Dr. Nasir Ali

- +92-301-4422014
- D.O.B: 27-09-1995
- nasirzawar@gmail.com
- nasir.ali@cuivehari.edu.pk
- http://www.linkedin.com/in/nasir786
- https://www.webofscience.com/wos/author/record/HGA-1318-2022
- https://orcid.org/0000-0003-4116-9673
- https://www.researchgate.net/profile/Nasir-Ali-68
- https://scholar.google.com.pk/citations?user=SAD2GUgAAAAJ&hl=en
- https://ww2.comsats.edu.pk/faculty/FacultyDetails.aspx?Uid=31854
- CNIC: 36603-7175132-3

➢ Education

COMSATS University Islamabad, Lahore Campus — Lahore, Punjab
PhD Mathematics — Feb 2021 – April 2025

COMSATS University Islamabad, Vehari Campus (3.56/4) — Vehari, Punjab
MS Mathematics — Feb 2019 – Feb 2021

➢ Professional Experience

COMSATS University Islamabad, Vehari Campus — Vehari, Pakistan
COMSATS aims to reduce the ever-growing gap between the developed and developing world through useful applications of science and technology — Jan 2023-up to date
Lecturer of Mathematics:
- Enhancement of Teaching skills: Teaching in COMSATS enables me to learn and adopt modern teaching skills.

AMAL ACADEMY — Lahore, Pakistan
Education startup funded by Stanford University that teaches professional skills To students and corporations — Dec 2020 – Feb 2021
Career-Prep Fellow:
- *Communication:* Completed a competitive written application and interview process to be selected from over 4500 applicants for intensive 3-month Fellowship funded by Stanford University
- *Skills development:* Investing 150 hours in order to develop business skills (e.g., communication, leadership, problem solving, teamwork, etc.) that will help me make a deeper impact on the job

University of Education — Vehari, Pakistan
The University of Education is a public research university. — Oct 2018- Aug 2020
Visiting Lecturer of Mathematics:
- Advance Teaching skills: Teaching in research institute enable me to learn the advance mathematics computing skills and some software's (e.g., MS Office, MATLAB, MAPLE)

Govt. Post Graduate College — Vehari, Pakistan
Govt Post Graduate college is affiliated with BISE Multan. — Oct 2018 – Sep 2019
CTI Mathematics:
- *Skills development:* Spending almost a year with almost 70+ students in each class developed teaching skills (e.g., Pressure absorbing, leadership, problem solving, teamwork, etc.) that will help me make a deeper impact on the job.

➢ Academic Experience

Ph.D. Thesis — Vehari, Pakistan
COMSATS University Islamabad, Lahore Campus — Feb 2021 – Apr 2025
Researcher:
- *Area of Research:* Graph Theory
- *Research Topic:* On Study of some Distinguishing Parameters for Graphs Associated to Algebraic Structures

MS Thesis Vehari, Pakistan

Completed 6 credit hours thesis work (COMSATS University Islamabad, Vehari Campus) Jan 2020 – Jan 2021

Researcher:

- *Area of Research:* Fractional Calculus
- *Research Topic:* Some Modified Numerical Method Using Fractional Derivative for Solving Nonlinear Equations
- *Computing Software and Research Skills:* During research learn many software's that are necessary for a mathematics teacher (e.g., Scientific Workplace, Latex, MS Word, etc.) and research skills *(e.g., Books searching, Journals details, action research, etc.)*

