

BIO - DATA

1. Name : **AMBAT VIJAYAKUMAR**
2. (a).Present Address : Emeritus Professor
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- (b) Permanent Address : Pranavam, MNRA 130, 10th Cross Road
Maveli Nagar, Cochin-682 033
Tel: 0484-2575288(R)
- 3 .Educational Qualifications : M.Sc. Mathematics, 1980 - II Rank
University of Cochin
- P.G. Diploma in German, 1983
University of Cochin.
- Ph.D. Mathematics, 1986
Cochin University of Science and Technology
- Title of Ph.D.Thesis : **STUDIES IN THE GEOMETRY OF THE DISCRETE PLANE**
- Name of the Supervisors : Prof. Wazir Hasan Abdi and
Prof. T. Thrivikraman
4. Fields of Interest : a) **Graph Theory**- self complementary graphs, metric graph theory, spectra and energy of graphs, graph operators and its dynamics, graph products, power domination problem, game domination and scale free networks.
- b) **History of Mathematics** - evolution of concepts, **Mathematics Education -popularisation and talent search** at all levels.
5. Experience : Lecturer, Regional Engineering. College, Calicut,
1986 - 1988

Lecturer, Cochin University of
Science and Technology, 1988 - 1995

Reader, Cochin University of
Science and Technology, 1995 - 2003

Professor, Cochin University of
Science and Technology
2003- 31 May 2018.

Administrative Experience : Honorary Director, Centre for Interdisciplinary
Studies , CUSAT 1999- 2003.

Head , Department of Mathematics CUSAT,
2001- 2004 ; 2011- 2012.
May 2016 – September 2017.

Hon. Deputy Director, Inter University Centre
for Kerala Legacy in Astronomy and
Mathematics(IUCKLAM).

Hon.. Deputy Director, Centre for Science in
Society, CUSAT.

6 . Seminars / Conferences participation:

Invited talks : Since 2011(selected only)

- a) ‘Graph Operators and Its dynamics - some recent studies’, Department of Applied Mathematics and Institute for Theoretical Computer Science, Charles University, Prague, Czech Republic , 18th August 2011.
- b) ‘Excitements and Applications of Mathematics’, Interactive session with students of International School, Prague, Czech Republic , 22nd August 2011.
- c) ‘Spectra and Energy of Graphs – A survey‘ in the symposium on Extremal Graph Theory, 77th Annual conference of the Indian Mathematical Society, SRTM University, Nanded, 27-30, December 2011.
- d) ‘Graph Energy’, 25th Kerala Science Congress, Trivandrum, 30 January 2013.
- e) ‘Iterations of Line Graphs and Its dynamics’, Research Promotion Workshop on Introduction to Graph and Geometric Algorithms, TIFR-IIITMK-Kerala University, 25th January 2014.

- f) ‘Spectra and energy of graphs’ and ‘Shrikhande graph’, UGC workshop on ‘Zeta function for graphs’, S P University, Pune ,11-13 November 2014.
- g) Invited talk in the Conference on Creative Mathematical Sciences Communications, The Institute of Mathematical Sciences, Chennai. 9-12 December 2014.
- h) ‘Generalised power domination problem’ Fourth India - Taiwan Conference on Discrete Mathematics, IIT Madras, July 10-13, 2015.
- i) Invited talk in the National Seminar on Information Theory and Communication, (100th birth Anniversary of Shannon) , Rajagiri School of Engineering and Technology, Cochin , 30th April 2016.
- j) Invited talk in the Special Symposium on Mathematics Education , 31st Annual Conference of Ramanujan Mathematical Society, Tiruchirappally, India, June 18-21, 2016.
- k) ‘What is happening in Mathematical Sciences ‘ Lead lecture in the Mathematical and Statistical Sciences Session, 29th Kerala Science Congress, Marthoma College, Thiruvalla. January 29, 2017.
- l) Resource Person, Azim Premji University- Ramanujan Math. Society Workshop for School Teachers, Chinmaya Vidyalaya , Kannur, May 2017.
- m) Key Note Speaker, The changing face of Mathematics, National Level Workshop On Discovering the Art of Mathematics, Department of Mathematics, University of Kerala, 18th December 2018.
- n) ‘Excitements in Mathematics’ Lead lecture in the Mathematical and Statistical Sciences Session , 31st Kerala Science Congress, Fatima Matha National college, Quilon, February 3, 2019.

