

Profile

1. **Name in Full:** Vijay Kumar Bhat
2. **Official Address:** Dr. V. K. Bhat, School of Mathematics, SMVD University, P.O. SMVD University, Katra, J and K, India, 182320. Phone : 01991285634 (Ext. 2506 (O), 6506 (R))
E.mail: vijaykumarbhat2000@yahoo.com, vijay.bhat@smvdu.ac.in
3. **Area of interest:** Algebra and Discrete Mathematics, Combinatorics and graph theory, Theoretical Computer Science.
4. **Present Position:** Professor
5. **Project Guidance (M.Sc.):** 36
6. **Teaching (current):** Advance topics in Algebra, Modern Applied Algebra, Graph Theory.
7. **Courses taught (earlier):** Linear Algebra, Real Analysis, and Mathematics courses for B.Tech.
8. **Publications:** Total Publications-128 in referred journals indexed in SCI/SCIE/SCOPUS/MathScinet. Some of the publications are as follows:
 1. V. K. Bhat, Krull dimension of skew polynomial rings, [Lobachevskii J. Math.](#), Vol. 22 (2006), 3-6.
 2. Neeearj Nehra, R. B. Patel and V. K. Bhat, Distributed parallel resource co-allocation with load balancing in grid computing, Int. J. of Comp. Sc. and Network security, Vol.7(1) (2007), 282-291.
 3. Neeearj Nehra, R. B. Patel and V. K. Bhat, Mobile agent based service discovery in ad hoc networks, Lecture Notes in Computer Science, (2007), 612-624
 4. V. K. Bhat, Associated prime ideals of skew polynomial rings, Beitr. Algebra Geom., Vol. 49(1) (2008), 277-283.
 5. V. K. Bhat, Ideal Krull symmetry of iterated extensions, Sib. Èlektron. Mat. Izv., Vol. 5 (2008), 193-199.
 6. V. K. Bhat and Neetu Kumari, A note on $\sigma(*)$ -rings and their extensions, Sib. Èlektron. Mat. Izv., Vol. 6 (2009), 505-509.
 7. V.K.Bhat, Transparent rings and their extensions, New York J. Math., Vol. 15 (2009), 291-299.
 8. V. K. Bhat, A note on completely prime ideals of Ore extensions, [Internat. J. Algebra Comput.](#), Vol. 20(3) (2010), 457-463.
 9. V. K. Bhat, Associated prime ideals of weak s-rigid rings and their extensions, Algebra Discrete Math., Vol.10(1) (2010), 8-17.

10. V. K. Bhat, On pseudo-valuation rings and their extensions, *Algebra Discrete Math.*, Vol. 12(2) (2011), 25-30.
11. V. K. Bhat, Ideal Krull symmetry of skew polynomial rings, *Beitr. Algebra Geom.*, Vol. 53(2) (2012), 507-514.
12. V. K. Bhat, Minimal prime ideals of skew polynomial rings and pseudo valuation rings, *Czechoslovak Math. J.*, Vol. 63 (138) (2013), 1049–1056.
13. V. K. Bhat, Completely pseudo valuation rings and their extensions, *Pub. de l'Ins. Math.*, Vol. 95 (109) (2014), 249-254.
14. V. K. Bhat, On Completely Prime left ideals of Ore extensions, [Lobachevskii J. Math.](#), Vol. 36(1) (2015), 79-84.
15. V. K. Bhat, Polynomial rings over near completely prime ideal rings, *Int. J. Math. Game Theory Algebra*, Vol. 23(4) (2015), 325-332.
16. Vijay Kumar Bhat, Meeru Abrol, Latif Hanna, Maryam Alkandari, On (σ, δ) -rings over Noetherian rings, *Bul. Acad. Ştiinţe Repub. Mold. Mat.*, No. 3(82) (2016), 3-11.
17. V. K. Bhat, Completely generalized right primary rings and their extensions, *Arm. J. Math.*, Vol. 9 (1) (2017), 20–26.
18. Pradeep Singh, Vijay Kumar Bhat, Zero divisor graphs of finite commutative rings: A survey, *Surv. Math. Appl.*, Vol. 15 (2020), 371-397.
19. Vijay Kumar Bhat, Pradeep Singh and Sunny Kumar Sharma, On Weak (σ, δ) -rigid rings over Noetherian rings, *Acta Univ. Sapientiae Math.*, Vol. 12(1) (2020), 5-13.
20. Pradeep Singh, Vijay Kumar Bhat, Adjacency matrix and Wiener index of zero divisor graph $I(Z_n)$, *J. Appl. Math. Comput.* (2020), DOI 10.1007/s12190-020-01460-2.
21. Sunny Kumar Sharma, Vijay Kumar Bhat, Metric Dimension of heptagonal circular ladder, *Discrete Math. Algorithms Appl.*, Vol. 13(1) (2021), 2050095 (17 pages), <https://doi.org/10.1142/S1793830920500950>
22. Pradeep Singh, Sahil Sharma, Sunny Kumar Sharma and Vijay Kumar Bhat, Metric dimension and edge metric dimension of windmill graphs, *AIMS Mathematics*, 6(9) (2021), 9138-9153. DOI:10.3934/math.2021531.
23. Bao-Hua Xing, Sunny Kumar Sharma, Vijay Kumar Bhat, Hassan Raza, and Jia-Bao Liu, The Vertex-Edge Resolvability of Some Wheel-Related Graphs, *Journal of Mathematics* Volume 2021, Article ID 1859714, 16 pages, <https://doi.org/10.1155/2021/1859714>.
24. Sunny Kumar Sharma, Vijay Kumar Bhat, On Some Plane Graphs and Their Metric Dimension, *Int. J. Appl. Comput. Math.*, 7:203 (2021). <https://doi.org/10.1007/s40819-021-01141-z>
25. Sunny Kumar Sharma, Vijay Kumar Bhat, On metric dimension of plane graphs J_n , K_n and L_n , *J. Algebra Comb. Discrete Appl.*, 8(3) (2021). 197-212.
26. Sunny Kumar Sharma, Vijay Kumar Bhat, Rotationally symmetrical plane graphs and their Fault-tolerant metric dimension, *An. Univ. Craiova Ser. Mat. Inform.*, 48(2) (2021). 307-318.
27. Vijay Kumar Bhat, Pradeep Singh, On Zero Divisor Graph of Matrix Ring $M_n(\mathbb{Z}_p)$, *Int. J. Appl. Math.*, 34(6) (2021), 1111-1122. doi: <http://dx.doi.org/10.12732/ijam.v34i6.5>

