DR. SAIRA HAMEED

HEC Approved PhD Supervisor

Biography

Dr. Saira Hameed is currently working as Assistant Professor in Department of Mathematics, University of the Punjab, Lahore. She has joined University of Punjab, Lahore as Lecturer in Department of Mathematics in 2006. She is visually impaired by birth. Despite of her disability she has received Ph.D. in Mathematics from University of the Punjab, Lahore and received HEC indigenous scholarship. She also got Gold Medal in M.Sc. Mathematics from Lahore College for Women University, Lahore. Her research interests include Spectral Graph Theory, Molecular Graph Theory and Fuzzy Graph Theory. She is also HEC approved PhD supervisor. She has published **32** research articles in International Peer-Reviewed Journals. Some of her papers published in High ranked journals. Her total Impact Factor is more than **40**. She participated/presented her research work in National/International conferences related to her field. She has successfully supervised **one PhD** thesis and **twelve M.Phil** theses. She is a dedicated teacher and researcher who has made significant contributions to her field. In recognition of her outstanding performance, the University of the Punjab awarded her **Incentive award in 2019, 2020 and 2021**.

PROFESSIONAL EXPERIENCE

- **University of the Punjab, Lahore. May 2022 to date**
- Assistant Professor Regular (Department of Mathematics)
- **University of the Punjab, Lahore. October 2019 to May 2022**
- Assistant Professor Adhoc (Department of Mathematics)
- **University of the Punjab, Lahore. May 2006 October 2019**

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Department of Mathematics, University Of The Punjab, Lahore

Lecturer (Department of Mathematics)

- **Govt. Allama Iqbal College Sialkot. April 2005-May 2006**

  Lecturer (Department of Mathematics)

ADMINISTRATIVE EXPERIENCE

- Member Board of Studies, Department of Mathematics. 2019 to 2022.
- Member, Departmental Scholarship Committee, University of the Punjab. 2010 to 2015.
- Member, Board of Faculty of Science. 2011-2012, 2016-2018.
- Assistant Coordinator Departmental Seminar Series. 2013-2014.

ACADEMIC QUALIFICATIONS

- **PhD Mathematics (2019)**

  University of the Punjab, Lahore
- **M. Phil Mathematics (2015)**

  University of Education, Lahore.
- **M.Sc. Mathematics (2003)**

  Lahore College for Women University, Lahore.
- **Graduation (2001)**

  University of the Punjab, Lahore.
- **F.Sc. (Pre-Engineering) (1998)**

  Govt. Degree College for Women, Sialkot.
- **Matriculation (Science) (1996)**

  Govt. Girls Higher Secondary School, Sialkot

PROFESSIONAL QUALIFICATION

- **B.Ed (2004)**

  Allama Iqbal Open University, Islamabad.

SPECIAL DISTINCTION

- I was awarded Gold Medal and Shamshad Majeed Gold Medal in M.Sc. Mathematics from Lahore College for Women University, Lahore in 2003.
- HEC scholarship holder in Indigenous PhD fellowship program Phase II, Batch-IV.
- Performance Award 2017, University of the Punjab, Lahore.
- Performance Award 2019, University of the Punjab, Lahore.
- Research Incentive Award 2019, University of the Punjab, Lahore.
- Research Incentive Award 2020, University of the Punjab, Lahore.
- Research Incentive Award 2021, University of the Punjab, Lahore.

TEACHING EXPERIENCES

- Calculus
- Linear Algebra
- Group Theory
- Graph Theory
- Measure Theory
- Number Theory
- Set Theory
- Advanced Group Theory
- Functional Analysis
- Advanced analysis
- Complex Analysis
- Real Analysis
- Differential Geometry
- Integral Equations
- Rings & Modules

FIELD OF INTEREST

- Spectral Graph Theory
- Molecular Graph Theory

- Fuzzy Graph Theory

RESEARCH EXPERIENCE

- The research project on "***Reciprocal Graphs and their Properties"*** funded by University of the Punjab 2022-2023
- The research project on '***Properties of Signed Graphs***'' funded by University of the Punjab 2021-2022.
- M.Phil. thesis titled "On the Algebras of Octonians and Split Octonians over Z_p" under supervision Dr. Mobeen Munir, University of Education, Lahore.
- PhD thesis titled "Spectral and Topological Properties of Graphs", 2019 under supervision of Dr. Uzma Ahmad, University of the Punjab, Lahore.

TRAININGS/ WORKSHOPS & SEMINARS

- Participated in PU-NMS International Schools Series for Students and Faculty (February 14-18,2022) held in Department of Mathematics, University of the Punjab, Lahore.
- Paper presented in 5th UICPAM-2019 held at Centre For Mathematics and its Applications (CMAP) University of Management and Technology (UMT) (March 29-31, 2019)
- Delivered a seminar entitled "On the energy of trees", in Departmental Seminar Series in December 2018.
- Paper presented in 4th UICPAM-2018 held by Centre For Mathematics and its Applications (CMAP) University of Management and Technology (UMT) (March 31-April02, 2018)
- Delivered a seminar entitled "Catacondensed and peri-condensed benzenoid systems and their ordering by means of VDB topological indices", in Departmental Seminar Series in January 2017.
- Delivered a seminar entitled "HOMO-LOMO gap for certain nanotubes and nanotori", in Departmental Seminar Series in November 2017.

