

A CURRICULUM VITAE OF Prof. M. M. SHIKARE

1. Name : Dr. M. M. Shikare
2. Qualification : M.Sc., M.Phil., Ph.D. (Mathematics)
3. Teaching and Research Experience : 36 years
Formerly Professor and Head, Department of Mathematics
Savitribai Phule Pune University, Pune 411007
4. Date of Birth : 1 / 6 / 1957 Gender: Male Age: 60 years
5. Address : c/o Department of Mathematics
Savitribai Phule Pune University, Pune-411007, India
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6. **Subject** : Mathematics (Specialization: Graph Theory, Discrete Mathematics)

7. Research Contributions :

- (a) **Number of students Guided : Ph.D. – 7**
M. Phil. -- 4
- (b) **Number of research papers published in International Journals : 35**

Books Published : 2

(c) Research Projects :

Title of the Project	Name of the Funding Agency	Duration
1. Determination of various Eulerian Subgraphs and eulerian supergraphs of non-eulerian Graphs and the development of the related theory for binary matroids.	University Grants Commission	Two Years (1996-98)
2. Generalization of some graph-theoretic results to matroids and their applications	University of Pune	Two years (2006-2008)
3. Splitt-off operation and element splitting operation for binary matroids and their applications	University of Pune	Two years (2011-2013)

(d) Reviewed 94 research papers for the Mathematical Reviews of American Mathematical Society. These reviews have been published by the American Mathematical society.

(e) Number of invited lectures given : 46

(f) Number of Conferences, symposia, workshops attended : 59

8. Books Published :

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- (i) M.M.Shikare and B. N. Waphare (Ed.), **Combinatorial Optimization**, Narosa Publishing House, New Delhi, India (2004).
 - (ii) M.M.Shikare, A.K. Agarwal, N.K.Thakare, M. A. Pathan, B.N. waphare (Ed.) **Proceedings** of the Seventh International Conference of the Society for Special Functions and their Applications, Pune (India), February 21-23, 2006.

9. International Conferences Attended in Foreign Countries and in India :

Gave invited talks in the following International Conferences :

- (i) Ninth Quadrennial International Conference on Graph Theory, Combinatorics, Algorithms and Applications held at **Western Michigan University, Kalamazoo, U.S.A.**, June 4-9, 2000.
 - (ii) SIAM International Conference on Discrete Mathematics held at Vanderbilt University, **Nashville, TN, U.S.A.**, June 13-16, 2004.
 - (iii) International Congress of Mathematicians held in Madrid, **Spain** , August 22-30, 2006
 - (iv) Workshop on Geometric and Topological Combinatorics, Universidad Alcala, Henares, **Spain**, Aug. 31 – Sept.. 5, 2006
 - (v) International Conference on Discrete Mathematics, University of **Mysore**, Mysore, India, June 6-10, 2008.
 - (vi) International Conference on Group Theory, Combinatorics and Computation, the University of West Australia, **Perth, Australia**, January 5-16, 2009.
 - (vii) International Congress of Mathematicians, **Hyderabad**, India (August 18-27, 2010)
 - (viii) The 41st Annual Iranian Mathematics Conference organized by the Department of Mathematics, Urmia University, **Urmia, Iran** and gave an invited talk
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(ix) International Conference on Discrete Mathematics, Karnatak University, **Dharwad**, India (June 10-14, 2013).

(x) The 18th International Mathematics Conference held at Independent University, Dhaka, **Bangladesh** during March 20-22, 2014 and gave an invited talk.

(xi) The 39th Australasian Conference on Combinatorial Mathematics and Combinatorial Computing (39ACCMCC), University of Queensland, **Brisbane, Australia**, December 6-11, 2015.

(xii) Asian Mathematical Conference 2016 held at **Bali, Indonesia** during July 25-29, 2016.

(xiii) International Congress of Mathematicians (ICM) held at **Rio de Janerio, Brazil** during August 1-10, 2018

10. Details of Seminars, Workshops and Conferences organized

1. Eight day **National level** Workshop on `Emerging Frontiers in Combinatorial Optimization` during June 21-28, 2002. The Department of Science and Technology (DST), Govt. of India provided the financial support of Rs. 3,70,000/- for the organization of the workshop. (Organizing Secretary of the workshop).

2. Four day **National level** workshop on `Discrete Mathematics`, March 21-24, 2004. The workshop was supported by the UGC under the SAP programme (Coordinator of the workshop).

3. **International Conference** on Special Functions and their Applications held at Pune during February 21-23, 2006 (Local Organizing Secretary).

4.. **73rd Annual Conference** (Centenary year Conf.) of the Indian Mathematical Society, Department of Mathematics, University of Pune, Pune, December 27-30, 2007 (Joint organizing secretary)

5.. **International Conference** on Algebraic Geometry, University of Pune, Pune (Dec. 14-18, 2010).