Membership of Academic Societies:

- Indian Mathematical Society - Life Member (1985)
- Ramanujan Mathematical Society - Life Member(1987)
- Association of Mathematics Teachers of India - Life Member (1980)
- American Mathematical Society - Member (1994)
- Canadian Mathematical Society - Member (1999)
- **Institute of Combinatorics and its Applications Canada** - **Fellow (FTICA) –(1999)**
- Kerala Mathematics Teachers Association - Life Member (2001)
- Cryptology Research Society of India - Life Member(2006)
- Academy of Discrete Mathematics and Applications - Life Member (2006)
- Mathematical Association of America - Member (2007)
- Indian Science Congress Association - Life Member (2009)

7. Visits Abroad/other institutions:
- a) Visited Hungary under the Indo-Hungarian Cultural Exchange Programme of UGC during October **1994** and gave lectures at the Mathematical Research Institute of **Hungarian Academy of Sciences** and **Eotvos Lorand University, Budapest, Hungary**.
 - b) Participated in the ‘School and Workshop on Approximate Solutions of Hard Combinatorial Problems’ held at the **International Centre for Mechanical Sciences, Udine, Italy** during 10-19, September **1996**.
 - c) Visited the **Universities of Manitoba, New Brunswick, Newfoundland and Waterloo, Canada** during April - July **1999** for collaborative research and lectures.
 - d) Visiting Scientist at the **Indian Statistical Institute, Kolkata** during July-September, **2004** (during Sabbatical leave).
 - e) Contributed talk in the joint International Conference of Taiwan Mathematical Society and American Mathematical Society, **Tunghai University, Taiwan** , 14-18, December **2005**.
 - f) Presented a contributed paper ‘Reciprocal Graphs’ in the **International Congress of Mathematicians (ICM), Madrid, Spain, August 22 - 30, 2006**.
 - g) Visiting Professor, **Simon Fraser University, Canada**, May - June **2007**.
 - h) Presented a paper ‘Teaching and Learning of Discrete Mathematics- Indian Scenario’ TSG-15 of the **International Congress on Mathematics Education (ICME -11)**, Monterrey, **Mexico**, July 6-13, **2008**.
 - i) Invited Talk on ‘ Clique irreducible and weakly clique irreducible graphs-A Survey’ in the **First India- Taiwan Conference on Discrete Mathematics** , **National Taiwan University, Taipei, Taiwan**, November 9-12, **2009**.
 - j) Visiting Professor, Department of Applied Mathematics and Institute for Theoretical Computer Science, **Charles University, Prague , Czech Republic** , August **2011**.
 - k) Presented a paper ‘ Power domination in some classes of Graphs’ , Eurocomb-11, **Eotvos Lorand university and Alfred Renyi Institute, Budapest, Hungary**, 29 August-2 September, **2011**.
 - l) Participated as a Member of the Indian delegation, in the **International Congress on Mathematical Education (ICME-12)** ,Seoul, **S.Korea** during 8-15th July **2012**.
 - m) Invited Talk in the Instructional workshop on Graph Theory and Interconnection Networks, **Tunghai University, Taichung, Taiwan**, 15-16, November, **2013**.

- n) Invited Talk in the Third India-Taiwan Conference on Discrete Mathematics, **National ChiaoTung University, Hsinchu, Taiwan, 18-22 November, 2013.**
- o) **Participated in the International Symposium on Mathematics for Emerging Nations Achievements and Opportunities (MENAO) at Seoul, S.Korea on 13 August 2014 organised by International Mathematical Union(IMU).**
- p) Presented a contributed paper 'Bondage number of product graphs' in the **International Congress of Mathematicians (ICM), Seoul, S.Korea, August 13 – 21, 2014.**
- q) **Invited talk on Mathematics to the Masses - Some Success Stories from India, in the International Congress on Mathematics Education, Hamburg, Germany, July 24-31, 2016.**
- r) **Invited talk on 'Power domination in graph products' in the 5th India- Taiwan Conference on Discrete Mathematics, Tamkang University, Taiwan, 18-21 July 2017.**