28. Sunny Kumar Sharma, Hassan Raza and Vijay Kumar Bhat, Computing Edge Metric Dimension of One-Pentagonal Carbon Nanocone, *Frontiers in Physics*, (2021), doi: 10.3389/fphy.2021.749166.
29. Jia-Bao Liu, Sunny Kumar Sharma, Vijay Kumar Bhat & Hassan Raza, Multiset and Mixed Metric Dimension for Starphene and Zigzag-Edge Coronoid, *Polycyclic Aromatic Compounds*, (2021), DOI: 10.1080/10406638.2021.2019066
30. Sahil Sharma, Vijay Kumar Bhat, Fault-tolerant metric dimension of zero-divisor graphs of commutative rings, *AKCE Int. J Graph Theory and Comb.* Vol. 19(1) (2022), 24-30, DOI: 10.1080/09728600.2021.2009746
31. Sunny Kumar Sharma, Vijay Kumar Bhat, Fault-tolerant metric dimension of two-fold heptagonal-nonagonal circular ladder, *Discrete Math. Algorithms Appl.*, Vol. 14(3) (2022), 2150132. <https://doi.org/10.1142/S1793830921501329>
32. Pradeep Singh, Vijay Kumar Bhat, Graph invariants of the line graph of zero divisor graph of Z_n , *J. Appl. Math. Comput.* Vol. 68, (2022), 1271–1287, <https://doi.org/10.1007/s12190-021-01567-0>.
33. Sunny Kumar Sharma, Vijay Kumar Bhat, Hassan Raza, Sahil Sharma, On mixed metric dimension of polycyclic aromatic hydrocarbon networks, *Chemical Papers*, (2022), <https://doi.org/10.1007/s11696-022-02151-x>
34. Karnika Sharma, Vijay Kumar Bhat and Sunny Kumar Sharma, Edge Metric Dimension and Edge Basis of One-Heptagonal Carbon Nanocone Networks, *IEEE Access* (2022), DOI: 10.1109/ACCESS.2022.3158982
35. Sahil Sharma, Vijay Kumar Bhat, Vertex resolvability of convex polytopes with n paths of length p , *Int. J. Comput. Math. Comput. Syst. Theory* Vol. 7(2) (2022), 129-138. DOI: 10.1080/23799927.2022.2059012
36. Sunny Kumar Sharma, Vijay Kumar Bhat, [Computing vertex resolvability of some regular planar graphs](https://doi.org/10.1142/S1793830922500860), *Discrete Math. Algorithms Appl.*, (2022), 2250086 <https://doi.org/10.1142/S1793830922500860>
37. Yogesh Singh, Hassan Raza , Sunny Kumar Sharma, and Vijay Kumar Bhat, Computing Basis and Dimension of Chloroquine and Hydroxychloroquine by Using Chemical Graph Theory, *Polycyclic Aromatic Compounds*, (2022), DOI: <https://doi.org/10.1080/10406638.2022.2086269>
38. Karnika Sharma, and Vijay Kumar Bhat, On Topological Descriptors of Polycyclic Aromatic Benzenoid Systems, *Polycyclic Aromatic Compounds*, (2022), DOI: <https://doi.org/10.1080/10406638.2022.2086273>
39. Vijay Kumar Bhat and Sunny Kumar Sharma, Zagreb and Wiener Indices of the Conjugacy Class Graph of the Quasi-Dihedral and Generalized Quaternion Groups, *Appl. Math. Inf. Sci.*, Vol. 16(5) (2022), 815-822. DOI:10.18576/amis/160515
40. Karnika Sharma, and Vijay Kumar Bhat, On the Orbits of Some Metabelian Groups, *TWMS J. App. and Eng. Math.* Vol. 12(3) (2022), 799-807.
41. Sohan Lal and Vijay Kumar Bhat, On the Dominant Local Metric Dimension of Some Planar Graphs, *Discrete Math. Algorithms Appl.*, (2022). <https://doi.org/10.1142/S179383092250152X>
42. Sharma, S.K., Bhat, V.K. On metric dimension of plane graphs with $m/2$ number of 10 sided faces. *J Comb Optim* (2022). <https://doi.org/10.1007/s10878-022-00899-2>