➢ Projects/Publications

Research Paper

1. Riaz, A., Siddiqui, H. M. A., & **Ali, N.** (2025). Graph-theoretic characterization of rings: Outer multiset dimension of zero-divisor graphs. Discrete Applied Mathematics, 377(C), 436–444. https://doi.org/10.1016/j.dam.2024.09.032
2. **Ali, Nasir** , Qousini, Maysoon , Qureshi, Muhammad Imran & Siddiqui, Hafiz Muhammad Afzal (2025) Investigating topological spaces arising from commutative rings via associated zero divisor graphs : A holistic approach, *Journal of Interdisciplinary Mathematics,* :, 1-4, DOI: 10.47974/JIM-2161
3. Saleh, S. N., Naseer, M. K., **Ali, N.,** Karabiyik, Ü., Zakir, M. S., & Arshad, M. (2025). Graph-theoretical approaches to entropy in Cu_2O crystalline structures: implications for biomedical and energy applications. *Commun. Math. Biol. Neurosci.*, *2025*, Article-ID.
4. Ibrahim, M. M., Venkatesan, R., **Ali, N.,** Qureshi, M. I., Siddiqui, H. M. A., Tolasa, F. T., & Abdallah, S. A. O. (2025). Enhanced image hash using cellular automata with sponge construction and elliptic curve cryptography for secure image transaction. *Scientific Reports*, *15*(1), 14148.
5. **Ali, N.,** Siddiqui, H. M. A., \& Qureshi, M. I. (2025). Characterizing Rings Based on Resolvability in Associated Compressed Zero Divisor Graphs. *Journal of Algebra and its Applications*, doi: 10.1142/S021949882541004X.
6. Lanlege, D. I., Fadugba, S. E., **Ali, N.,** Ozioko, A. L., Alam, N., Ahmad, S., ... & Sayed-Ahmed, M. Z. (2025). Mathematical model of the social pathogen of HIV/AIDS stigma. *Commun. Math. Biol. Neurosci.*, *2025*, Article-ID.
7. **Ali, N.,** Siddiqui, H. M. A., Qureshi, M. I., Abdalla, M. E. M., EL-Gawaad, N. A., & Tolasa, F. T. (2024). On Study of Multiset Dimension in Fuzzy Zero Divisor Graphs Associated with Commutative Rings. *International Journal of Computational Intelligence Systems*, *17*(1), 298.
8. Jeeva, N., Dharmalingam, K. M., **Ali, N.,** Sayed-Ahmed, M. Z., Radwan, R. M., El-Bahkiry, H. S., ... & Tolasa, F. T. (2024). Epidemiology simulation: numerical techniques for analyzing type 2 diabetes model and its prevention measures. *Commun. Math. Biol. Neurosci.*, *2024*, Article-ID.
9. **Ali, N.,** Sadiqa, A., Shahzad, M. A., Imran Qureshi, M., Siddiqui, H. M. A., ABDALLAH, S. A. O., & El-Gawaad, A. Secure Communication in the Digital Age: A New Paradigm with Graph-Based Encryption Algorithms. *Frontiers in Computer Science*, *6*, 1454094.
10. Dharmalingam, K. M., Jeeva, N., **Ali, N.,** Al-Hamido, R. K., Fadugba, S. E., Malesela, K., ... & Qousini, M. (2024). Mathematical analysis of Zika virus transmission: exploring semi-analytical solutions and effective controls. *Commun. Math. Biol. Neurosci.*, *2024*, Article-ID.
11. Shahzad, M. A., **Ali, N.,** Abdallah, S. A. O., & EL-Gawaad, N. A. (2024). On Study of Some Bounds for Fault-Tolerant Metric Dimension and Adjacency Fault-Tolerant Resolving Set of Corona Product Graphs. *Discrete Mathematics, Algorithms and Applications*.
12. Sarker, Md. S., Alam, Md. M., Jiao, C., Shuqi, W., Xiaohui, L., **Ali, N.,** … Alshehri, A. A. (2024). Maximizing polyphenol yield: ultrasound-assisted extraction and antimicrobial potential of mango peel. *Preparative Biochemistry & Biotechnology*, 1–10.
13. **Ali, N.;** Siddiqui, H.M.A.; Qureshi, M.I.; Abdallah, S.A.O.; Almahri, A.; Asad, J.; Akgül, A. Exploring Ring Structures: Multiset Dimension Analysis in Compressed Zero-Divisor Graphs. *Symmetry* **2024**, *16*, 930. https://doi.org/10.3390/ sym16070930
14. Ghaffar, A., Javid, M. A., Yaseen, K., **Ali, N.**, Arshad, S., El-Bahkiry, H. S., ... & Akgül, A. (2025). Innovative fusion: MRSI-guided brain tumour classification via integrated image segmentation and GLCM feature extraction. *Computer Methods in Biomechanics and Biomedical Engineering: Imaging & Visualization*, *13*(1), 2479707.
15. Raji, T., **Ali, N.,** Hanchalu, G., Tolasa, F. T., & Seboka, B. (2024). Exploring α− ψ− ϕ contractive mapping: novel fixed point theorems in complete b-metric spaces. *F1000Research*, *13*, 566.

