

## **Dr. MUHAMMAD MOBEEN MUNIR**

### **HEC APPROVED SUPERVISOR**

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### **❖ PERSONAL STATEMENT:**

I have done research under the kind supervision of foreign Professor Dr. Hong Van Lee on Fully funded scholarship shared by HEC and Abdus Salam School of Mathematical Sciences Lahore. Here I got a chance to get training under the leadership of great mathematician all across the globe. I have published more than 150 research articles in the field of pure mathematics. My active areas of research are Lie algebras, Lie groups and differential geometry, Algebraic and spectral graph theory, Algebraic topology, and algebra. I am able to think on my feet, possess a sense of responsibility and have attitude. I am a sort of person who has the nature to provide excellent service within a challenging environment. Teaching and research related to pure mathematics is my passion. I prefer to teach pure mathematics, in particular topology, differential geometry and algebra.

### **❖ ACADEMIC QUALIFICATION:**

#### **2006-2011      Doctor of Philosophy in Mathematics**

Abdus Salam School of Mathematical Sciences, GCU Lahore.  
[\(www.sms.edu.pk\)](http://www.sms.edu.pk)

#### **2002-2005      Master of Science in Mathematics.**

University of the Punjab, Lahore  
[\(www.pu.edu.pk\)](http://www.pu.edu.pk)

#### **1998-2000      Bachelor of Science in Maths & Physics**

University of the Punjab, Lahore  
[\(www.pu.edu.pk\)](http://www.pu.edu.pk)

#### **1995-1997      Higher Secondary School Certificate.**

(mathematics,physics,chemistry)  
B.I.S.E Lahore  
[\(www.biselahore.edu.pk\).](http://www.biselahore.edu.pk)

#### **1993-1995      Secondary School Certificate.**

(mathematics,physics,chemistry)

B.I.S.E Lahore

**(www.biselahore.edu.pk).**

## ❖ RESEARCH PROJECTS:

### Expertise/Research Interest:

- Differential Geometry and Lie groups, Algebra, Topology, Graph theory, Analysis of Manifolds,

### Title of Dissertation:

- Compact Homogeneous 7-manifolds admitting invariant G2 or \tilde G\_2 -structures.

### Supervisor's Information:

- Prof. Dr. Hong Van Le

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## ❖ PUBLICATIONS:

- Arshad, M., Munir, M., M., Generalized Lie triple derivations of Dihedron Algebras, Rendiconti del Circolo Matematico di Palermo Series 2(accepted, in press), I.F. .9
- Ahmed, M., Munir, M. M., Modified Sombor Spectral Radii and Modified Sombor Energies of Splitting and Shadow graphs, Scientific Annals of Computer Science vol. 34 (2), 2024, pp. 0–23, I.F, .9
- Ahmed Bilal, Munir, M.M., International Journal of Quantum Chemistry, ISI Energy Change due to an Edge Deletion, (Accepted, in press) I.F. 2.3
- Raza, Ali., Munir, M.M., Hussain, M., Optimizing network insights: AI-Driven approaches to circulant graph based on Laplacian spectra, Physica Scripta, 99, 2024 I.F, 2.5
- Zaffar Iqbal, Muhammad Mobeen Munir, Maleeha Ayub, and Abdul Rauf Nizami, Published online (early view): Complete presentation and Hilbert series of the mixed braid monoid MB1,3: Revista de la Unión Matemática Argentina, August 22, 2024, <https://doi.org/10.33044/revuma.3479>
- Ahmad Bilal, Muhammad Mobeen Munir, SDD Spectral Radii and SDD Energies of Graph Operations, Theoretical Computer Science, Volume 1007, 2024, 114651, ISSN 0304-3975, <https://doi.org/10.1016/j.tcs.2024.114651>
- Raza A and Munir M 2024 Exploring Spectrum-Based Descriptors in Pharmacological Traits through Quantitative Structure Property (QSPR) Analysis Frontiers in Physics 12
- Raza A, Munir M, Hussain M and Tasgera F 2024 A spectrum-based approach to network analysis utilizing laplaçian and signless laplacian spectra to torus networks IEEE Access 12, 52016–29