43. Karnika Sharma, Vijay Kumar Bhat, and Sunny Kumar Sharma, On Degree-Based Topological Indices of Carbon Nanocones, ACS Omega, (2022)
<https://doi.org/10.1021/acsomega.2c06287>
44. Sunny Kumar Sharma, Vijay Kumar Bhat and Pradeep Singh, On Metric Dimension of Some Planar Graphs with $2n$ Odd Sided Faces, Discrete Math. Algorithms Appl. (2022).
<https://doi.org/10.1142/S1793830922501853>
45. S. K. Sharma, H. Raza, V. K. Bhat, "Fault-tolerant resolvability of some graphs of convex polytopes", *Diskr. Mat.*, 34:4 (2022), 108–122.
46. Jia-Bao Liu, Sunny Kumar Sharma, Vijay Kumar Bhat & Hassan Raza, Multiset and Mixed Metric Dimension for Starphene and Zigzag-Edge Coronoid, Polycyclic Aromatic Compounds, (2023), Vol. 43(1), 190–204.
<https://doi.org/10.1080/10406638.2021.2019066>
47. Sunny Kumar Sharma & Vijay Kumar Bhat (2023) Independence in multiresolving sets of graphs, International Journal of Computer Mathematics: Computer Systems Theory, Vol 8(2) (2023), 99-107. DOI: [10.1080/23799927.2023.2182234](https://doi.org/10.1080/23799927.2023.2182234)
48. Sahil Sharma, Vijay Kumar Bhat and Sohan Lal, Multiplicative Topological Indices of the Crystal Cubic Carbon Structure, Cryst. Res. Technol. (2023) 200222, DOI: 10.1002/crat.202200222
49. Sahil Sharma, Vijay Kumar Bhat, Sohan Lal, Edge resolvability of crystal cubic carbon structure, Theoretical Chemistry Accounts, 142:24 (2023) DOI:10.1007/s00214-023-02964-3
50. Karnika Sharma, Vijay Kumar Bhat, and Jia-Bao Liu, Second leap hyper-Zagreb coindex of certain benzenoid structures and their polynomials, Computational and Theoretical Chemistry, 1223.114088 (2023). DOI: 10.1016/j.comptc.2023.114088.
51. Sunny Kumar Sharma, and Vijay Kumar Bhat, Metric dimension of line graph of the subdivision of the graphs of convex polytopes, TWMS J. App. and Eng. Math. Vol. 13(2) (2023), 448-461.
52. Sunny Kumar Sharma, Malkesh Singh, and Vijay Kumar Bhat, Vertex-Edge Partition Resolvability for Certain Carbon Nanocones, Polycyclic Aromatic Compounds, (2023). <https://doi.org/10.1080/10406638.2023.2206142>.
53. Sunny Kumar Sharma, Vijay Kumar Bhat, Hamiden Abd El-Wahed Khalifa & Agaeb Mahal Alanzi, Mixed Metric Dimension of Certain Carbon Nanocone Networks, Polycyclic Aromatic Compounds, (2023). DOI: <https://doi.org/10.1080/10406638.2023.2211734>
54. S. Lal, V.K. Bhat, On the dominant local metric dimension of certain polyphenyl chain graphs. *Theor Chem Acc* 142, 56 (2023). <https://doi.org/10.1007/s00214-023-02985-y>
55. Sunny Kumar Sharma, Vijay Kumar Bhat, On vertex resolvability of a circular ladder of nonagons, Notes on Number Theory and Discrete Mathematics, Vol 29(3) (2023), 426–444, DOI: 10.7546/nntdm.2023.29.3.426-444
56. Sahil Sharma, Vijay Kumar Bhat, Sohan Lal, The metric resolvability and topological characterisation of some molecules in H1N1 antiviral drugs, MOLECULAR SIMULATION (2023), <https://doi.org/10.1080/08927022.2023.2223718>

