

## CURRICULAM VITAE



### PERSONAL INFORMATIONS

Name	<b>Dr. K. SELVAKUMAR</b>
Designation	Professor
Department	MATHEMATICS
Address	Professor Department of Mathematics Manonmaniam Sundaranar University Tirunelveli – 627 012 Tamilnadu, INDIA  Phone: 0462-2563336 (O) 0462-2902024 (R) Mobile: 094424 48593 Email: selva_158@yahoo.co.in, kaselvamsu@msuniv.ac.in
VIDWAN ID	<a href="https://vidwan.inflibnet.ac.in/profile/174286">https://vidwan.inflibnet.ac.in/profile/174286</a>
SCOPUS ID	<a href="http://www.scopus.com/authid/detail.uri?authorId=56071605100">www.scopus.com/authid/detail.uri?authorId=56071605100</a>
RESEARCH GATE	<a href="https://www.researchgate.net/profile/Selvakumar-Krishnan-2">https://www.researchgate.net/profile/Selvakumar-Krishnan-2</a>
ORCID ID	<a href="https://orcid.org/0000-0002-0405-3287">https://orcid.org/0000-0002-0405-3287</a>
WEB OF SCIENCE	<a href="https://publons.com/researcher/2048511/selvakumar-krishnan/">https://publons.com/researcher/2048511/selvakumar-krishnan/</a>
PERSONAL WEBPAGE	<a href="https://sites.google.com/msuniv.ac.in/selvakumarkrishnan/">https://sites.google.com/msuniv.ac.in/selvakumarkrishnan/</a>

## ACADEMIC QUALIFICATIONS

Ph.D. (Mathematics)	Manonmaniam Sundaranar University 2012
M. Phil. (Mathematics)	Manonmaniam Sundaranar University 2006
<b>CSIR-NET (Mathematics)</b>	<b>Council of Scientific &amp; Industrial Research 2004</b>
B. Ed (Mathematics)	Bharathidasan University 2003
M.Sc. (Mathematics)	Manonmaniam Sundaranar University 2002
B. Sc. (Mathematics)	Manonmaniam Sundaranar University 2000

## ACADEMIC ACHIEVEMENTS

1. Received full travel grant from **International Mathematics Union** through Open Arms Grants to present a paper in **International Congress of Mathematician (ICM 2018), Rio-de-Janeiro, Brazil** (1-8-2018 to 9-8-2018).
2. **Ms. V. C. Amritha**, INSPIRE FELLOW, a research scholar presented our paper entitled "**The k-maximal hypergraph of commutative ring**" in the **34<sup>th</sup> Annual Conference of Ramanujan Mathematical Society**, Department of Mathematics, Ramanujan School of Mathematical Sciences, Pondicherry University during August 01-03, 2019 and she won the best paper award.
3. **Second Rank** holder in the St. Xavier's College (Autonomous), Tirunelveli in B. Sc Mathematics.

## EMPLOYMENT DETAILS

January 18, 2022 to till date	Professor Department of Mathematics, Manonmaniam Sundaranar University, Tirunelveli.
January 18, 2019 to January 17, 2022	Associate Professor Department of Mathematics, Manonmaniam Sundaranar University, Tirunelveli.
January 18, 2006 to January 17, 2018	Assistant Professor Department of Mathematics, Manonmaniam Sundaranar University, Tirunelveli.

## ADMINISTRATIVE PLACEMENTS

From 1-12-2012 to 13.2.2019

Coordinator  
UGC-NET/SET Coaching Classes  
Manonmaniam Sundaranar University

From 01-04-2010 to 30-3-2011

Coordinator,  
UGC-NET/SET Coaching Classes  
Manonmaniam Sundaranar University

## TITLE OF RESEARCH DISSERTATIONS

Ph. D Dissertation  
M. Phil Dissertation

A Study on Graphs from Ring  
A Study on Cayley graphs

## AREA OF RESEARCH

Algebraic Graph Theory

## FIELD OF SPECIALIZATION

Algebra, Graph Theory

## COMPLETED PROJECT 1:

Title	<b>Hypergraphs from Algebraic Structures</b>
Funding Agency	DST-SERB, New Delhi
Principal Investigator	Dr. K. Selvakumar
Sanctioned Amount	<b>Rs. 15, 74, 000/-</b>
Sanctioned Period	03-03-2017 to 02-03-2020 (3 years)

## COMPLETED PROJECT 2:

Title	<b>Graphs from Algebraic Structures</b>
Funding Agency	UGC (Major Research Project), New Delhi
Principal Investigator	Dr. K. Selvakumar
Sanctioned Amount	<b>Rs. 8, 67, 800/-</b>
Sanctioned Period	01-04-2013 to 31-03-2016 (3 years)