8. Doctoral Students:

- a) B. Radhakrishnan Nair - Triangle Number in a Graph and Related Topics - Cochin University of Science and Technology (1995).
- b) K.S. Parvathy - Studies on Convex Structures with emphasis on Convexity in Graphs - Cochin University of Science and Technology (1997).
- c) M.S. Sunitha - Studies on Fuzzy Graphs - Cochin University of Science and Technology (2002).
- d) G. Indulal - Studies on the Spectrum and the Energy of Graphs - Cochin University of Science and Technology (2007).
- e) Aparna Lakshmanan,S. – Studies on Some Graph Classes - Cochin University of Science and Technology (2009).
- f) Manju K. Menon – Studies on Some Graph Operators and Related Topics- Cochin University of Science and Technology (2010).
- g) Seema Varghese – Studies on Some Generalizations of Line Graph and the Power Domination Problem in Graphs – Cochin University of Science and Technology (2011).
- h) Chitra, M.R - Some topics in graph products (Cochin University of Science and Technology (2014).
- i) Pravas K - Studies on the root graphs of some graph operators (Cochin University of Science and Technology (2017)).
- j) Seethu Varghese – Studies on the power domination problems in graphs (Cochin University of Science and Technology (2017)).

- k) Savitha Viswanathan – Studies on the Network Topological properties of some Graph Classes (Cochin University of Science and Technology) (2018).
- l) Anu Varghese – Studies on the Spectra and Energy of Adjacency and Distance Matrices of Graphs (Cochin University of Science and Technology).
- m) Tijo James- Studies on the Domination Game in Graphs (Cochin University of Science and Technology) .
- n) On going: Rasila V.A. – Cayley Graphs and Steiner Problems .

12. Other Academic Activities:

- a) Reviewer : Mathematical Reviews of American Math.Society (1988 -), Zentralblatt Math (2006 -)
- b) Regional Coordinator, Indian National Mathematical Olympiad (National Board for Higher Mathematics, Department of Atomic Energy) (1990 – 2017).
- c) Centre Coordinator for the PG and Ph.D. scholarship exams of NBHM (-2017)
- d) Referee: Discrete Mathematics, Fuzzy Sets and Systems , Utilitas Mathematica, Algorithmica, Indian Journal of Pure and Applied Mathematics, Journal of Indian Mathematical Society etc.
- e) Mentor, INSPIRE(DST, GOI) : NIT Calicut (December 2011), University of Kerala (May 2012), S.H. College , Thevara (January 2012, September 2012, January 2015), Devamatha College,Kuravilangad (July 2014), Srimad Andavan Arts and Science College, Trichy (February 2016, October 2016, November 2018), Noorul Islam University (October 2016), Central University of Kasaragod (December 2017, 2018) and SHE of DST.

Seminars Coordination : Selected Only (2010 -)

- **Convener, International Conference on Recent Trends in Graph Theory and Combinatorics, August 12-15, 2010, Cochin - A Satellite Conference of the International Congress of Mathematicians (ICM)-2010.**
- Regional Convener, National Initiative on Mathematics Education,(INSA and NBHM) , Southern Regional Conference, November 11-13, 2011, Cochin.
- Coordinator, National Instructional Workshop on Cryptology sponsored by CRSI, May 2013.
- PC Member, International Meet on Transnational Education, Kerala State Higher Education Council, 3-5, January, 2014.
- Academic Adviser, 48th Annual Conference of Association of Mathematics Teachers of India, Bhavans Vidyamandir, Elamakkara, Cochin. 10-12, January, 2014.
- INMO Training Camp, January 8-9, 2017, CUSAT.

- PC Member, CALDAM -2018, February, 12-17, IIT Guwahati, India
- PC Co-Chair, CALDAM - 2019, February 14-16, IIT Kharagpur.
- **Invited Speaker, Mini Symposium, 9th Slovenian International Conference, Bled, Slovenia. June 23-29.2019.**
- **Academic Programme Committee and Invited Speaker, 6th India- Taiwan Conference on Discrete Mathematics, IIT Varanasi, November 2019.**
- **Member, Topic Study Group 15 - Discrete Mathematics, ICME-14, Shanghai, China 2020.**

Academic /Professional bodies:

- a) Board of Studies in Mathematics, Cochin University of Science and Technology (1992-1995, 2000-2004, 2004-2008, Chairman : 2008-2012, 2013-2017, 2017-2021).
- b) Academic Council of CUSAT (2001-2004, 2004-2006, 2006-2008, 2008-2012, 2012-2017,2017-2021). Member, Standing Committee of the Academic Council (2016-).
- c) Vice Chairman - Academic Committee for CBCS courses, CUSAT (2016 - 18).
- d) Executive Council of the Ramanujan Mathematical Society (1998-2000, 2004-2006, 2006-2008, 2008-2010).
- e) Academic Secretary (Founder) : Kerala Mathematics Teachers Association (an association for school teachers. (2001- 2017). President : 2017-
- f) Academic Secretary, Ramanujan Mathematical Society, India (2002-2004).
- g) Academic Secretary, Academy of Discrete Mathematics and Applications (2008- 2010, 2010-2012).
- h) Member, Faculty of Mathematical Sciences, University of Delhi (2010-2013).
- i) Member, Council of Indian Mathematical Society (2014-2017) .
- j) Member, Executive Council, Association of Mathematics Teachers of India(,2014-
- k) Chairman, Azim Premji University-Ramanujan Mathematical Society programmes for teachers training.(2015-).
- l) Member, Work Group on Higher Education, Kerala State Planning Board (2016-).
- m) Member, Academic Programme Committee, 5th India- Taiwan Conference on Discrete Mathematics, July 2017, Tamkang University, Taiwan
- n) Academic Advisor and Invited Speaker, International Conference on Graphs and Networks, October 2017, St. Xaviers College, Aluva, India.
- o) Resource person- Mathematical Olympiad Workshop, Jawahar Navodaya Vidyalaya, organized by JNV, Kottayam- 5th October 2017.
- p) Member, Research Council of Kerala School of Mathematics, Calicut (2017-).

Editorial :

- Member, Editorial Board, NBHM - RMS Mathematics News Letter (1999-2007).
- Member, Editorial Board, Resonance, Indian Academy of Sciences(2007- 2011).
- Member, Editorial Board, TEJUS- News Letter of CUSAT (2001-2015)
- Member, Editorial Board, ANANTHATHA- A Mathematics Magazine in Malayalam.
- Consultant, Ananthathe Arinja Aal , Malayalam translation of ‘The Man Who Knew Infinity’, by Robert Kanigal, published by Kerala Language Institute.August 2013.
- Member, Editorial Board, Little Mathematics Treasures, Ramanujan Mathematical Society (2012- 2017).
- Associate Editor, BhAvanA, The News Letter of The Mathematics Consortium (2016-).

13. Publications:

a) Papers :

1. Some metric properties of a geometric lattice, J. Math. Phys. Sci.17 (1983) 445- 454 (MR 85 j 30100).
2. Some properties of the discrete holometric space, Portugal. Math. 43 (85-86) 475-483 (MR 88k 30059).
3. Some characterisation theorems for the discrete holometric space. Collect. Math. 38 (1987) 123-129 (MR 90i 30078).
4. On an analogue of ellipses in the discrete holometric space, J. Math. Phys. Sci. 23 (1989) 343 - 349 (MR 90m 511009).
5. Transformation on the discrete holometric space, Ind. Jl. of Math. Vol. 33, No.33 (1991) 245-.253.
6. Convexity problems in discrete holometric spaces, Vol. 60, Maths Student (1991).
7. On order and metric convexities in Z_n , (with Manoj. C.), Compositio Math. 81 (1992) 57 - 65 (MR 93d 52018).
8. About triangles in a graph and its complement, (with B. Radhakrishnan Nair), Discrete Math. 131 (1994), 205-210 (MR 95f 05058).
9. On a class of nondense graphs - F graphs, (with B. Radhakrishnan Nair), Graph Theory Notes N.Y, XXVI (1994),28-31.
10. About a conjecture on centres of chordal graphs, (with K.S. Parvathy, Remadevi A), Graphs and Combin. 10 (1994) 269 - 270 (MR95h 05097).
11. Strongly edge triangle regular graphs and a conjecture of Kotzig, (with B. Radhakrishnan Nair) Discrete Math. 158(1996)201-209. (MR 97d 05283).
12. S - antipodal graphs, (with B.Radhakrishnan Nair) Indian J. Pure Appl. Math. (1997), 641 -645 (MR 98b 05083).
13. (K,2)-Convex graphs: minimal path convexity, (with K. S. Parvathy). Graph Theory Notes N.Y ,XXXIV (1998), 15-17.