9. Papers presented in conferences – 37

10. Books:

Author	Title	Publisher	ISBN No.	Year
V. K. Bhat	An introduction to real analysis	Narosa Publishing House (SAARC Edition)	978-81-8487-149-4	2011
		Alpha Science International Limited, Oxford, U.K. (Other countries)	978-1-84265-705-8	2012
V. K. Bhat	Modern Algebra and Applications	Narosa Publishing House (SAARC Edition)	978-81-8487-328-3	2014
		Alpha Science International Limited, Oxford, U.K. (Other countries)	978-1-84265-855-0	2014
V. K. Bhat	Fundamentals of Complex Analysis	Narosa Publishing House (SAARC Edition)	978-81-8487-563-8	2017
		Alpha Science International Limited, Oxford, U.K. (Other countries)	978-1-78332-273-2	2017

11. Academic Visit to other Countries: Sweden, Germany, Austria, Israel, Armenia, Ukraine, Iran, Malaysia, Philippines, Brazil, Turkey, Kuwait, Russia, Ethiopia, Serbia, Switzerland, UAE.

12. Research Projects:

1. V. K. Bhat (PI) “Transparency of skew polynomial rings over Noetherian rings” for three years (2010-2013) funded by Department of Atomic Energy, Mumbai. **Completed.**
2. V. K. Bhat (PI) “Associated prime ideals and minimal prime ideals of skew polynomial rings” for two years (2011-2013) funded by UGC. **Completed.**
3. V. K. Bhat (Visiting Expert) “Ore Extensions over Noetherian rings” for two years (2015-2017) funded by Kuwait University. **Completed.**
4. V. K. Bhat(PI) “Completely prime ideals of skew polynomial rings” for three years (2017-2020) funded by SERB-DST. **Completed.**
5. V. K. Bhat (Co-PI) FIST, DST, 2021-26.

13. Reviewer: American Math. Society (MathScinet), Journals from (Transactions of IEEE, Springer, Taylor and Francis, Elsevier, World Scientific etc.)

14. Research Guidance (Ph.D.): Awarded – 10, Submitted - 2, Ongoing - 3

S.No	Name	Institute where registered	Title	Status
1	Ravi Raina	SMVD University	A study on prime ideals of skew polynomial rings over Noetherian rings	Awarded
2	Neeraj Nehra	SMVD University	Load balancing in Heterogeneous networks:A mobile agent approach	Awarded
3	Ajay Koul	SMVD University	Quality of Service and Network Security in Mobile Adhoc networks	Awarded
4	Om Prakash	Banasthali Vidyapith	Decomposability of skew polynomial rings	Awarded
5	Neetu Kumari	SMVD University	A Study on Pseudo Valuation rings and their extensions	Awarded
6	Smarti Gosani	SMVD University	2-primal rings over Noetherian rings	Awarded
7	Kiran Chib	SMVD University	Transparency of skew polynomial rings over Noetherian rings	Awarded
8	Meeru Abrol	SMVD University	Prime ideals of of skew polynomial rings	Awarded
9	Pradeep Singh	SMVD University	Zero divisor graphs	Awarded
10	Sunny Sharma	SMVD University	Metric dimension of Plane graphs	Awarded
11	Karnika Sharma	SMVD University	Graphs on chemical compounds	Submitted
12	Sahil Sharma	SMVD University	Chemical graph theory	Submitted
13	Sohan Lal	SMVD University	Dominant local metric dimension of Chemical Structures	Continuing
14	Malkesh Singh	SMVD University	Edge metric dimension of Chemical Structures	Continuing
15	Shriya Negi	SMVD University	Topological Descriptors of Chemical Structure.	Continuing