

Zahra Barati

Associate Professor
Pure Mathematics

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Address

Department of Mathematics
Kosar University of Bojnord
Bojnord
Iran

Zahra Barati

Associate Professor of Mathematics

Education

2009 - 2012, Ferdowsi University of Mashhad, Iran

P h.D. in Mathematics (Graph Theory and Algebra)

Thesis title: Graphs on partially ordered sets

Supervisor: Prof. K. Khayarmanesh

Co-Supervisor: Prof. M. Afkhami

2007 - 2009, Ferdowsi University of Mashhad, Iran

M.Sc. in Pure Mathematics

Thesis title: Simplicial cycles and trees

Supervisor: Prof. K. Khayarmanesh

Co-Supervisor: Prof. F. Khosh-Ahang Ghasr

2003 - 2007, Ferdowsi University of Mashhad, Iran

B.Sc. in Pure Mathematics

Employment

Associate Professor of Mathematics

Kosar University of Bojnord

2022-Present

Assistant Professor of Mathematics

Kosar University of Bojnord

2012-2022

Director of KUB President's Office, Public Relations and International Affairs

Kosar University of Bojnord

2021-Present

Vice President of Academic and Research Affairs

Kosar University of Bojnord

2014-2016

Dean of Academic and Graduate Studies Affairs

Kosar University of Bojnord

2013-2014

Head of Mathematics Department

Kosar University of Bojnord

2013-2014

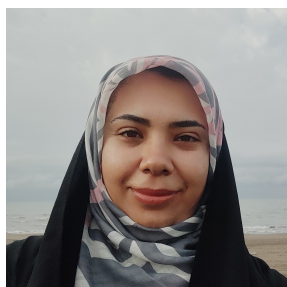
Teaching Experience

Undergraduate Courses

- Differential Equations
- Calculus I,II,III
- Graph Theory and its applications
- Foundations of Mathematics
- Discrete Mathematics
- Number Theory
- Linear Algebra
- Foundations of Geometry
- Foundations of Combinatorics
- Abstract Algebra
- Foundations of Logic
- English for Mathematics Students

Master Courses

- Commutative Algebra I



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Publication

2012

1. Z. Barati, K. Khashyarmanesh, F. Mohammadi, Kh Nafar, On the associated graphs to a commutative ring, *J. Algebra Appl.*, 11 (2012), 1250037 [17 pages]
2. M. Afkhami, Z. Barati, K. Khashyarmanesh, planar zero divisor graphs of partially ordered sets, *Acta Math. Hungar.*, 137 (2012), 27-35. 2013.

2013

3. M. Afkhami, Z. Barati, K. Khashyarmanesh, Cayley graphs of partially ordered sets, *J. Algebra Appl.*, 12 (2013), 1250184 [13 pages].

2014

4. Z. Barati, A. Erfanian, K. Khashyarmanesh, Kh Nafar, A generalization of non-commuting graph via automorphism of a group, *Comm. Algebra*, 42 (2014), 174-185.
5. F. Khosh-Ahang, Z. Barati, N. Hoseini, The generalization of the formula $V(G) = E(G) + 1$ for simplicial trees, *Southeast Asian Bull. Math.*, 38 (2014), 513-525.
6. M. Afkhami, Z. Barati, K. Khashyarmanesh, When the unit, unitary and total graphs are ring graphs and outerplanar, *Rocky Mountain J. Math.*, 44 (2014), 705-716.
7. M. Afkhami, Z. Barati, K. Khashyarmanesh, A graph associated to a lattice, *Ric. Mat.* 63 (2014), 6778.
8. M. Afkhami, Z. Barati, K. Khashyarmanesh, N. Paknejad, Cayley sum graphs of ideals of a commutative ring, *J. Aust. Math. Soc.*, 96 (2014), 289-302.

2015

9. M. Afkhami, Z. Barati, K. Khashyarmanesh, When the line graphs of the unit, unitary and total graphs are planar and outerplanar, *Beitr. Algebra Geom.*, 56 (2015), 479-490.
10. M. Afkhami, Z. Barati, N. Hoseini, K. Khashyarmanesh, A generalization of commuting graphs, *Discrete Math. Algorithms Appl.*, 7 (2015), 1450068, [11 pages]

2017

11. Z. Barati, Planarity and outerplanarity indexes of the zero-divisor graphs, *Afr. Mat.*, 28 (2017), 505514.
12. Z. Barati, Planarity and outerplanarity indexes of the unit, unitary and total graphs, *Filomat*, 31 (2017), 2827-2836.

2018

13. Z. Barati, Generalized outerplanar index of a graph, *Czechoslovak Math. J.*, 68 (2018), 131139.
14. Z. Barati, Ring index of a graph, *Bol. Soc. Mat. Mex.*, (2018)
<https://doi.org/10.1007/s40590-018-0195-9>
15. Z. Barati, Planar and outerplanar indices of zero divisor graphs of partially ordered sets, *Quasigroups Related Systems*, 26 (2018), 173- 184.

