

Name : Aparna Lakshmanan S.
Official Address : Assistant Professor
 Department of Mathematics
 Cochin University of Science and Technology
 Cochin – 22, Kerala, India



EDUCATIONAL QUALIFICATIONS

1. B.Sc. Mathematics from St. Joseph's College, Irinjalakuda under Calicut University (2000)
2. M.Sc. Mathematics from Cochin University of Science and Technology with first Rank (2002)
3. CSIR – UGC – JRF (NET) from University Grants Commission, New Delhi. (2003)
4. Ph. D from Cochin University of Science and Technology (2009)
5. Online certification courses from NPTEL in
 - a) R Programming (Elite Gold Medal in 2017)
 - b) Groups, Motions, Symmetry and puzzles (Course topper in 2018)
 - c) Probability and Statistics (2018)
 - d) Developing Soft Skills and Personality (2018)
 - e) Stress Management (2018)
 - f) Basic Linear Algebra (Course topper in 2019)
 - g) Graph Theory (Elite Gold Medal in 2019)
 - h) Enhancing Soft Skills and Personality (Elite Gold Medal in 2019)
 - i) Fuzzy Logic and Neural Networks (2019)
 - j) Groups, Motion, Symmetry and Puzzles (2019)
 - k) Calculus of One Real Variable (Course topper in 2019)

PROFESSIONAL EXPERIENCE – RESEARCH

- Research Guide Mahatma Gandhi University from 2014 onwards

Research Guidance: Awarded – 2 and Ongoing – 4

Name of Scholar	Title of the Thesis
Anu V	A study on Two Graph Parameters – Double Roman Domination Number and Homometric Number
Jeepamol J Palathingal	Studies on Graph Operators

PROFESSIONAL EXPERIENCE – TEACHING

1. St. Xavier's College for Women, Aluva, Assistant Professor (07/11/2005 to 13/01/2021)
2. Cochin university of Science and Technology (14/01/2021 onwards)

AWARDS/RECOGNITIONS AND ACHIEVEMENTS

- 1) NPTEL Stars – NPTEL Enthusiasts Award from NPTEL in 2020.
- 2) Best Alumni Award from St. Joseph's College, Irinjalakuda in 2019.
- 3) IMS prize (Group 1 – Discrete Mathematics) instituted by Indian Mathematical Society in 2013.
- 4) Kerala State Young Scientist Award instituted by Kerala State Council for Science, Technology and Environment in 2012.
- 5) First rank for M.Sc. Mathematics from Cochin University of Science and Technology in 2002.

RESEARCH PROJECTS

1. UGC minor project (completed in 2016) – “Study of various graph parameters under graph products” (Rs. 1,50,000/-).
2. KSCSTE Major project (completed in 2019) – “Problems related to Applications of graph theory to Networks” (Rs.11,80,000/-).

EXTERNAL FUNDED STUDENT PROJECTS

1. Soil Suitability Analysis Using Fuzzy Sets (Rs. 8000/-).
2. Reciprocity of inmates of Madhavapuram Colony – A case study (Rs. 6000/-).

MEMBERSHIP IN PROFESSIONAL ORGANISATIONS

- 1) American Mathematical Society (AMS) - Member
- 2) Indian Mathematical Society (IMS) – Life Member
- 3) Ramanujan Mathematical Society (RMS) – Life Member
- 4) Academy for Discrete Mathematics and its Applications (ADMA) – Life Member, Executive Committee member (2014 – 16), Secretary (2016 – 2020)
- 5) Kerala Mathamatical Association (KMA) – Life member

OTHER ACADEMIC ACTIVITIES

1. Reviewer for

- Mathematical Reviews
- Zentralblatt Math
- Bulletin of Mathematical Sciences and Applications.

2. Editorial Board Member for

- Contemporary Studies in Discrete Mathematics

CONFERENCES/ WORKSHOPS/ SYMPOSIA ORGANIZED

1. Convenor of the UGC sponsored National Seminar on Graph Theory and its Applications, August 7 – 9, 2014.
2. Convenor of the National Symposium on Women in Science, March 7, 2015.
3. Convenor of the International Conference on Recent Trends in Graphs and Networks, October 30 – November 1, 2017.
4. Co-convenor of the International Conference on Recent Trends in Graph Theory and Combinatorics, April 26 – 29, 2018.
5. Convenor of the Academic Support Programme for Under Graduate Students – One Day International Workshop on November 27, 2018.

