Asim Naseem

Assistant Professor

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Born: January 1979

Google Scholar: https://scholar.google.com/citations?hl=en&user=egaPL1sAAAAJ

My teaching and research focus on algebra, number theory, valuation theory, and graph theory at undergraduate and graduate levels. My research includes valued fields, Galois Theory, and graph-theoretic invariants with applications to chemical and network models. My supervision involves PhD, MPhil, and BS students.

Education

PhD Mathematics | Abdus Salam School of Mathematical Sciences, Government College University Lahore, Pakistan
September 2004 – February 2009
Thesis title: *Subfields of valued field and Galois Theory of transcendental Extensions*

Master of Science in Computational Mathematics | University of Engineering and Technology (UET), Lahore, Pakistan
September 2002 – August 2004

Microsoft Certified Professional MCP | Microsoft (Online)
April 2001
Certification: *Designing and Implementing Desktop Applications using MS VB 6.0*

Master of Computer Science | The National College (NCCS), Lahore, Pakistan
September 1999 – December 2000

Work History

Assistant Professor | Department of Mathematics, Government College University Lahore (GCU), Pakistan
September 2009 – Present

Postdoctoral Fellow | University of Saskatchewan, Saskatoon, Canada
September 2011 – March 2012

Teaching Profile

Courses Designed:

- **Valuation Theory:** Designed a graduate-level course on valuation theory, covering absolute values and valuations, with introductory applications to number theory and algebraic geometry.
- **Algebraic Number Theory:** Developed content for an introductory graduate-level course covering algebraic number fields, rings of integers, ideal factorization, unit groups, and applications to Diophantine equations.

Courses Taught:

- **MPhil Mathematics, GCU:** Algebraic Number Theory; Valuation Theory; Galois Theory; Advanced Algebra; Graph Theory and its Applications
- **BS Mathematics, GCU:** Calculus I–III; Number Theory; Graph Theory; Linear Algebra; Abstract Algebra; Field Theory

Publications

1. Exploring the physical properties of polyhydroxybutyrate via eccentricity-based topological indices, *Chemical Papers*, **79**(9), 5785–5798, 2025. [Impact Factor: 2.5; SJR Rank: Q3; HEC Category: X]
2. Physical analysis of eccentricity-based topological indices for Hex-derived networks, *Discrete Mathematics, Algorithms and Applications*, **17**(2), 2025. [Impact Factor: 1.200; SJR Rank: Q3; HEC Category: X]
3. Characterizing superlattice topologies via fifth M-Zagreb polynomials and structural indices, *European Physical Journal Plus*, **138**:1025, 2023. [Impact Factor: 3.400; SJR Rank: Q2; HEC Category: W]
4. Further results on radio number of wedge sum of graphs, *Ars Combinatoria*, 156, 13-23, 2023. [Impact Factor: 0.263; SJR Rank: Q4; HEC Category: Y]