## RESEARCH GUIDANCE

Ph. D Awarded	: 07
Ph. D Submitted	: 04
Ph. D Ongoing	: 03
M. Phil Awarded	: 35

## BOOKS PUBLISHED

1. T. Tamizh Chelvam, R. Kala and **K. Selvakumar**, Proceedings of the National Conference on Algebra and Graph Theory, Manonmaniam Sundaranar University Publication Division, 2010.
2. J. Paulraj Joseph, P. Thathabai Nowroji, R. Kala and **K. Selvakumar**, Recent Advancement in Mathematics, Manonmaniam Sundaranar University Publication Division, 2010.
3. T. Tamizh Chelvam, **K. Selvakumar** and S. Monikandan, Graphs from Algebraic Structures, University Publication, Manonmaniam Sundaranar University, 2018.

## RESEARCH PUBLICATIONS:

National : 2  
International : 56

**Papers in SCI Journals : 17**

Citation (SCOPUS)

Total Number of Citations: **172 (as on 30/08/2023);** h-index – **08**

Papers Reviewed in American Mathematical Society- Mathematical Review: **35**

## PUBLICATION IN SCI JOURNALS

1. **Selvakumar, K.**, Beautlin Jemi, J., A topological property of a hypergraph assigned to commutative rings, *J. Algebra App.*, (2023), <https://doi.org/10.1142/S0219498825500938>.
2. Jesili, E., **Selvakumar, K.**, and Tamizh Chelvam, T., Genus, and book thickness of reduced cozero-divisor graphs of commutative rings, *Rev. Un. Mat. Argentina*, 67 (2) (2024), 455-473, <https://doi.org/10.33044/revuma.3906>.
3. Jesili, E., **Selvakumar, K.**, and Tamizh Chelvam, T., On the genus of reduced cozero-divisor graph of commutative rings, *Soft Computing*, 27 (2) (2023), 657-666. (IF: **3.732**)
4. **Selvakumar, K.**, Ramanathan, V., Selvaraj, C., On the genus of dot product graph of a commutative ring, *Indian J. Pure and App. Math.*, 54 (2) (2023), 558-567. (IF: **0.337**)

5. **Selvakumar, K.**, Mohd Nasim, Nedeem Ur Rehman, On the planarity, genus and crosscap of new extension of zero-divisor graph of commutative rings, *AKCE Inter. J. of Graphs and Combin.*, 19 (1) (2022), 61–68.
6. **Selvakumar, K.**, Arunkumar, G., Gangaeswari, P., The wiener index of the zero-divisor graph of a finite commutative ring, *Discrete Applied Mathematics*, 311 (2022), 72--84 (IF: 1.139)
7. **Selvakumar, K.**, Amritha, V. C., Ideal based hypergraph of a commutative ring, *AKCE Inter. J. of Graphs and Combin.*, 19 (1) (2022), 18 -- 23.
8. **Selvakumar, K.**, and Subajini, M., The ideal-based k zero-divisor hypergraph of commutative rings, *Algebra Colloquium*, 28 (4) (2021), 655--672. (IF: 0.484)
9. **Selvakumar, K.**, Ramanathan, V., A Haouaoui, On the k-zero divisor hypergraph of commutative rings, *ARS Combinatoria*, 150 (2020), 261-279 (IF: 0.210) (MR4250182)
10. **Selvakumar, K.**, and Ramanathan, V., On the genus of the k-annihilating ideal hypergraph of commutative ring, *Indian J. Pure and Applied Mathematics*, 50 (2) (2019), 461–475. (IF: 0.337) (MR3954537)
11. **Selvakumar, K.**, and Subbulakshmi, P., On the genus of Cayley graph of ideals of commutative ring, *ARS Combinatoria*, CXLVII (2019), 215--236. (IF: 0.186) (MR4221175)
12. **Selvakumar, K.**, A note on the annihilating ideal graph of commutative rings, *ARS Combinatoria*, CXXXVII (2018), 113--122. (IF: 0.186) (MR3790965)
13. **Selvakumar, K.**, M. Subajini, M. J. Nikmehr, Finite commutative ring with genus two essential graph, *J. Algebra App.*, 16 (2) (2018), 1850121 (11 pages). (IF: 0.6) (MR3813695)
14. Tamizh Chelvam, T., **Selvakumar, K.**, and Ramanathan, V., On the Cayley sum graph of ideals of commutative ring, *J. Algebra App.*, 16 (2) (2018), 1850125 (14 pages). (IF: 0.6), (MR3813699)
15. **Selvakumar, K.**, and Subajini, M., Commutative rings with genus two annihilator graphs, *Comm. Algebra* , 46 (1) (2018), 28--37. (IF: 0.481) (MR3764840)
16. **Selvakumar, K.**, and Subajini, M., Classification of rings with toroidal Jacobson graph, *Czechoslovak Mathematical Journal*, 66 (2) (2016), 30--316. (IF: 0.364) (MR3519603)