14. A Characterisation of Fuzzy Trees (with M.S. Sunitha), Inform. Sci. 113 (1999) 293-300 (MR 99 g 05174)
15. Geodesic Iteration Number (with K.S. Parvathy), Proceedings of the Conference on Graph Connections (1999) Eds: R. Balakrishnan, H.M.Mulder,AVijayakumar, Allied Publishers, New Delhi (1999), 91-95.(MR 2000e 05093)
16. Some Metric aspects of Fuzzy Graphs (with M.S. Sunitha), Proceedings of the Conference on Graph Connections Eds: R. Balakrishnan, H.M. Mulder, A.Vijayakumar, Allied Publishers, NewDelhi (1999), 111-115.
17. Convex extendable trees (with K.S. Parvathy) , Discrete Math. 206 (1999), 179-185 (MR 2000f 05029).
18. Complement of a Fuzzy Graph (with M.S. Sunitha), Indian J. Pure Appl. Math. 33 (2002),1451-1464.
19. Blocks in Fuzzy graphs, The Journal of Fuzzy Mathematics,13, No.1,(2005),13-23. (MR 2005 k 05231).
20. On a pair of equi energetic graphs (with Indulal. G), MATCH-Communications in Mathematical and in Computer Chemistry, 55(2006), 83-90.(MR 2006 i 05102).
21. On the cyclic convexity of a graph (with K.S. Parvathy) – Indian J. Pure Appl. Math. 38 (5) (2007), 451- 456.(MR 2008 j 05085).
22. Energies of some non regular graphs (with G. Indulal) - J. Math. Chem., 42, (2007), 377- 386. (MR 2009a 05122).
23. Classes of Turker Equivalent graphs (with G . Indulal) – Graph Theory Notes N.Y. LIII , (2007), 30-36.
24. Some New Integral graphs (with G. Indulal), Appl. Anal. Discrete Math. 1, (2007), No:2, 420-426.(MR 2008g 05125).
25. Gallai and anti- Gallai graphs of a graph (with S B Rao, Aparna Lakshmanan S) Math. Bohem., 132, No.1 (2007), 43-54.(MR 2008 b 05146).
26. On the median and the anti median of a co graph (with S B Rao) - International Journal of Pure Applied Mathematics ,46, No.5, (2008),703-710.(MR 2009f 05082).
27. Equi energetic self complementary graphs (with G. Indulal) - Czech Math.Jl 58, No 133, (2008), 911-919.
28. The edge C_4 graph of a graph (with Manju K Menon), Proceedings of the International Conference on Discrete Mathematics, Ramanujan Mathematical Society, Lecture Notes Series, No: 7 (2008), 245-248.
29. The P_3 intersection graph (with Manju K Menon) - Util. Math., 75 , (2008), 35- (MR 2009 b 05190)

30. Clique irreducibility of iterated classes of graphs, (with Aparna Lakshmanan, S.), Discuss. Math. Graph Theory, 28 (2008), 307- 321. (MR 2010b:05178)
31. The clique graph of a co graph (with Aparna Lakshmanan. S.), Proceedings of the International Conference on Discrete Mathematics, Ramanujan Mathematical Society, Lecture Notes Series, No: 7 (2008), 227-232.
32. A note on energy of some graphs (with G. Indulal) MATCH, Communications in Mathematical and in Computer Chemistry, 59 (2008), 269 – 274. (MR 2008 m 05176).
33. Distance energy of graphs (with G. Indulal, I. Gutman) MATCH, Communications in Mathematical and in Computer Chemistry, 60 (2008), 461-472 (MR2009 i 05148).
34. On the $\langle t \rangle$ property of some classes of graphs (with Aparna Lakshmanan, S.) Discrete Math. 309 (2009), 259 – 263. (MR 2009m05148)
35. A note on some domination parameters in graph products (with Aparna Lakshmanan.S.) – The Journal of Combinatorial Mathematics and Combinatorial Computing, 69 (2009), 31- 37. (MR 2010d:05114).
36. On the dynamics of the P_3 intersection graph (with Manju K Menon) - The Journal of Combinatorial Mathematics and Combinatorial Computing ,73(2010),127-134. (MR 2011d:05251).
37. Clique irreducibility and clique vertex irreducibility of graphs (with Aparna Lakshmanan, S.) - Appl. Anal. Discrete Math. 3, (2009), 137-146 (MR 2010g:05302).
38. Cographic and global cographic domination number of a graph (with S B Rao, Aparna Lakshmanan S).- Ars Combin.95 (2010), 473-486. (MR 2011f:05233).
39. On weakly clique irreducible graphs (with Aparna Lakshmanan, S) - Bull.ICA , 58 (2010) , 48-58. .(MR 2010j:05346).
40. The edge C_4 graph of some graph classes (with Manju K Menon), Discuss. Math. Graph Theory 30, (2010), 365-375. (MR 2011i:05207)
41. The gamma graph of a graph (with Aparna Lakshmanan, S) , AKCE. International J. Graphs. Combin. 7, No. 1 (2010), 53-59. (MR 2011f:05230)
42. Power domination in honeycomb networks (with Seema Varghese, D.Ferrero)- Journal of Discrete Math.Sciences and Cryptography,14 (2011), 521-529.
43. Containers and wide diameters of $P_3(G)$ (with Manju K Menon, D.Ferrero)- Math Bohem. ,No: 4, 137,(2012), 383-393.