5. Combinatorial Bounds of the Regularity of Elimination Ideals**,** *Ars Combinatoria*, **156**, 25-34, 2023. [Impact Factor: 0.263; SJR Rank: Q4; HEC Category: Y]
6. Effects of exponential heating on double-diffuse free convection flows on a moving vertical plate**,** *Mathematical Reports*, **24** (3), 481-503, 2022. [Impact Factor: 0.441; SJR Rank: Q4; HEC Category: Y]
7. The radio number for wedge sum of graphs**,** *Ars Combinatoria*, **151**, 109-122, 2020. [Impact Factor: 0.263; SJR Rank: Q4; HEC Category: Y]
8. Fixed Point Problems on Generalized Metric Spaces in Perov's Sense**,** *Symmetry*, **12**, 856, 2020. [Impact Factor: 2.143; SJR Rank: Q3; HEC Category: W]
9. Hosoya and Harary polynomials of hourglass and rhombic Benzenoid Systems**,** *Journal of Chemistry*, **2020**, 2020. [Impact Factor: 1.790; SJR Rank: Q2; HEC Category: W]
10. MHD Natural Convection Boundary layer Flow Over a Semi-Infinite Heated Plate with Arbitrary Inclination**,** *Discrete and Continuous Dynamical Systems Series S*, **13**(3), 1007-1015, 2020. [Impact Factor: 1.233; SJR Rank: Q2; HEC Category: W]
11. On Some New Multivalued Results in the Metric Spaces of Perov's Type, *Mathematics*, **8**(3), 438, 2020. [Impact Factor: 1.747; SJR Rank: Q2; HEC Category: W]
12. Topological invariants for the line graphs of some classes of graphs**,** *Open Chemistry*, **17**, 1483–1490, 2019. [Impact Factor: 1.216; SJR Rank: Q2; HEC Category: W]
13. Topological Indices of Para-line Graphs of V-Phenylenic Nanostructures**,** *Open Mathematics*, **17**, 260–266, 2019. [Impact Factor: 0.773; SJR Rank: Q3; HEC Category: W]
14. Distance and adjacency energies of multi-level wheel networks, *Mathematics*, **7**(43), 2019. [Impact Factor: 1.747; SJR Rank: Q3; HEC Category: W]
15. Topological Indices of mth Chain Silicate Graphs, *Mathematics*, **7**(42), 2019. [Impact Factor: 1.747; SJR Rank: Q3; HEC Category: W]
16. Fixed Points Results in Algebras of Split Quaternion and Octonion, *Symmetry*, **10**(9), 405, 2018. [Impact Factor: 2.143; SJR Rank: Q3; HEC Category: W]
17. The Radio Number of Edge-Joint Graphs, *Ars Combinatoria*, **139**, 337-351, 2018. [Impact Factor: 0.192; SJR Rank: Q3; HEC Category: W]
18. Optimal approximation in henselian fields, *Science International (Lahore)*, **27**(1), 7-9, 2015. [Impact Factor: -; SJR Rank: -; HEC Category: -]
19. Defects of algebraic function fields, completion defects and defect quotients, in *Valuation Theory in Interaction*, EMS Series of Congress Reports, EMS Press, 320–350, 2014. [Impact Factor: –; SJR Rank: –; HEC Category: –]
20. A Galois Theory for the Field Extension $K((X))/K$, *Glasgow Mathematical Journal*, **52**(3), 447-451, 2010. [Impact Factor: 0.408; SJR Rank: Q2; HEC Category: W]
21. Extensions of discrete finite rank valued fields, *Bulletin Mathématique*, **59**, 245-252, 2008. [Impact Factor: –; SJR Rank: –; HEC Category: -]

Students Supervision

PhD Supervision (3 students):

- Usman Babar, *A Study of Eccentricity-Based Invariants of Chemical Network Models* (2025)
- Laraib Hayat, *Intuitionistic fuzzy credibility implicative ideals in BCK-Algebras with Applications in Decision-making* (Ongoing)
- Fatima Rasool, *Linear Diophantine Fuzzy BCC ideals in BCC-Algebras with Applications in Decision making* (Ongoing)

MPhil Supervision (25 students):

- Maria Sharif, *On the Monogenity of Number Fields Defined by Certain Polynomials* (2025)
- Sheher Bano, *Radio Numbers of the Graphs Formed by Wedge Sum* (2025)
- Mishal Adnan Khan, *On Monogenity of Some Cubic Number Fields* (2024)
- Arooj Shahzad, *A Study of Canonical Number Systems in Number Fields* (2025)
- Nimra Mehmood, *Computation of the Discriminant for Certain Number Fields* (2024)