17. **Selvakumar, K.**, and Ramanathan, V., Classification of nonlocal rings with genus one 3-zero-divisor hypergraphs, *Comm. Algebra*, 45 (1) (2016), 275--284. (IF: 0.429) (MR3556571)

## PUBLICATION IN NON-SCI JOURNALS

18. **K. Selvakumar** and N. Petchiammal, On metric dimension of nil-graphs of ideals of commutative rings, *Discrete Math. Algor. Appl.*, 16 (6) (2024), 2350078.
19. **K Selvakumar**, P Gangaeswari, Some application of multiplicative Zagreb index, *J. Analysis*, 32 (2024), 3091—3099.
20. **K. Selvakumar** and J. Beautlin Jemi, Domination in k-zero-divisor hypergraph of some class of commutative rings, *Palestine Journal of Mathematics*, 12 (Special Issue II) (2023), 26–33
21. Mohd Nasim, Nedeem Ur Rehman, **Selvakumar, K.**, On the Genus of Strong Annihilating-ideal Graph of Commutative Rings, *Asian-European Journal of Mathematics*, (2023) 2350166 (16 pages).
22. Mohd Nasim, Nedeem Ur Rehman, **Selvakumar, K.**, On the genus of annihilator intersection graph of commutative rings, *Algebraic Structures App.*, 11 (1) (2024), 25—36.
23. Mohd Nasim, Nedeem Ur Rehman, **Selvakumar, K.**, On the genus of extended zero-divisor graph of commutative rings, *Rendiconti del Circolo Matematico di Palermo Series 2*, (2022), <https://doi.org/10.1007/s12215-022-00843-7>
24. **Selvakumar, K.**, Anusha, N., On the ideal-base zero divisor graph of commutative rings, *Discrete Mathematics, Algorithms and Applications*, 16 (1), 2250190 (2024).
25. **Selvakumar, K.**, Beautlin Jemi, J., Domination in k-zero-divisor hypergraph of some class of commutative rings, *Palestine J. Math.*, 12 (special issue II) (2023), 26 --33.
26. **Selvakumar, K.**, Beautlin Jemi, J., and Nadeem ur Rehman, Spectrum of the 3-zero-divisor Hypergraph of Some Classes of Local Rings, *Algebra and Related Topics with Applications*, Springer Proceedings in Mathematics & Statistics 392 (2022), [https://doi.org/10.1007/978-981-19-3898-6\\_35](https://doi.org/10.1007/978-981-19-3898-6_35).

27. Karthik, S., Meera, S. N., and **Selvakumar, K.**, Crosscap two of class of graphs from commutative rings, *Discrete Mathematics, Algorithms and Applications*, 14 (08) (2022), 2250041.
28. Belsi, G., Kavitha, S., **Selvakumar, K.**, On the genus of the idempotent graph of finite commutative ring, *Dis. Math. Gen. Algebra App.*, 41 (1) (2021), 23--31. (Scopus)
29. **Selvakumar, K.**, Subajini, M., et al, Domination in Generalized Cayley graph of commutative rings, *J. Math. Study*, 54 (2021), 427--434.
30. **Selvakumar, K.**, Beautlin Jemi, J., The Wiener index of the 3-zero-divisor hypergraph, *AIP Conference Proceedings*, 2261(2020), 030010. (IF:0.40) (Scopus)
31. Shanmugavel, S., Pandirani, A., **Selvakumar, K.**, A study on some new sequence spaces defined by a sequence moduli, *AIP Conference Proceedings*, 2261 (2020), 030016. (IF:0.40) (Scopus)
32. **Selvakumar, K.**, Amritha, V. C., The k-maximal hypergraph of commutative rings, *Beiträge zur Algebra und Geometrie/Contributions to Algebra and Geometry*, 61 (2020), 747--757. (Scopus) (MR4160821)
33. **Selvakumar, K.**, and Subajini, M., On the genus of a graph related to the join of subgroups of finite abelian group, *Afrika Mathematica*, 30 (7/8) (2019), 1223-1236. (Scopus) (MR4022279)
34. **Selvakumar, K.**, Amritha, V. C., On the genus of the k-maximal hypergraph of commutative rings, *Discrete Mathematics, Algorithms and Applications*, 11 (1) (2019), #1950010. (Scopus) (MR3910245)
35. **Selvakumar, K.**, Ramanathan, V., The k-annihilating hypergraph of commutative ring, *AKCE Inter. J. of Graphs and Combim.*, 16 (2019), 241--252. (Scopus) (MR4041684)
36. **Selvakumar, K.**, and Subajini, M., On the genus of the essential graph of commutative rings, *The Aust. J. Combin.*, 74 (1) (2019), 74--85. (Scopus) (MR3939477)
37. **Selvakumar, K.**, Karthik, S., On the genus of the co-annihilating graph of commutative rings, *Dis. Math. Gen. Algebra App.*, 32 (2) (2019), 1--16. (MR4020357) (Scopus)