- Minahal Arshad and M. **Mobeen Munir** (2023), On Lie Derivations, Generalized Lie Derivations and Lie Centralizers of Octonion Algebras, *Ars Combinatoria*, 157: 23–37 DOI:10.61091/ars157-02
- **Munir, M.**, Urwa-Tul Wusqa, Albertson (Alb) Spectral Radii and Albertson (Alb) Energies of Graph Operation. *Frontiers in Chemistry*, 11, 1267291.
- Arshad, M., **Munir, M.** Lie Triple Derivations of Dihedron Algebra. *Frontiers in Physics*, 11, 1179246.
- Raza, A., & **Munir, M. M.** (2023). Insights into network properties: spectrum-based analysis with Laplacian and signless Laplacian spectra. *The European Physical Journal Plus*, 138(9), 802.
- Raza, A., **Munir, M.**, Abbas, T., Eldin, S. M., & Khan, I. (2023). Spectrum of prism graph and relation with network related quantities. *AIMS Mathematics*, 8(2), 2634-2647.
- Bilal, A., **Munir, M. M.**, Qureshi, M. I., & Athar, M. (2023). ISI spectral radii and ISI energies of graph operations. *Frontiers in Physics*, 11, 1149006.
- Bilal, A., & **Munir, M.** (2022). Randic and reciprocal randic spectral radii and energies of some graph operations. *Journal of Intelligent & Fuzzy Systems*, 1 Jan. 2023 : 5719 – 5729.
- **Mobeen Munir**, M., Bashir, H., & Athar, M. (2023). Lie symmetries and reductions via invariant solutions of general short pulse equation. *Frontiers in Physics*, 11, 1149019.
- Hussain, Z., & **Munir, M. M.** (2023). Fault-tolerance in metric dimension of boron nanotubes lattices. *Frontiers in Computational Neuroscience*, 16, 1023585.
- IQBAL, Z., **MUNIR**, M. M., AYUB, M., & RAUF, A. COMPLETE PRESENTATION AND HILBERT SERIES OF THE MIXED BRAID MONOID MB1\_3 INPress, UnionMatematicaArgentina, <https://doi.org/10.33044/revuma.3479>
- Bilal, A., & **Munir, M. M.** (2022). ABC energies and spectral radii of some graph operations. *Frontiers in Physics*, 10, 1053038.
- **Munir, M. M.** (2022). Irregularity molecular descriptors of VC5C7 [m, n] and HC5C7 [m, n] nanotubes. *Frontiers in Physics*, 10, 969598.
- Zhao, W., **Munir, M. M.**, Bashir, H., Ahmad, D., & Athar, M. (2022). Lie symmetry analysis for generalized short pulse equation. *Open Physics*, 20(1), 1185-1193.
- Iqbal, Z., Zhang, X., **Munir, M.**, & Mubashar, G. (2022). Hilbert series of mixed braid monoid MB2, 2. *AIMS Mathematics*, 7(9), 17080-17090.