16. **Ali, N.,** Siddiqui, H. M. A., Riaz, M. B., Qureshi, M. I., & Akgül, A. (2024). A graph-theoretic approach to ring analysis: dominant metric dimensions in zero-divisor graphs. *Heliyon*.
17. **Ali, N.,** Kousar, Z., Safdar, M., Safdar, J., & Tolasa, F. T. (2024). A mathematical analysis of concealed non-Kekulean benzenoids and subdivided networks in associated line graphs. *Acadlore Trans. Appl Math. Stat*, *2*(2), 72-80.
18. **Ali, N.,** (2024). Algorithm for Visualization of Zero Divisor Graphs of the Ring $\mathbb{Z}_n$ Using MAPLE Coding. *Open Journal of Discrete Mathematics*, *14*(1), 1-8.
19. **Ali, N.,** Kousar, Z., Safdar, M., Tolasa, F. T., & Suleiman, E. (2023). Mapping Connectivity Patterns: Degree-Based Topological Indices of Corona Product Graphs. *Journal of Applied Mathematics*, *2023*.
20. **Ali, N.,** Waseem, M., Safdar, M., Akgül, A., & Tolasa, F. T. (2024). Iterative solutions for nonlinear equations via fractional derivatives: adaptations and advances. *Applied Mathematics in Science and Engineering*, *32*(1), 2333816.
21. Safdar, M., Mushtaq, T., **Ali, N.,** & Akgül, A. (2023). On study of flow features of hybrid nanofluid subjected to oscillatory disk. *International Journal of Modern Physics B*, 2450356.
22. Mahboob, A. B. I. D., Hussain, T. A. S. W. E. R., Akram, M. I. S. B. A. H., Mahboob, S. A. J. I. D., **Ali, N.** A. S. I. R., & Raza, A. (2020). Characterizations of chevalley groups using order of the finite groups. *Journal of Prime Research in Mathematics*, *16*(1), 46-51.

Accepted Articles:

1. On Study of Algebraic Structures: Multiset Dimensions in Zero-Divisor Graphs Associated with Rings ***(Boletim da Sociedade Paranaense de Matemátic)***
2. Fuzzy Random Variables and Transforms: A Modern Perspective on Signal Processing ***(Boletim da Sociedade Paranaense de Matemátic)***
3. Computing Dominating Number and Dominant Metric Dimension for Zero Divisor Graphs of Order at most 10 of Small Finite Commutative Rings **(Journal: Boletim da Sociedade Paranaense de Matemátic)**

Preprints:

1. Marimuthu, K., & Ali, N. (2024). q-Calculus and Convolution Techniques in the Study Of q-Ruscheweyeh Derivatives With Janowski Functions. *arXiv preprint arXiv:2408.13261*.
2. Marimuthu, K., Jeeva, A., & Ali, N. (2024). Mittag-Leffler Poisson Distribution Series and Their Application to Univalent Functions. arXiv preprint arXiv:2408.01466.
3. Jeeva, A., Rosary, M. S., Ali, N., & Tolasa, F. T. (2024). Advancements in signal processing and control systems using z and l-transforms. *arXiv preprint arXiv:2407.11063*.
4. Ali, N., Siddiqui, H. M. A., & Qureshi, M. I. (2024). On certain bounds for multiset dimensions of zero-divisor graphs associated with rings. arXiv preprint arXiv:2405.06180.