ARTICLES PUBLISHED IN NATIONAL AND INTERNATIONAL JOURNALS

• International Journals – 24

1. Aparna Lakshmanan S., S. B. Rao, A. Vijayakumar, Gallai and anti-Gallai graphs of a graph, *Mathematica Bohemica*, 132(1)(2007), 43 – 54.
2. Aparna Lakshmanan S., A. Vijayakumar, Clique irreducibility of some iterative classes of graphs, *Discuss. Math. Graph Theory*, 28 (2008), 307 – 321.
3. Aparna Lakshmanan S., A. Vijayakumar, The $\langle t \rangle$ -property of some classes of graphs, *Discrete Math.*, 309 (2009), 259 – 263.
4. Aparna Lakshmanan S., A. Vijayakumar, Clique irreducibility and clique vertex irreducibility of graphs, *Appl. Anal. Discrete Math.*, 3 (2009), 137 – 146.
5. S. B. Rao, Aparna Lakshmanan S., A. Vijayakumar, Cographic and global cographic domination number of a graph, *Ars Combinatoria*, 95 (2010), 273 – 486.
6. Aparna Lakshmanan S., A. Vijayakumar, On weakly clique irreducible graphs, *Bull.*

- Inst. Combin. Appl., 58 (2010), 48 – 58.
7. Aparna Lakshmanan S., A. Vijayakumar, The Gamma graph of a graph, AKCE J. Graphs. Combin., 7(1)(2010), 53 – 59.
 8. Aparna Lakshmanan S., Cs. Bujtas, Zs. Tuza, Small edge sets meeting all triangles of a graph, Graphs Combin., 28 (2012), 381 – 392.
 9. Aparna Lakshmanan S., A. Vijayakumar, T. M. Wang, Weakly clique irreducibility of NEPS of two graphs, Util. Math., 92 (2013), 351 – 358.
 10. Aparna Lakshmanan S., Cs. Bujtas, Zs. Tuza, Generalized line graphs: Cartesian products and complexity of recognition, Electron. J. Combin., 22(3) (2015), #P3.33.
 11. Aparna Lakshmanan S., Cs. Bujtas, Zs. Tuza, Induced cycles in triangle graphs, Discrete Applied Mathematics, 209 (2016), 264 – 275.
 12. Aparna Lakshmanan S., Manju K. Menon, Anu V., Homometric number of graphs, International Journal on Recent and Innovation Trends in Computing and Communication, 5(7) (2017), 846 – 850.
 13. Jeepamol J. Palathingal, Aparna Lakshmanan S., Gallai and anti-Gallai graph operators, Electronic Notes in Discrete Mathematics, 63 (2017), 447 – 453.
 14. Jeepamol J. Palathingal, Aparna Lakshmanan S., Forbidden Subgraph Characterizations of Extensions of Gallai graph operators in Signed Graphs, Annals of Pure and Applied Mathematics, 14(3) (2017), 437 – 448.
 15. Anu V., Aparna Lakshmanan S., Double Roman Domination Number, Discrete Applied Mathematics, 244 (2018), 198 – 204.
 16. Jeepamol J. Palathingal, Aparna Lakshmanan S., Commutativity of Some Graph Operator, Research & Reviews: Discrete Mathematical structures, 6(1)(2019), 1–5.
 17. V. G. Deepa, Aparna Lakshmanan S., V. N. Sreeja, Centrality and reciprocity in directed social networks - A case study, Malaya Journal of Mathematik, Vol. S(1) (2019), 479 – 484.
 18. Seena Varghese, Aparna Lakshmanan S., S. Arumugam, Two Classes of Non-Leech Trees, Electronic Journal of Graph Theory and Applications, 8(1) (2020), 205 – 210.
 19. Anu V., Aparna Lakshmanan S., The Double Roman Domination Number of Generalized Sierpinski Graphs, Discrete Mathematics Algorithms and Applications, 12(4) (2020), 2050047.
 20. Jeepamol J Palathingal, Gopalapillai Indulal, Aparna Lakshmanan, Spectrum of Gallai Graph of Some Graphs, Indian Journal of Pure and Applied Mathematics, 51(4) (2020), 1829 – 1841.
 21. Jismy Varghese, Aparna Lakshmanan S., Italian Domination on Mycielskian and