- Participated in HRDC Faculty Orientation Program 2008.
- Participated in CASM workshop at LUMS 2014.
- Participated in workshop at COMSAT University 2015.
- Participated in Weekly Departmental Seminar Series2015 to date, in Department of Mathematics, University of the Punjab Lahore.

SUPERVISION OF PHD/M.PHILTHESIS

PHD THESIS

1. Miss. Sadia Akhtar (Title: Spectral Characteristics of Simple Graphs), (2020-2024)

M. PHIL THESIS

1. Miss. Noreen Mustafa (Title: Complex Fuzzy Threshold Graphs, 2019-2021)
2. Miss Afeefa Maryam (Title: Cubic Pythagorean Fuzzy Graphs, 2021-2022)
3. Miss Ayman Rasheed (Title: Cubic Planar Graphs, 2021-2022)
4. Miss Khadija Majeed (Title: Spectra of Signed Graphs, 2021-2022)
5. Miss Zarash Batool (Title: Domination on Fuzzy Graphs, 2021-2022)
6. Mr. Samee Ullah (Title: Bridges in Cubic Fuzzy Graphs and their Application, 2021-2023)
7. Mr. Abdul Ghafar Shah (Title: Connectivity Measures in Cubic Fuzzy Graphs, 2021-2023)
8. Mr. Zulqarnain Yousaf (Title: Zagreb Index for q-Rung Orthopair Fuzzy Graphs, 2021-2023)
9. Miss Sobia Ikhlaq (Title: Zagreb Energy of Spherical Fuzzy Graphs, 2021-2023)
10. Mr. Muazam Ali (Title: Application of certain connectivity indices in predicting physicochemical properties of benzenoids, 2022-2024)
11. Miss Ummara Hassan (Computation of degree-based topological indices of families of Flabellum Graphs, 2022-2024)
12. Miss Sadaf (Spherical Fuzzy Planar Graphs, 2022-2024)

Evaluation of M.Phil Thesis

1. Ms. Anam Irshad (Title: Risk Evaluation for FMEA via Rough Speherical Fuzzy ARAS Approach, 2021-2023). University of Okara.
2. Ms. Khadija Muzaffar (Ttile: Rough Spherical Fuzzy Graphs with application, 2021-2023). University of Okara.

REVIEWING RESEARCH ARTICLES

- Journal of Intelligent & Fuzzy Systems

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LIST OF PUBLICATIONS

1. Zhao, J., Hameed, S., Ahmad, U., Tabassum, A. and Asgharsharghi, L., 2024. Sequence of Bounds for Spectral Radius and Energy of Digraph. *Symmetry*, *16*(10), p.1386.

2. Akhter, S., Muhiuddin, G., Hameed, S. and Ahmad, U., 2024. A New Family of Graphs and Strong Antireciprocal Eigenvalue Property. *Journal of Mathematics*, *2024*(1), p.8849362.

3. Shi, X., Kosari, S., Hameed, S., Shah, A.G. and Ullah, S., 2024. Application of connectivity index of cubic fuzzy graphs for identification of danger zones of tsunami threat. *Plos one*, *19*(1), p.e0297197.

4. Hameed, S., Ahmad, U., Ullah, S. and Shah, A.G., 2024. Cubic fuzzy bridges and its application to traffic flow problem. *Journal of Intelligent & Fuzzy Systems*, (Preprint), pp.1-19.

5. Shi, X., Hameed, S., Akhter, S., Khan, A. and Akhoundi, M., 2023. Conversion of Unweighted Graphs to Weighted Graphs Satisfying Properties R and− SR. *Axioms*, *12*(11), p.1043.

6. Shi, X., Kosari, S., Ahmad, U., Hameed, S. and Akhter, S., 2023. Evaluation of Various Topological Indices of Flabellum Graphs. *Mathematics*, *11*(19), p.4167.

7. Hameed, S., Ahmad, U. and Batool, Z., 2023. Total Perfect and Total Efficient Domination in Intuitionistic Fuzzy Graphs. *International Journal of Applied and Computational Mathematics*, *9*(5), p.60.

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8. Guan, H., Khan, A., Akhter, S. and Hameed, S., 2023. Spectral Characterization of Graphs with Respect to the Anti-Reciprocal Eigenvalue Property. *Symmetry*, *15*(6), p.1240.

9. Ahmad, U., Imran, M., Alanazi, A.M., Yousaf, R. and Hameed, S., 2023. On distance-based indices of regular dendrimers using automorphism group action. *Main Group Metal Chemistry*, *46*(1), pp.2022-0028.