Submitted Articles:

1. A Spectrum-Based Approach to Understanding Network Structure Through Laplacian and Signless Laplacian Spectra in Stacked Book and Ladder Networks ***(Scientific Reports)***
2. Combinatorial Study of Multiset Dimension and Outer Multiset Dimension in V-Graphs over Rings **(Discrete Applied Mathematics)**
3. An Inventory Model Incorporating Interval-Valued Generalized Trapezoidal Bipolar Fuzzy Numbers in EOQ and JIT Frameworks ***(Operations Research Forum)***
4. Effect of Edge Deletion Operations on Laplacian Spectra and Related Network Invariant Metrics ***(Scientific Reports)***
5. Refutation of Graph Energy Conjecture: Mathematical Bounds and Structural Insights **(*International Journal of Applied and Computational Mathematics*)**
6. Cryptographic Advances: Integrating Graph Theory with Matrix-Based Security **(*The Journal of Supercomputing*)**
7. Applications of Graph Transformations in Cryptography: A Secure Encoding Framework for Data Communication **(*The Journal of Supercomputing)***
8. Optimized Algorithms for Zero-Divisor Graph Construction and Analysis in Modular Arithmetic Rings Using MATLAB and Python **(*Peer-to-Peer Networking and Applications*)**
9. Innovative Encryption Techniques Using Graph Theory and Matrix Transformations for IoT and Embedded Systems **(*The Journal of Supercomputing)***
10. Exploring Molecular Connectivity: A Comprehensive Analysis of the Neighborhood ABS Index in Benzonoid Hydrocarbons and Dendrimers **(*Scientific Reports*)**

- Research Student List.

Following students have done the final year projects under my supervision Vehari, Pakistan

i. *Mubarrah Tariq and Shrish Riaz (Topic: On dominant metric dimension of graphs)* 2022-2023
ii. *Riffat Nazir and Nabeela Zulfiqar (Topic: Studying algebraic structures)* 2022-2023
iii. *Rimsha Munir and Ruqayya Bibi (Topic: Zero divisor graphs and their properties)* 2022-2023
iv. *Gulam Yaseen and M. Asif (Topic: Study of Compressed zero divisor graphs)* *2023*-2024
v. *Samiya Yaseen, M. Irfan and Iqra Batool (Topic: A Survey on zero divisor graphs)* 2023-2024
vi. *Ayesha Sadiqa and M. Amir (Topic: Cryptography with the help of graphs)* 2023-2024
vii. *Gulam Yasin and M. Asif (Topic: Dominant metric dimension in CZDG)* 2023-2024
viii. *Mazhar Ahmad and M. Touseef Haider (Topic: Graph Based Cryptography)* 2024-2025
ix. *Muhammad Irfan and Abid Hussain (Topic: Matrix Based Cryptography)* 2024-2025
x. *Iqbal Batool and Nusrat Bibi (Topic: Graph and Matrix Based Cryptography)* *2024-2025*
xi. *Ezza Shehzad and Fatima Parveen (Topic: RSA Based Cryptography)* *2024-2025*

- Extracurricular & Volunteer Experience

One Day Symposium on Pure and Applied Mathematics Vehari, Pakistan
- *Secretary Symposium organizer:* Managed the organizing work of symposium 2019-2020

- Honors and Awards

ACADEMIC SCHOLARSHIPS Vehari, Pakistan
- Received Yearly merit-based academic scholarship from University of Education. 2014-2018

ONLINE COURSES Vehari, Pakistan
- Training Certificate in Digital Literacy and Freelancing 2019-2020

JOURNALS REVIEWER International
- European Journal of Pure and Applied Mathematics International
- Chaos Theory and Applications International
- Alexandria Journal of Engineering International
- Journal of Applied Mathematics International
- Asian-European Journal of Mathematics (AEJM) International
- Information Science International
- Physica Scripta International
- Discrete Mathematics, Algorithms and Applications (DMAA) International
- Neural Computing and Applications (NCAA) International

AWARDS AND CERTIFICATIONS Vehari, Pakistan
- E-Rozgar Graphic Designing Graduation certificate 2021
- Received Certificate of Recognition presented to LSBE Graduate (Life skill-based education) 2010
- Received merit-based Laptop Award from Chief Minister Punjab 2016
- Received Excellence certificate, 2nd position in Chief Minister's speech contest. 2008