- Zhang, X., Bilal, A., **Munir, M. M.**, & Rehman, H. M. U. (2022). Maximum degree and minimum degree spectral radii of some graph operations. *Mathematical Biosciences and Engineering*, 19(10), 10108-10121.
- Zeng, G., **Munir, M. M.**, Farooki, R., Athar, M., & Liu, J. B. (2022). Stanley Depth of the Edge Ideal of Extended Gear Networks and Application in Circuit Analysis. *Journal of Mathematics*, 2022.
- **Munir, M. M.**, Ahmad, H., & Liu, J. B. (2021). M-polynomial and imbalance-based irregularity indices of smart polymers SP [n]. *Polycyclic Aromatic Compounds*, 42(10), 7712-7723.
- Zhang, Q., **Munir, M. M.**, Ahmad, H., & Liu, J. B. (2021). Irregularity molecular descriptors of Cerium oxide CeO<sub>2</sub> based on mathematical model and calculation. *Arabian Journal of Chemistry*, 15(2), 103567.
- Zhao, W., **Munir, M.**, Murtaza, G., & Athar, M. (2021). Lie symmetries of Benjamin-Ono equation. *Mathematical Biosciences and Engineering*, 18(6), 9496-9510.
- Qi, R., **Munir, M. M.**, Younas, N., Idrees, M., & Liu, J. B. (2021). Lie Symmetry Analysis for the General Classes of Generalized Modified Kuramoto-Sivashinsky Equation. *Journal of Function Spaces*, 2021, 1-8.
- **Munir, M.**, Athar, M., Sarwar, S., & Shatanawi, W. (2021). Lie symmetries of generalized equal width wave equations. *AIMS Mathematics*, 6(11), 12148-12165.
- Sania Asif, Zhixiang Wu & **Munir, M.** (2021) On the Lie triple derivations, Linear and Multilinear Algebra, 70:21, 6084-6095, DOI: [10.1080/03081087.2021.1946464](https://doi.org/10.1080/03081087.2021.1946464)
- Peng, Z. B., Nizami, A. R., Iqbal, Z., **Munir, M. M.**, Waqar Ahmed, H. M., & Liu, J. B. (2021). Wiener and hyper-wiener indices of polygonal cylinder and torus. *Complexity*, 2021, 1-15.
- Fan, C., **Munir, M. M.**, Hussain, Z., Athar, M., & Liu, J. B. (2021). Polynomials and general degree-based topological indices of generalized sierpinski networks. *Complexity*, 2021, 1-10.
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- Li, S., Liu, J. B., & **Munir, M.** (2020). On the metric dimension of generalized tensor product of interval with paths and cycles. *Journal of Mathematics*, 2020, 1-6.
  - Tang, J. H., Iqbal, Z., Nizami, A. R., **Munir, M.**, Azam, F., & Liu, J. B. (2020). Recurrence Relations and Hilbert Series of the Monoid Associated with Star Topology. *Journal of Mathematics*, 2020, 1-6.
  - Chu, Z. Q., **Munir, M.**, Yousaf, A., Qureshi, M. I., & Liu, J. B. (2020). Laplacian and signless laplacian spectra and energies of multi-step wheels. *Mathematical Biosciences and Engineering: MBE*, 17(4), 3649-3659.
  - Qing, X., Wang, Z., **Munir, M.**, & Ahmad, H. (2020). Molecular irregularity indices of nanostar, fullerene, and polymer dendrimers. *Journal of Chemistry*, 2020, 1-12.
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- **Munir, M.**, Nazeer, W., Ashraf, A., & Kang, S. M. (2019). Conformal automorphisms for exact locally conformally calibrated G2-structures. *Journal of Computational Analysis and Applications*, 728.
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- Kwun, Y. C., **Munir, M.**, Nazeer, W., Rafique, S., & Kang, S. M. (2018). Computational Analysis of topological indices of two Boron Nanotubes. *Scientific reports*, 8(1), 14843.
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- Kang, S. M., Nazeer, W., Zahid, M. A., Nizami, A. R., Aslam, A., & **Munir, M.** (2018). M-polynomials and topological indices of hex-derived networks. *Open Physics*, 16(1), 394-403.
- Hussain, Z., **Munir, M.**, Chaudhary, M., & Kang, S. M. (2018). Computing metric dimension and metric basis of 2D lattice of alpha-boron nanotubes. *Symmetry*, 10(8), 300.
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- Nazeer, W., **Munir, M.**, & Kang, S. M. (2018). An intermixed algorithm for three strict pseudo-contractions in hilbert spaces. *Journal of Computational Analysis and Applications*, 24, 1322-1333.
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- Kuwn, Y. C., Iqbal, Z., Nizami, A. R., **Munir, M.**, Riaz, S., & Kang, S. M. (2018). Some Recurrence Relations and Hilbert Series of Right-Angled Affine Artin Monoid. *Journal of Function Spaces*, 2018.
- Nazeer, W., **Munir, M.**, Naqvi, A., Jung, C. Y., & Kang, S. M. (2019). Strong Convergence Theorems and Applications of a New Viscosity Rule for Nonexpansive Mappings. *Journal of Computational Analysis & Applications*, 27(1).
- **Munir, M.**, Rafique, S., Ali, A., Idrees, M., & Kang, S. M. (2018). Calculation of wiener indices of thiazolidines: the potent inhibitors of hepatitis B virus and hepatitis C virus replication. *Hepatitis Monthly*, 18(4).
- Ali, A., Nazeer, W., **Munir, M.**, & Min Kang, S. (2018). M-polynomials and topological indices of zigzag and rhombic benzenoid systems. *Open chemistry*, 16(1), 73-78.
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- **Munir, M.**, Nazeer, W., Kang, S. M., Qureshi, M. I., Nizami, A. R., & Kwun, Y. C. (2017). Some invariants of Jahangir graphs. *Symmetry*, 9(1), 17.
  