38. Selvakumar, K., and Subbulakshmi, P., Classification of rings with toroidal annihilating-ideal graph, *Comm. Combin. Optimization*, 3 (2) (2018), 93--119. (MR3848758)
39. Selvakumar, K., and Subbulakshmi, P., On the crosscap of the annihilating-ideal graph of a commutative ring, *Palestine J. Math.*, 7 (1) (2018), 151--160. (Scopus) (MR3723971)
40. Tamizh Chelvam, T., Selvakumar, K., and Subbulakshmi, P., On the nil-graph of ideals of commutative Artinian rings, *Discrete Mathematics, Algorithms and Applications*, 10 (5), 1850062 (2018). (Scopus) (MR3863125)
41. Selvakumar, K., and Arjun, T., On the planarity of the  $AG_i(R)$ , *Int. J. Pure and Applied Mathematics*, 117 (12) (2017), 359--366. (Scopus)
42. Selvakumar, K., and Subajini, M., Classification of groups with toroidal coprime graph, *The Aust. J. Combin.*, 69 (2) (2017), 174--183. (Scopus)
43. Selvakumar, K., and Ramanathan, V., Classification of nonlocal rings with projective 3-zero-divisor hypergraph, *Ricerche di Mat.*, 66 (2) (2017), 457--468. (Scopus)
44. Tamizh Chelvam, T., Selvakumar, K., and Subbulakshmi, P., On the genus of nil-graph of ideals of commutative rings, *Arab Journal of Mathematics*, 23 (2) (2017), 186--195. (MR3662977) (Scopus)
45. Selvakumar, K., Subbulakshmi, P., and Jafar Amjadi, On the genus of the graph associated to a commutative ring, *Discrete Mathematics, Algorithms and Applications*, 9 (5) (2017), 1750058 (11 pages). (MR3719737) (Scopus)
46. Mallika, A., Kala, R., and Selvakumar, K., A Note on Ideal Based Zero-Divisor Graph of a Commutative Ring, *Dis. Math. General Algebra App.*, 37 (2017), 177--187. (Scopus) (MR3722512)
47. Mallika, A., Kala, R., Selvakumar, K., The Edge Chromatic Number of  $\Gamma_i(R)$ , *Algebra and Discrete Mathematics*, 24 (2) (2017), 250--261. (Scopus)
48. Tamizh Chelvam, T., and Selvakumar, K., On the genus of the annihilator graph of a commutative ring, *Algebra and Discrete Math.*, 24 (2) (2017), 191--208. (Scopus)
49. Tamizh Chelvam, T., Asir, T., and Selvakumar, K., On domination in graphs from commutative rings: A survey, In: Rizvi S., Ali A., Filippis V. (Eds) *Algebra and its Applications*,



*Springer Proceedings in Mathematics and Statistics*, Vol. 174 (2016), pp. 363--379, Springer, Singapore. (MR3613801)