44. On the planarity of iterated star line graphs (with Seema Varghese), AKCE International Journal of Graphs and Combinatorics, Vol 9, No:1 (2012), 1-9.
45. Weakly clique irreducibility of NEPS of two graphs, (with Aparna Lakshmanan,S Tao- Ming Wang), Util. Math, 92 (2013) , 351-358.
46. Diameter variability in the Cartesian product of graphs,(with Chitra, M R), Discrete Mathematics, Algorithms , Applications. (2014).
47. Domination criticality of the product graphs,(with Chitra, M.R.), AKCE Int. J. Graphs Comb., 12 (2015),19-25.
48. The median problem on k-partite graphs,(with Pravas, K), Discussions Mathematicae Graph Theory 35 (2015) 439–446 doi:10.7151/dmgt.1802
49. Forwarding indices and bisection width of Sierpinski graphs.(with Savitha K S), Bull ICA (2016).
50. Convex Median and Anti-Median at Prescribed Distance (with Pravas, K.), Journal of Combinatorial Optimization, 33 , (2017), 1021-1029 .
51. Component factors of the Cartesian product of graphs,(with Chitra, M.R.) Asian-European Journal of Mathematics, (2016).
52. The diameter variability of product graphs,(with Chitra , M.R.), The Journal of Combinatorial Mathematics and Combinatorial Computing,(2016).
53. Heredity for generalised power domination (with Paul Dorbec, Seethu Varghese), Discrete Mathematics and Theoretical Computer Science, 18(3), 31-37, (2016).
54. Some network topological notions of the Mycielskian of a graph (with K S Savitha), AKCE International Journal of Graphs and Combinatorics (2016).
55. Reciprocal Graphs (with G. Indulal), Malaya J.Mat.4,(2016), 380-387.
56. Generalised power domination in WK- Pyramid networks, (with Seethu Varghese) , Bull ICA, Vol 78, (2016), 52-68.
57. On the Power domination Number of Graph products, (with Seethu Varghese), LNCS(Springer), Vol. 9602 (2016) , 357- 367.
58. The k- power bondage number of a graph (with Seethu Varghese), Discrete Mathematics, Algorithms , Applications., Vol 8, No: 4 (2016).
59. On an edge partition and root graphs of some classes of line graphs (with Pravas. K) , Electronics Journal of Graph theory and Its Applications, 1-15, 2017 .
60. Some diameter notions of the generalised Mycielskian of a graph (with K.S. Savitha, Chitra M. R.) , Proceedings of the International Conference on Discrete Mathematics

and Theoretical Computer Science, Kalasalingam University, December 2016. LNCS (Springer), Lecture Notes in Comput. Sci., 10398, *Springer, Cham*, 371–382, 2017.