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- **Munir, M.**, Nizami, A. R., Iqbal, Z., & Saeed, H. (2017). Metric Dimension of the Möbius Ladder. *Ars Comb.*, 135, 249-256.
  
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- **Munir, M.**, Nazeer, W., Kang, S. M., Nizami, A. R., & Shahzadi, Z. (2019). Ellipticity of co-effective complex for locally conformally calibrated G2-manifolds. *Journal of Computational Analysis & Applications*, 26(1).
- Ahmad, M. S., Nazeer, W., **Munir, M.**, Kang, S. M., & Kausar, S. (2019). On strong convergence theorem of hybrid algorithm for a countable family of quasi-Lipschitz mappings. *Journal of Computational Analysis & Applications*, 26(1).

**27<sup>th</sup> Oct 2011 to 26<sup>th</sup> Oct 2012**

**Assistant Professor** On IPFP at University Of Education Lahore

**28<sup>th</sup> Oct 2012 to 15<sup>th</sup> Aug 2013**

**Assistant Professor** On CONTRACT as Assistant professor at University of Education Lahore

**16<sup>th</sup> Aug 2013 to 2<sup>nd</sup> Jan 2020**

**Assistant Professor** As an Assistant professor at University of Education Lahore

**3<sup>rd</sup> Jan 2020 to 14<sup>th</sup> Oct 2020**

**Associate Professor** As an Associate professor at University of Education Lahore

**18<sup>th</sup> Oct 2020 to the date**

**Associate Professor** As an Associate professor at University of Punjab Lahore

### ❖ AWARDS/ACHIEVEMENTS:

- Punjab University research project 2022-23
- Punjab University research project 2021-22
- Project awarded by HEC worth 1.4 million in 2020.
- Awarded ICTP school on algebraic geometry participation
- Awarded letter of acceptance for post doc from CDC America
- Award of visit for Srni school in Prague
- Award to join School in ICTP on geometry of discrete group actions
- Won Indigenous fellowship for PhD from HEC
- Won PhD fellowship from ASSMS GCU Lahore
- Prize for the Commendable research work in Geometry in 2010 from ASSMS
- Got first position in Lahore board in middle standard examination
- Uploaded 105 videos for five different courses , Online Channel for MS, PhD and Level Course at <https://www.youtube.com/channel/UCzxXaaxcfAO7P2Fh8Xolm5Q>