50. Selvakumar, K., and Subajini, M., Crosscap of the Non-cyclic graph of groups, *AKCE Inter. J. of Graphs and Combin.*, 13 (2016), 235--240. (MR3616607) (Scopus)
51. Tamizh Chelvam, T., and Selvakumar, K., An Exposure on graphs from commutative rings: A Survey, *Proceedings of the National Seminar on Algebra and Discrete Mathematics*, St. Gregorios College, Kottarakara, (2016), 25--29.
52. Tamizh Chelvam, T., Selvakumar, K., and Ramanathan, V., On the planarity of the k-zero-divisor hypergraphs, *AKCE Inter. J. of Graphs and Combin.*, 12 (2) (2015), 169--176. (MR3469910) (Scopus)
53. Tamizh Chelvam, T., and Selvakumar, K., On the connectivity of the annihilating-ideal graphs, *Dis. Math General Algebra and App.*, 35 (2015), 195--204. (MR3434286)
54. Tamizh Chelvam, T., and Selvakumar, K., On the intersection graph of gamma sets in the zero-divisor graph, *Discrete Mathematics, Algorithms and Applications*, 7 (1)(2015), 1450067 (14 pages). (MR3305477)
55. Tamizh Chelvam, T., and Selvakumar, K., Domination in the directed zero-divisor graph of ring of matrices, *J. Combin. Math. Combin. Comput.*, 91 (2014), 155--163. (MR3287711)
56. Tamizh Chelvam, T., and Selvakumar, K., Central sets in the annihilating-ideal graph of commutative rings, *J. Combin. Math. Combin. Comput.*, 88 (2014), 277--288. (MR3202355)
57. Tamizh Chelvam, T., and Selvakumar, K., Intersection Graph of gamma sets in the zero-divisor graph, *Journal of Advanced Research in Pure Mathematics*, 4 (4) (2012), 57--66. (MR2988679)
58. Tamizh Chelvam, T., and Selvakumar, K., Domination in zero-divisor graph of matrices, *Journal of Advanced Research in Pure Mathematics*, 3 (2) (2011), 31--39. (MR2800802)
59. Selvakumar, K., and Nithya, S., d2-coloring of a Graph, *The Journal of Mathematics and Computer Science*, 3 (2) (2011), 102--111.
60. Tamizh Chelvam, T., Selvakumar, K., and S. Raja, Commuting graphs on dihedral group, *The Journal of Mathematics and Computer Science*, 2 (2011), 402--406.

61. **Selvakumar, K.**, A survey on zero-divisor graphs, *Manonmaniam Sundaranar University Publication Division*, (2010).

## **MEMBERSHIP IN ACADEMIC BODIES**

- ❖ Life Member of Academy of Discrete Mathematics of India
- ❖ Reviewer for Mathematical Reviews of American Mathematical Society.
- ❖ Reviewer for the following journals:
  - Discrete Mathematics, Algorithms and Applications (DMAA)
  - Discrete Applied Mathematics
  - Palestine Journal of Mathematics
  - Journal of Algebra and Applications (JAA)
  - Australisian Journal of Combinatorics
  - AKCE International Journal of Graphs and Combinatorics
  - Algebra Colloquium
  - Beitrage zur Algebra und Geometrie
  
- ❖ Chairperson, UG-Question setting board for UG Mathematics, Madurai Kamaraj University, Madurai
- ❖ Member of the Board of Studies in PG (CBCS) Mathematics of M. S. University.
- ❖ Member of the Board of Question Setters for PG Mathematics of Kerala University.
- ❖ Member of the Board of Studies in Mathematics of G. V. N College, Kovilpatti (2019-2022).
- ❖ Member of the Board of Studies in PG Mathematics of Sadakathullah Appa College, Palayamkottai.
- ❖ Member of the Board of Studies in PG Mathematics of Periyar University, Salem.
- ❖ Member of the Board of Studies in PG Mathematics of Thiruvalluvar University, Vellore.
- ❖ Member of the Board of Studies in Mathematics of Popes College, Sawerpuram.
- ❖ Member of the Board of Studies in Mathematics of Holycross College, Nagercoil.
- ❖ Member of the Board of Studies in Mathematics of Saratha College, Palayamkottai.

## Communicate Papers

1. **Selvakumar, K.**, Arunkumar, G., Gangaeswari, P., A note on topological indices and the twin classes of graphs, *Discrete Applied Mathematics*.
2. **Selvakumar, K.**, Ramanathan, V., Selvaraj, C., Tamizh Chelvam, T., Crosscap two characterization of dot product graphs, *Afrika Mathematica*, August 2023.
3. **Selvakumar, K.**, Subbulakshmi, P., The k-nil-hypergraph of ideals of the commutative ring, *Houston Journal of Mathematics*, May 2022.
4. **Selvakumar, K.**, Ramanathan, V., Selvaraj, C., The projective Cayley sum graph of ideals of commutative rings, *Algebra Colloquium*, August 2023.
5. **Selvakumar, K.**, Petchiammal, N., Topological indices of nil-graph of ideals of commutative Artinian rings, *Indian Journal of Pure and Applied Mathematics*, November 2021.
6. **Selvakumar, K.**, Jesili, E., On the genus of the prime ideal sum graph of commutative rings, *Soft Computing*, January 2023.