10. Akhter, S., Hameed, S. and Ahmad, U., 2023. Signed graphs with strong anti-reciprocal eigenvalue property. *Communications in Algebra*, pp.1-9.

11. Ahmad, U., Hameed, S. and Akhter, S., 2023. On weighted noncorona graphs with properties R and-SR. *Kuwait Journal of Science*, *50*.

12. Ismail, R., Hameed, S., Ahmad, U., Majeed, K. and Javaid, M., 2023. Unbalanced signed graphs with eigenvalue properties. *AIMS Mathematics*, *8*(10), pp. 24751-24763.

13. Alrowaili, D.A., Ahmad, U., Hameeed, S. and Javaid, M., 2023. Graphs with mixed metric dimension three and related algorithms. *AIMS Mathematics*, *8*(7), pp.16708-16723.

14. Akhter, S., Ahmad, U. and Hameed, S., 2022. On graphs with anti-reciprocal eigenvalue property. *Transactions on Combinatorics*.

15. Ahmad, U., Akbari, S., Hameed, S., Nematollahi, M.A. and Saeed, F., 2022. Addendum to “Spectral characterizations of signed cycles”[Linear Algebra Appl. 553 (2018) 307–327]. *Linear Algebra and its Applications*, *651*, pp.83-89.

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16. Hameed, S. and Ahmad, U., 2022. Inverse of the adjacency matrices and strong anti-reciprocal eigenvalue property. *Linear and Multilinear Algebra*, *70*(14), pp. 2739-2764.

17. Hameed, S., Alamer, A., Javaid, M. and Ahmad, U., 2022. An estimation of HOMO–LUMO gap for a class of molecular graphs. *Main Group Metal Chemistry*, *45*(1), pp. 100-105.

18. Muhiuddin, G., Hameed, S., Rasheed, A. and Ahmad, U., 2022. Cubic planar graph and its application to road network. *Mathematical Problems in Engineering*.

19. Muhiuddin, G., Hameed, S., Maryam, A. and Ahmad, U., 2022. Cubic Pythagorean fuzzy graphs. *Journal of Mathematics*.

20. Afzal, D., Hameed, S., Ashraf, U., Mehmood, A., Chaudhry, F. and Thapa, D.K., 2022. Study of Neighborhood Degree-Based Topological Indices via Direct and NM-Polynomial of Starphene Graph. *Journal of Function Spaces*.

21. Hameed, S., Husin, M.N., Afzal, F., Hussain, H., Afzal, D., Farahani, M.R. and Cancan, M., 2021. On computation of newly defined degree-based topological invariants of Bismuth Tri-iodide via M-polynomial. *Journal of Discrete Mathematical Sciences and Cryptography*, *24*(7), pp. 2073-2091.

22. Hameed, S., Akram, M., Mustafa, N., & Samanta, S. (2021). Extension of threshold graphs under complex fuzzy environment. *International Journal of Applied and Computational Mathematics*, *7*(5), pp. 1-19.

23. Hameed, S., Akram, M., Mustafa, N., & Karaaslan, F. (2021). Extension of Threshold Graphs Under Complex Intuitionistic Fuzzy Environment. *Journal of Multiple-Valued Logic & Soft Computing*, *37*.

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24. Ahmad, U., Hameed, S., & Jabeen, S. (2021). Noncorona graphs with strong anti-reciprocal eigenvalue property. *Linear and Multilinear Algebra*, *69*(10), pp. 1878-1888.

25. Ahmad, U., Hameed, S. (2020), Study of topological indices in a class of benzenoid graphs, Computational Journal of Combinatorial Mathematics 1, pp. 19-30

26. Ahmad, U., Hameed, S., & Jabeen, S. (2020). Class of weighted graphs with strong anti-reciprocal eigenvalue property. *Linear and Multilinear Algebra*, *68*(6), pp. 1129-1139.

27. Wei, J., Ahmad, U., Hameed, S., & Hanif, J. (2020). Locating-Total Domination Number of Cacti Graphs. *Mathematical Problems in Engineering*.

28. Afzal, F., Hussain, S., Afzal, D., & Hameed, S. (2020). M-polynomial and topological indices of zigzag edge coronoid fused by starphene. *Open Chemistry*, *18*(1), pp. 1362-1369.

29. Afzal, F., Abdul Razaq, M., Afzal, D., & Hameed, S. (2020). Weighted entropy of penta chains graph. *Eurasian Chemical Communications*, *2*(6), pp. 652-662

30. Hameed, S., & Ahmad, U. (2019). Minimal Energy Tree with 4 Branched Vertices. *Open Chemistry*, *17*(1), pp. 198-205.

31. S. Hameed, U. Ahmad, Extremal Values in a Class of Basic Peri-condensed Benzenoids with respect to VDB Topological Indices, ARS COMBINATORIA 145(2019), pp. 367-376

32. Ahmad, U., & Hameed, S. (2018). Bounds of HOMO-LUMO Gap for Certain Nanotubes and Nanotori. *Journal of Informatics and Mathematical Sciences*, *10*(3), pp. 391-398.