### ❖ CONFERENCES / SEMINARS /WORKSHOPS:

Type	Title	National/ International <sup>1</sup>	Role	Place	Date
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Conference	1st International Conference on Recent Advances in Mathematics (CORAM-2020)	International	Chaired Session	Lahore	15/10/2020 To 16/10/2020
Conference	ICE 2018 “Science beyond Classroom”  (Convener of the abstract review committee)	International	Paper Presented	Lahore	01/01/2018
Conference	6th world conference on 21st century Mathematics 2013	International	Participated/ Attended	Lahore	06/03/2013 To 09/03/2013
Conference	5th world conference on 21st Century Mathematics 2011	International	Paper Presented	Lahore	09/02/2011 To 13/02/2011
Workshop	ASSMS-NCM-CIMPA-HEC Workshop on computational aspects of singularity theory	International	Participated/ Attended	Lahore	22/07/2010 To 26/07/2010
Conference	4th conference on twenty first century mathematics	International	Participated/ Attended	Lahore	04/03/2009 To 08/03/2009
Conference	LUMS 2nd international conference on mathematics and its applications in information Technology	International	Participated/ Attended	Lahore	09/03/2008 To 12/03/2008
Conference	3rd international conference on mathematics and its applications in information Technology	International	Participated/ Attended	Lahore	04/03/2007 To 07/03/2007

**❖ OTHER FORMAL TRAININGS OR EDUCATION:**

Type	Name & Place	Starting Date	Ending Date	Certificate or Diploma obtained

Educational	CIMPA-ICTP-UNESCO-MESR-MICINN-PAKISTAN Research school on local analytic geometry Lahore	04/02/2012	13/02/2012	Yes
Educational	Cimpa-Unesco-IMU-ICTP school on combinatorial and computational aspects of commutative algebra shogran pakistan	21/02/2009	28/02/2009	Yes
Educational	Himalaya school/conference on Geometric Homological and Combinatorial aspects in Commutative Algebra KPK Pakistan	20/08/2008	30/08/2008	Yes
Educational	Unesco-cimpa school on Discrete and computational Geometry Lahore	23/03/2008	30/03/2008	Yes

**❖ MAJOR COURSES ATTENDTED FROM FOREIGN FACULTY:**

**Master's Program:**

- Real Analysis
- Linear Algebra
- Complex Analysis
- Functional Analysis
- Complex Analysis
- Topology
- Advanced Analysis
- Vector Analysis and Mechanics
- Differential Geometry
- Group Theory
- Numerical Analysis
- Mathematical Physics

**PhD Program:**

- Real Analysis
- Algebra I & II
- Geometry I & II
- Algebraic Topology
- Linear Algebra
- Ordinary Differential Equations
- Complex Analysis
- Lie Algebras
- Theory of Lie Groups
- Theory of Twister Spaces
- Complex Differential Geometry
- Differential Geometry
- Algebraic Geometry
- Homological Algebra

## ❖ MAJOR COURSES ATTENDED FROM FOREIGN FACULTY:

Courses taught at (MS, BS and PhD )

levels are

Topology

Lie algebra

Algebraic Topology

Linear Algebra

Functional Analysis

Complex Analysis

Geometry

Rings and Vector spaces

Measure Theory

Graph Theory

Field Extension and Galois Theory

Lie groups

## ❖ OTHER INFORMATION:

### Evaluator in PhD Thesis and Reviewer

I have evaluated several PhD theses for ASSMS, University of Lahore, etc

I am editor and reviewer in several Journals

### Membership in Academic Professional Societies:

- National Mathematical Society of Pakistan (NSMP)

### Computer Literacy:

- Windows OS (use and installation)
- Professional Microsoft Word, PowerPoint, Excel knowledge
- Typesetting with TeX & LaTeX
- Scientific Workplace
- Mathematica
- Maple

### Hobbies:

- Reading
- Computer Games
- Internet Surfing

### Languages:

- Fluent in Urdu, Punjabi , English

## ❖ OTHER DUTIES PARTICIPATED:

- Performed Duties of Convener Of Self-assessment program of MPhil.
- Currently performing duties of HEC Focal Person for the department of Mathematics, University of the Punjab Lahore
- Performed Duties of Convener Of Abstract Review<sup>1</sup>and Publication Committee of Conference, ICE2018.

- Performed Duties of Convener Of Badminton at Annual Sports Gala 2016-20.

