadaf Mehtab** — Resolvability in hypergraphs
- 2010 **Freeha Khalid** — Sum labeling of graphs
- 2010 **Shabbir Ahmad** — Resolvability in generalized Petersen graphs
- 2010 **Naeem Azhar** — On the determining and distance determining number of graphs
- 2009 **Sara Shokat** — Partition dimension of graphs
- 2009 **Abida Ismail** — Vertex magic and (a,d)- antimagic labeling of graphs
- 2009 **Kehkashan Nawaz** — Locating, dominating and locating-dominating sets in graphs
- 2009 **Muhammad Salman** — On the variations of metric dimension of graphs

## INVITED TALKS AND PRESENTATIONS

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|      |                                                                                                                                                                               |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2024 | Mathematical Modeling and Optimization of Business Operations. 2nd International Conference on Mathematics for a Sustainable Future (ICMSF-2024), The Women University Multan |
| 2024 | Rough Set Theoretic Approach to Computation of Metric Dimension. International Seminar on Network and Molecular Topological Indices, Pingdingshan University, China (online)  |
| 2024 | Operations Research for Analysis and Optimization of Business Operations. Sadiq Women University, Bahawalpur                                                                  |
| 2023 | Operations Research for Analysis and Optimization of Business Operations. 63rd National Seminar on Mathematics, Pakistan Mathematical Society (online)                        |
| 2021 | Information System, Granular Computing and Decision Making. International Conference on the Impact of Mathematics in Modern Era, Islamia University Bahawalpur                |
| 2020 | Soft Rough Graphs. 5th International Conference in Pure and Applied Mathematics, University of Sargodha                                                                       |
| 2019 | Distinguishability Approaches in Graphs. Workshop on Graph Theory, Combinatorics and Applications (GTCA-2019), UAE University, Al Ain                                         |
| 2018 | Bloom's Taxonomy for Mathematics. University of Education, DG Khan Campus                                                                                                     |
| 2018 | Discrete Mathematics and Recent Research Trends in Graph Theory (lecture series). Abant İzzet Baysal University, Bolu, Türkiye — Mevlana Staff Exchange                       |
| 2017 | Some Recent Advances in the Resolvability in Graphs. International Conference on Mathematics and its Applications, GC University Lahore                                       |
| 2017 | Distinguishability Approaches and Associated Parameters in Graphs. 3rd International Conference in Pure and Applied Mathematics, University of Sargodha                       |
| 2016 | The Fractional Fixing Number of Graphs. Workshop on Modern Aspects of Algebra and Graph Theory, COMSATS Lahore                                                                |
| 2015 | Variations of Metric Dimension of Graphs. Workshop on Modern Aspects of Algebra and Graph Theory, COMSATS Lahore                                                              |

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|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2013 | Metric Dimension and Determining Number of Hypergraphs. National Workshop on Recent Advances in Graph Theory and Combinatorics, CASM, LUMS                         |
| 2012 | Metric Dimension and Related Parameters. Spring Workshop on Recent Advances in Graph Theory and Combinatorics, CASM, LUMS                                          |
| 2007 | On the Connected Partition Dimension of Unicyclic Graphs. International Conference on Graph Theory and Information Security, Institut Teknologi Bandung, Indonesia |

## ORGANISED

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|------|-----------------------------------------------------------------------------------------------|
| 2017 | <b>Organising Secretary</b> , CASPAM International Conference on Mathematics and Applications |
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## ADMINISTRATIVE POSITIONS

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|             |                                                    |
|-------------|----------------------------------------------------|
| 2019 – 2022 | <b>Director, CASPAM</b>                            |
| 2009 – 2020 | <b>In-charge, CASPAM Research Laboratory</b>       |
| 2019 – 2020 | <b>Focal Person, Pakistan Citizen Portal</b>       |
| 2009 – 2014 | <b>Coordinator, MSc (Evening)</b>                  |
| University  | <b>Chairman, Digitalization Committee</b>          |
| University  | <b>Convener, TTS Grievance Redressal Committee</b> |
| University  | <b>Chairman, House Allotment Committee</b>         |

## BOARDS AND COMMITTEES

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- University of Narowal — Steering Committee
- COMSATS University Islamabad — Board of Studies
- Islamia University Bahawalpur — Board of Studies
- Sadiq Women University — Board of Studies; Advanced Studies & Research Board
- GC University Faisalabad — Board of Studies; Tenure Review
- University of Gujrat — Departmental Tenure Review
- Ghazi University DG Khan — Board of Studies
- Emerson University Multan — Board of Studies
- KFUEIT Rahim Yar Khan — Board of Studies
- Multan Flying Club — BSc Aviation Sciences Board of Studies

- BZU — Board of Studies, Affiliation, Semester Reforms, TTS Standing, Admissions and Examination committees

## EXTERNAL EXAMINER

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NUST Islamabad, University of the Punjab, GC University Lahore, GC University Faisalabad, COMSATS, University of Sargodha, Islamia University Bahawalpur.

## COURSES TAUGHT

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Operations Research, Business Analytics, Optimization Theory, Actuarial Mathematics, Mathematical Foundations of Finance, Data Analysis using Excel, Machine Learning, Artificial Intelligence, Database Systems, Discrete Structures, Probability & Mathematical Statistics, Linear Algebra & Matrix Computation, Real & Complex Analysis, Control Theory, Combinatorics & Graph Theory, Algebraic Graph Theory, Fuzzy Graphs & Hypergraphs, Differential Equations, Group Theory & Algebra, Calculus I–III.

## LANGUAGES

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English, Urdu, Punjabi, Saraiki.

## REFERENCES

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Available on request.

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