2019

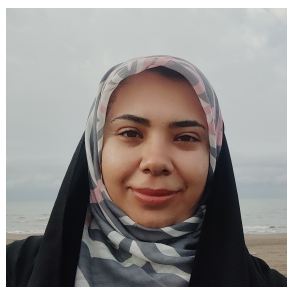
16. Z. Barati, M. Afkhami, The Planar index and outerplanar index of some graphs associated to commutative rings, *Discussiones Mathematicae General Algebra and Applications*, 39 (2019), 55-57.
17. Z Barati, Ring index of a graph, *Boletín de la Sociedad Matemática Mexicana* 25, 225-236.
18. M Afkhami, Z Barati, The iterated line graphs of Cayley graphs associated to a commutative ring *Quasigroups and Related Systems* 27 (1), 1-14

2020

19. Z Barati, M Afkhami, The Planar Index and Outerplanar Index of the Comaximal and Cozero-Divisor Graphs, *Southeast Asian Bulletin of Mathematics* 44 (4).
20. Z Barati, A study of the generalized outerplanar index of zero-divisor graphs *Afrika Matematika* 31 (7), 1081-1092.

2021

21. S Pirzada, Z Barati, M Afkhami, On Laplacian spectrum of unitary Cayley graphs, *Acta Univ. Sapientiae Inform* 13, 251-264.
22. Z Barati, Line zero divisor graphs, *Journal of Algebra and Its Applications* 20 (09), 2150154.
23. M Afkhami, Z Barati, K Khashyarmanesh, On the Laplacian Spectrum of the Co-maximal Graphs, *Algebras, Groups, Geometries* 37.



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2022

24. Z Barati, The planar and outerplanar indices of Cayley graphs of finite groups *Malaya Journal of Matematik* 10 (04), 280-291.
25. M Afkhami, Z Barati, K Khashyarmanesh, On the signless Laplacian and normalized Laplacian spectrum of the zero divisor graphs, *Ricerche di Matematica* 71 (2), 349-365.
26. Z Barati, M Afkhami, G Kalaimurugan, P Vignesh, On the annihilator graph of a commutative ring, *Indian Journal of Pure and Applied Mathematics*, 1-9.
27. Z Barati, M Afkhami, K Khashyarmanesh, On the spectrum of the zero-divisor graphs, *Asian-European Journal of Mathematics* 15 (12), 2250215.

2023

28. G Kalaimurugan, P Vignesh, M Afkhami, Z Barati, Planar index and outerplanar index of zero-divisor graphs of commutative rings without identity, *International Electronic Journal of Algebra* 33 (33), 18-33.
29. Z Barati, M Afkhami, K Khashyarmanesh, On the skewness of graphs resulting from various graph operations, *Journal of New Researches in Mathematics*.
30. M Afkhami, Z Barati, K Khashyarmanesh, On the signless Laplacian spectrum of the comaximal graphs, *Asian-European Journal of Mathematics* 16 (04), 2350055.

2024

31. M Afkhami, Z Barati, On the line graph structure of the cozero-divisor graph of a commutative ring, *Indian Journal of Pure and Applied Mathematics*, 1-7.

Papers in Conferences

Oral Presentation

2012

1. Planar zero divisor Graphs of partially ordered sets, 22th Iranian Algebra Seminar, Hakim Sabzevari University, July 19-20, January 1-2, 2012.
2. Ring graphs and outerplanar graphs, The 5th Algebraic Combinatorics Conference of Iran, Kashan University, Iran, 2012. (Presented by Prof. Khashyarmanesh)

2014

3. A Graph Associated to groups by Automorphisms of them, The 7th Algebraic Combinatorics Conference of Iran, Ferdowsi University of Mashhad, Iran, October 2014. (Presented by Dr. Nafar)

2016

4. When the ideal-based zero divisor graph is ring graph and outerplanar, 25th Iranian Algebra Seminar, Hakim Sabzevari University, July 19-20, 2016.

2017

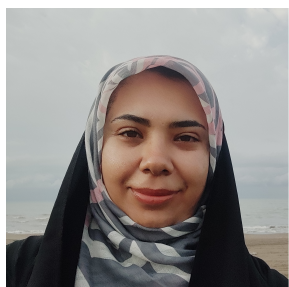
5. Study some graph equations for zero divisor graphs, 48th Annual Iranian Mathematics Conferences, Bu-Ali Sina University, Iran, August 22-25, 2017.

2018

6. On the total graph and one of its extension, 10th Graph Theory and Algebraic Combinatorics Conference of Iran, Yazd University, Iran, January 17-18, 2018.
7. Embedding the Cayley graph and its line graph on a plane, 10th Graph Theory and Algebraic Combinatorics Conference of Iran, Yazd University, Iran, January 17-18, 2018.
8. On the Generalized outerplanar zero divisor graphs, 49th Annual Iranian Mathematics Conferences, Iran University of Science and Technology, Iran, August 23-26, 2018.
9. On the planar and outerplanar indices of the ideal-based zero-divisor graphs, 49th Annual Iranian Mathematics Conferences, Iran University of Science and Technology, Iran, August 23-26, 2018.

2019

10. Threshold graphs with planar line graphs, International Conference on Recent Achievements in Mathematical Science, Yazd University, Iran, January 14-18, 2019.



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Honors

1. First rank in Mathematics Diploma in 2002.
2. Third rank in B.Sc. Mathematics at Ferdowsi University of Mashhad in 2007.
3. First rank in PhD. Pure Mathematics at Ferdowsi University of Mashhad in 2012.
4. Distinguished Professor of Faculty of Sciences, Kosar University of Bojnord, May 2019.

Research Interests

- Algebraic Graph Theory
- Combinatorics
- Mathematical Computation