**❖ MS STUDENTS SUPERVISED:**

Name	Title of Thesis	Date
Muhammad Usman	Some classes of G_2-structures	2010-2012
Sana Ijaz	Inclusion relations among different classes G_2-structures	2010-2012
Muhammad Nadeem	Some examples in Inclusion relations among different classes of G_2-structures.	2010-2012
Naima Ishfaq	Algebraic Types of G_2-structures	2010-2012
Muazam Ali	On the Structure of Split Quaternions over $\mathbb{Z}_p$	2012-2014
Saira Hameed	On the Algebras of Octonions and Split Octonions over $\mathbb{Z}_p$	2012-2014
Huma Saeed	On Metric dimension of Mobius Ladders	2013-2015
Saba Liaqat	On properties of Lattice Grapghs	2013-2015
Asma Ashraf	On Locally Conformal $\tilde{G}$ -structures	2013-2015
Asma Ilyas	On Metric dimension of Platonic Solids	2013-2015
Zakia Shahzaadi	Co-effective Complex for Tilde G <sub>2</sub> -structures	2014-2016
Mahjabeen Mujahid	On degeneration in Lie algebras of dimension 6 and 7	2014-2016
Anum awaise	Connectivity and Metric Basis of Some products of Graphs	2014-2016
Maham Kiran	Magnitude and Magnitude Homology of vertex-transitive Graphs	2015-2017
Alam Ameer	On Combinatorics of Silicate and Oxide Networks	2015-2017
Akhtar Rasool	Fixed Points Results in Split Quaternion Algebras Over Prime Fields	2015-2017
Gazala Kalsoom	Numerical descriptors and polynomials of fullerenes	2015-2017
Aqsa	Lie derivation of quaternion algebras	2016-2018
Muhammad Bin Nasir	Computation of Metric and k-dimensions of Geometric Spaces	2016-2018
Amina Yousaf	Energies of Wheel-related Graphs	2016-2018
Raheel Farooki	Stanle Depth of Path Ideals Associated to Graphs	2016-2018
Iqra Rehmet	f-Harmonic Maps on Riemannian Manifolds	2016-2018
Shafaq Sattar	Sharp Bounds for Metric Dimension of Graphic Metric Spaces	2016-2018
Muhammad Amin	On Distance-Based Topological Indices of Friendship Graphs	2015-2017
Qaisar Farhad	Spanning simplicial complex of Graphs	2018-2020
Mohsin Shafait	Embedding Properties of Tropical Curves	2018-2020
Aqsa Rehman	Lie derivation and generalized Lie derivation of quaternion algebras	2018-2020
Muhammad Farrukh	Tropical curves, Their Jacobians and theta	2018-2020

	functions	
Sakhi Sarwar	Lie symmetries of Benjamin-ono Equations	2019-2021
Sajid Ali Sajid	Lie Derivations of Graphs	2020-2022
Urwah tul wusqa	Albertson Energies of Graph Operations	2021-2023
Umer Khalid	Harmonic Spectral Radius of Graph Operations	2021-2023
Fakhar Abbas	Matrix representation of Lie Triple derivation of Harmonic Oscillator Lie algebras	2021-2023
Wasim Akram	Lie derivations of dihedron rings	2020-2022

**❖ Ph.D. STUDENTS SUPERVISED:**

Zaffar Hussain	Some New Results in Resolvability of Graphs	2015-2019
Ahmaed Bilal	Spectral Radii and Energies of Graph Operations	2020-*
Minahal Arshad	On Lie derivations of Quaternion algebras	2020-*
Ali Raza	On Duplication operations of Graphs	2020-*

## ❖ ACADEMIC REFERENCES

### **Prof. Dr. A. D. Choudary**

X-Director General

Abdus Salam School of Mathematical Sciences, GC University Lahore Director National Centre for Mathematics, GC University Lahore

Email [choudary@cwu.edu](mailto:choudary@cwu.edu).

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### **Dr. Victor Vuletescu**

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