61. Further progress on the heredity of the game domination number (with Tijo James, Paul Dorbec), Proceedings of the International Conference on Discrete Mathematics and Theoretical Computer Science, Kalasalingam University, December 2016. LNCS (Springer), to appear in 2017.
62. The median problem on Symmetric Bipartite Graphs (with Pravas, K.), Proceedings of the International Conference on Discrete Mathematics and Theoretical Computer Science, Kalasalingam University, December 2016. LNCS (Springer), Lecture Notes in Comput. Sci., 10398, *Springer, Cham*, 262–270, 2017.
63. The diameter variability of the product graphs.(with Chitra M.R.), *J. Combin. Math. Combin. Comput.* 103 (2017), 159–170.
64. Power domination in Knodel graphs and Hanoi Graphs (with Seethu Varghese , A.M.Hinz), *Discuss. Math.Graph Theory* 38(1): 63-74 (2018) .
65. Distance Energy Change Due to Edge Deletion (with Wasin So and Anu Varghese), *Linear Algebra and its Applications*, Elsevier (2018).
66. The Domination Game on Split Graphs (with Tijo James and Sandi Klavzar), *Bulletin of Australian Mathematical Society*, doi:10.1017/S0004972718001053
67. Domination game: Effect of edge contraction and edge subdivision (with Tijo James) - communicated.
68. Wiener index and Steiner 3-Wiener index of a graph (with Matjaž Kovšec, Rasila V. A.) – communicated.
69. Steiner Wiener index of block graphs (with Matjaž Kovšec, Rasila V. A.) – communicated.
70. Split Graphs with Exactly Four Distinct Eigenvalues (with Anu Varghese, Steve Kirkland, FelixGoldberg)- communicated.

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Google Scholar id: <https://scholar.google.co.in/citations?user=ei-GTVQAAAAJ&hl=en>

International Collaborations:

Under ‘Erudite’ Scheme of Kerala State Higher Education Council

- Daniella Ferrero, Texas State University, USA (2009).

- Paul Dorbec, University of Bordeaux, France (2013),.
- Andreas M Hinz, LMU, Munich, Germany(2014).
- Wasin So, San Jose University, USA(2016).

Other collaborations :

- Tao Ming Wang, Thunghai University, Taiwan.
- Steve Kirkland, University of Manitoba, Canada.
- Sandi Klavžar, University of Ljubiana, Slovenia.
- Matjas Kovse, IIT Bhubaneswar.

b) Books :

1. Proceedings of the Conference on Graph Connections, Eds: R. Balakrishnan, H.M..Mulder, A. Vijayakumar, Allied Publishers, New Delhi (1999).(MR2000d 05002).
2. Joint Proceedings of the International workshop on Convexity in Discrete Structures, Trivandrum, India and the International workshop on Metric and Convex Graph Theory, Barcelona, Spain. Changat, Manoj ; Klavžar, Sandi ; Mulder, Henry Martyn ; Vijayakumar, A. (Eds.)
3. Ramanujan Mathematical Society, Lecture Notes Series,5,(2008).
4. **Recent Trends in Graphs and Combinatorics , Special Issue of Discrete Mathematics (Elsevier)-2012** . Eds ; R . Balakrishnan, R. B. Bapat, Sandi Klavžar, A.Vijayakumar, Thomas Zaslavsky, Xuding Zhu.
5. Proceedings of 5th International Conference, CALDAM 2019, February 14-16, IIT, Kharagpur,India, (Springer) LNCS 11394. Eds.: Sudebkumar Prasant Pal , Ambat Vijayakumar.

c) Popular Articles :

In English :

1. Mathematical Induction, Science Reporter, Sept. 1987, 493-494.
2. Olympiads to Scout Maths Talence, Indian Express, October 20, 1991.
3. Math Puzzles on Chess Boards, Science India , August 2003.
4. **A Meeting with the Missile Man - An Interview with Dr. A.P.J. Abdul Kalam, Honourable President of India. Science India, November 2003.**
5. An Olympiad of a different kind, Educational Plus, The Hindu , March 2004.
6. Mathematical Olympiads and Some other Greater Challenges in Mathematics, Science India, May 2006.