- Sierpinski Graphs, Discrete Mathematics Algorithms and Applications (accepted).
22. Jeepamol J Palathingal, Gopalapillai Indulal, Aparna Lakshmanan, Spectrum of anti-Gallai Graph of Some Graphs, Indian Journal of Pure and Applied Mathematics (accepted)
 23. Jismy Varghese, Anu V., Aparna Lakshmanan S., Italian Domination and Perfect Italian Domination on Sierpinski Graphs, Journal of Discrete Mathematical Sciences & Cryptography (accepted).
 24. Seena Varghese, Aparna Lakshmanan S., S. Arumugam, Leech Index of a Trees, Journal of Discrete Mathematical Sciences & Cryptography (accepted).

• **Proceedings of International Conferences – 4**

1. Aparna Lakshmanan S., A. Vijayakumar, Some properties of the clique graph of a cograph, RMS Lecture Note Series 7 (2008), (Proceedings of the International Conference on Discrete Mathematics, Bangalore, India, 2006), 227 – 232.
2. Aparna Lakshmanan S., A. Vijayakumar, A note on some domination parameters in graph products, J. Combin. Math. Combin. Comput., 69 (2009), 31 – 38.
3. Anu V., Aparna Lakshmanan S., Homometric number of a graph and some related concepts, Lecture Notes in Computer Science, 10398 (2017), 30 – 37.
4. V. G. Deepa, Aparna Lakshmanan S., V. N. Sreeja, The Role of Social Factors in Education: A Case Study in Social Network Perspective, Lecture Notes in Networks and Systems, 75 (2019), 61 – 68.

• **National Journals – 1**

1. Aparna Lakshmanan S., Characterization of some special classes of Gallai and anti Gallai graphs, Discourse, 1 (2013), 85 – 89.

Invited talks in International Conferences

1. “On Vizing’s Conjecture”, International seminar on new trends in Applications of Mathematics sponsored by CSO & MOSPL at Bharatmata College, Thrikkakara, Kerala, India (31st January 2011).
2. “Some Domination Concepts in Cographs” , International Conference on Discrete Mathematics and its Applications organized by Department of Mathematics, Amrita Vishwa Vidyapeetham, Coimbatore, India (10th December 2011).

3. “Triangles in graphs” in the “ Indo – Slovenia Conference on Graph Theory and Applications (Indo- Slov 2013)” organized by the department of Futures Studies in association with Graph Theory Research group, University of Maribor and institute of Mathematics, Physics and Mechanics, Ljubljana, Slovenia (February 22 – 24, 2013).
4. “Domination in Graph Products- Vizing’s Conjecture” in the workshop on Graph Theory and Interconnection Networks Department of Applied Mathematics, Tunghai university, Taichung, Taiwan (November 16 – 17, 2013).
5. “On Tuza’s Conjecture related to triangles in graphs” in the Third India – Taiwan Conference on Discrete Mathematics organized by Department of Applied mathematics, National Chiao Tung University (November 19 – 22 , 2013).
6. “Recent developments on Vizing’s Conjecture” in the International Conference on Graph Theory and its Applications held in Amritha School of Engineering (December 16-19, 2015).
7. “On Leech Trees” in Fifth India-Taiwan Conference on Discrete Mathematics 2017 organized by Department of Mathematics, Tamkang University, Tamsui, Taiwan (July 18 – 21, 2017).
8. “On Leech Trees and Some Related Concepts” in International Conference on Discrete Mathematics 2018 organized by Periyar University, Salem (January 4 – 7, 2018).
9. “On Double Roman Domination Number” in International Conference on Discrete Mathematics and Network Systems organized by BITS, Pilani, Goa (July 7 – 10, 2018).
10. “On Leech Labelling” in International Conference on Mathematical Computer Engineering organized by VIT, Chennai (November 23 – 24, 2018).
11. “Double Roman Domination Number” in International Conference on Graph Theory and its Applications organized by Amrita University, Ettimadai (January 4 – 6, 2019).
12. “Double Roman Domination Number” in 9th Slovenian International Conference on Graph Theory – Bled’19 organized by Institute of Mathematics, Physics and Mechanics, Slovenia (August 23 – 29, 2019)

Dr. Aparna Lakshmanan S.