- Aqsa Yaseen, *On Power Integral Basis of Number Fields Defined by Certain Trinomials* (2024)
- Shama Sadiq, *The NF-Number of Some Cover Complexes and Independent Complexes* (2023)
- Umer Usman, *On the NF-Number of Spanning Simplicial Complexes of Cycles* (2023)
- Samra Rehmat, M-Polynomial and Neighborhood M-Polynomial of Molecular Structure of Porphyrazine Network (2023)
- Shaista Hina, *On the Temperature Indices of Molecular Graph of Guar Gum and Its Chemical Derivatives* (2023)
- Sabeen Javaid, *Analysis of Super Lattice Structure using Fifth M-Zagreb Polynomials and Indices* (2023)
- Sania Latif, *Analysis of Some Octahedron Networks using M and NM Polynomials* (2023)
- Muhammad Masab, *A Study of Hex-Derived Network of Third type Via Topological Indices* (2022)
- Fahad Sarwar, *On Some Degree Based Topological Indices of Chemical Structures* (2022)
- Saira Batool, On some irreducibility criteria of polynomials over valued fields (2021)
- Mujaddad Hussain, *A New Contraction of Cohen Macaulay f-graphs* (2021)
- Norina Zahid, *Algebraic and combinatorial aspects of neighborhood complexes* (2021)
- Usama Yousaf, *On characterization of f*-ideal of degree 2* (2021)
- Faiza Zaib, *On Graphs Achieving Certain Lower Bound for Radio Number* (2021)
- Muhammad Ramzan, *Multilevel Distance Labeling for Wedge Sum of Graph* (2019)
- Hafiz Waqar, *Some Polynomial Invariants of Polygonal Cylinder* (2019)
- Saba Tariq, *On Cover Complexes of f-Graphs* (2019)
- Raheela Naz, *On Some Characterizations of Henselian Elements in Valued Fields* (2017)
- Ansa Islam, *Subsets of Valued Fields with Optimal Approximation Property* (2015)
- Lubna Amjad, *Extremal Valued Fields in Mixed Characteristic* (2015)

BS Supervision:

- Supervised 48 BS (Hons.) Mathematics Students at GC University Lahore, Pakistan

Talks/Seminars/Paper Presentations

- 2019 – On the radio number of a graph, Unpacking Mathematics: Weekly Seminar Series, Department of Mathematics, GC University Lahore
- 2012 – *The completion defect and defects of valued function fields*, The Eleventh Colloquiumfest, University of Saskatchewan, Saskatoon, Canada
- 2011 – *Introduction to Valuation Theory*, Weekly Seminar Series, Department of Mathematics, GC University Lahore
- 2010 – *A Galois theory for the extension K((X))/K*, Workshop on Valuation theory in positive characteristic, University of Katowice, Poland
- 2010 – *A Galois theory for the extension K((X))/K*, Joint conferences on Algebra, Logic and Number theory, Bukowina Tatrzanska, Poland
- 2009 – *On polycomplete valued fields*, Abdus Salam School of Mathematical Sciences, Lahore, Pakistan
- 2009 – *Extensions of discrete finite rank valued fields*, 4th International Conference on 21st Century Mathematics, Abdus Salam School of Mathematical Sciences, Lahore, Pakistan
- 2008 – *Finite co-extensions of complete discrete valued fields*, LUMS 2nd International Conference on Mathematics and its applications in Information Technology, LUMS, Pakistan
- 2007 – *On some closed subfields of K((X))*, 3rd International Conference on 21st Century Mathematics, Abdus Salam School of Mathematical Sciences, Lahore, Pakistan

Academic Service

- Coordinator, PhD Program | 2018 – Present | Department of Mathematics, GC University Lahore
- Coordinator, MPhil Program | Fall 2016; 2025 – Present | Department of Mathematics, GC University Lahore

- Co-opted Member, Board of Studies | 2025 – Present | Department of Mathematics, GC University Lahore
- Advisor, Chawala Mathematical Society | 2018 – Present | Department of Mathematics, GC University Lahore
- Timetable In-charge | 2025 – Present | Department of Mathematics, GC University Lahore
- Member, Board of Studies | 2018 – 2021 | Department of Mathematics, GC University Lahore
- Co-Advisor, Chawala Mathematical Society | 2015 – 2018 | Department of Mathematics, GC University Lahore
- Seminars In-charge | 2017 – 2018 | Department of Mathematics, GC University Lahore
- Computer Lab In-charge | 2009 – 2011 | Department of Mathematics, GC University Lahore

Workshop / Conference Organization

- Organizing Committee Member | 2018 International Conference on Mathematics and Its Applications | Nov 13–15, 2018, GC University Lahore
- Organizing Committee Member | 2017 International Conference on Mathematics and Its Applications | Nov 13–15, 2017, GC University Lahore
- Secretary | One Day Workshop on Soft Set Theory and Its Applications | May 23, 2017 | GC University Lahore

References

Prof. Dr. Sever Angel Popescu

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Associate Professor, Department of Mathematics

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