7. **In conversation with Prof C.R. Rao - A Polymath amongst Statisticians, Science India, April 2007.**
8. Srinivasa Ramanujan - Tribute to a Natural Genius, Science India, December 2008.
9. In conversation with a chaos consultant- Interview with Prof.Robert Devaney, President, Mathematical Association of America, Science Reporter (NISCAIR-CSIR) November 2014.
- 10.An academic pilgrimage to Srinivasa Ramanujan's Kumbakonam, Science India, January 2015.
- 11.Sasthrayaan- A Unique project on quality science in Kerala, Science Reporter, (NISCAIR-CSIR) , February 2015.
- 12.Applications of Mathematics - Excitements and Challenges, Mathematics Teacher, February 2015.
13. **Homage to Dr. A P J Abdul Kalam- a visionary Indian , Science India, April 2016.**
- 14.**In Conversation with Prof. Michael Barnsley, A Topologist turned Fractal Geometer, Science Reporter, (NISCAIR-CSIR) , July 2017.**

In Malayalam:

1. On National Mathematics Year-2012, Field's Medal, Abel Prize, Olympiad etc in the Malayala Manorama year book 2013 (Malayalam). 407-413.
2. Prayogikatha Arinju Kanakku Padikkam(Let us learn mathematics knowing the applications, Horizon, Malayala Manorama, May 18, 2015.
3. Arbhudhavum Kanakkum Thammil (Mathematical Oncology) , Mathrubhumi Nagaram , November 10, 2017.
4. Masthishkavum Kanakkum Thammil (Brain Networks), Mathrubhumi, Nagaram, December 21, 2018.
5. **Padhippura - a section for students in Malayala Manorama daily.**
6. Laksham Laksham Kaaryangal (on Data Science and Big Data Analytics) - 28th December 2016 .
7. One plus one is one (in honour of George Boole on his 200th birth anniversary), 4th November 2015.
8. Kaalathinu Munpe (on Late Dr APJ Abdul Kalam) , 14 October 2015.
9. Internettile Ganitha Lokam (on GIMPS and OEIS), 12 June 2015

10. Onnamane Kandethan (Mathematics of rankings), 1 August 2014.
11. Friend of Infinity, It is not in the marks, (About Srinivasa Ramanujan), 20 Dec 2013.
12. If Math goes wrong, Bhoomiyude Kanakku (Math of Planet Earth), July 15, 2013
13. Kanakkilanu Karyam(on Srinivasa Ramanujan),21st December 2012.
14. Ganitha Bharatham, 26 June 2012.
15. Chessile Kanakku (Math on Chess boards), 26th September 2011.
16. Prakrithiyude Ganitha Sasthranjan (a tribute to Benoit Mandelbrot)- 24 November, 2010.
17. Rasathanthraathile Ganitha Rasam (on graph theory and chemistry), 7 July 2010.
18. 36 Officermarude Prasnam (on the Problem of 36 Officers), November 25,2009.
19. The number 786 , August 17, 2009.
20. Kanakkile Indian Karuthu (on C R Rao and S R S Varadhan), October 22, 2008.
21. 666- Mrigathinte Samghya (Number of the Beast), June 25, 2008.
22. Ganitha Samrajyathile Rangjimar (on Women Mathematicians), January 2, 2008.
23. Computerinte Kanakku (on Coding Theory) , December 5, 2007.
24. Sasthra Kudumbam (on Bernoullis Family), August 8, 2007.
25. Rahasyangalude Kanakkupetti (on Cryptology), January 29, 2007.
26. Thala Thirinchalum Kozhappmilla (on Palindromes, Collatz Problem etc.), December 18, 2006.
27. Quadratic Samavakyavum Sreedharcharyarum, October 20, 2006.
28. Oru Minnal Oli pole (Biographies of Galois, Abel, Riemann), October 16, 2006.
29. Ganitha Samryajathile Chakravarthimar, (Biographies of Gauss, Euler, Fermat, Cauchy, Descartes), August 23, 2006.
30. Hruswa mengilum artha deerghamam (Quiz on Ramanujan), August 11, 2006.
31. Prakrithiyude Bhasha Kanakku - Quiz : Aug 2, 2006.
32. Kanakkinte Rajakumaran- Quiz- July 24, 2006.
33. Kanakku Padikkan Stampukal (on Mathematics through postal stamps), November 21, 2005.
34. Field's Medal- Kanakkinte Nobel, Kaithiri (Malayala Manorama), November 2001.

Other activities :

- Core team member, 'Sastrayaan' project of Sri. V D Satheesan MLA (2011-
- Core faculty, Cochin Olympiad of Cochin Diocese (2012-
- Member, Bharatiya Vidya Bhavan , Kochi Kendra Committee (2016-
- Life Member, Can Cure Foundation, Cochin (2017-