6.. **National Conference** on Discrete Mathematics, Algebra and Analysis, Department of Mathematics, University of Pune, Pune, April 21-24, 2013 (Organizing Secretary).

11. Membership of the professional bodies :

- 1 Member of the American Mathematical Society
- 2 Life member of the Indian Mathematical Society
- 3 Life member of the Indian Science Congress

- 4 Life member of the Society for special functions.
- 5 Included the name in the First Edition of Marquis Who's Who in Asia

12. Evaluations of Ph.D. Thesis : Evaluated the following five thesis of the other Universities for the Ph.D. degree.

- (i) On The Fuzzy Matroids, Algappa University, Tamil Nadu (2004).
- (ii) Some Topics in the Theory of Domination in Graphs, Karnatak University , Dharwad-580 003 (2005).
- (iii) Some Aspects of Distance Concepts in Graph Theory, Karnatak University , Dharwad (2007).
- (iv).. Some studies on Domination parameters and neighbourhood numbers of interval graphs and circular-arc graphs, Sri Padmavati Mahila Visvavidyalayam, Tirupati (2009).
- (v) Some studies in theory of graphs, Karnatak University, Dharwad (2011)

13. Refereed few papers for the following reputed International Journals

- (i) Ars Combinatoria. (Canada)
- (ii) Discrete Mathematics (USA)
- (iii) Indian Journal of Pure and Applied Mathematics (India)
- (iv) Journal of Indian Mathematical Society

14. Fellowships, Grants and Awards:

- (I) Teacher Fellowship from the U. G. C. (Govt. of India) to pursue M.Phil. degree (1989).
- (II) Travel grant from UGC to attend International Conference in USA (2000).
- (III) Travel grant from University of Pune to attend International Conference in USA (2004).
- (IV) India International Friendship Society's "VIJAY SHREE AWARD for remarkable achievements in the field of education (2005).
- (V) Received grant from Department of Sc. and Technology, Govt. of India to attend International Conference on Group Theory, Combinatorics and Computation, the University of West Australia, Perth, Australia, January 5-16, 2009.

15. Other Positions / Experience

- (i) Chairman, Board of Studies in Mathematics, University of Pune, Pune (2010- 2012)

- (ii) Member, Editorial Board, Journal of Indian Mathematical Society (2007-2010).
- (iii).. Programme Facilitator, M.Sc. (Mathematics with Applications to Computer Science) Course, Indira Gandhi National Open University, Pune Region (2008-2011) .
- (iv).. Head, Department of Mathematics, University of Pune, Pune (2010-2012).
- (v).. Administrative Secretary, Indian Mathematical Society (2011 - 2015).
- (vi) Member, Board of Studies in Mathematics, Dr. B. A. M. University, Aurangabad (2010 - 15).

16. Honours

- (i) **Administrative Secretary**, Indian Mathematical Society (April 2011 onwards).
 - (ii) Gave prestigious 24th V. Ramaswami Aiyar Memorial Award Lecture in the 79th Annual Conference of the **Indian Mathematical Society** held at Cochin during December 28-31, 2013.
 - (iii) Received **Rajiv Gandhi Gold Medal** Award 2014 for excellence in Education and Research; awarded by Global Economic Progress and Research Association, New Delhi.
 - (iv) Gave an invited talk at the 41st Annual Iranian Mathematics Conference organized by the Department of Mathematics, Urmia University, Urmia, **Iran**, **Sept. 2010**
 - (v) Gave an invited talk at the 18th International Mathematics Conference held at Independent University, Dhaka, **Bangladesh** during March 20-22, 2014.
 - (vi) Gave an invited talk at the Asian Mathematical Conference 2016 held at **Bali, Indonesia** during July 25-29, 2016.
 - (vii) Member of the National Committee formulated for the review of the B. Sc programme of the Indira Gandhi National Open University (IGNOU), New Delhi.
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LIST OF PUBLICATIONS

1. M. M. Shikare, Ph.D. Thesis, Splitting in Binary Matroids, University of Pune (1997). Supervisor : T. T. Raghunathan.
2. M. M. Shikare, T.T.Raghunathan and B.N.Waphare, Some properties of circuits in graphs, **J. Advances in Science and Technology**, 11 (1)(1995), 45-47.
3. M. M. Shikare and T. T. Raghunathan, A Characterization of binary Eulerian matroids, **Indian J. of pure and appl. Math.**, 27 (2), 153-155 (1996).
4. T. T. Raghunathan, M. M. Shikare and B. N. Waphare, Splitting in a binary matroid, **Discrete Mathematics**, 184 (1998), 267-271.
5. M. M. Shikare, Splitting operation and connectedness in binary matroids, **Indian J. of pure and appl. Math.**, 31 (12) (2000), 1691-1697.
6. M. M. Shikare, New Characterizations of binary Eulerian Matroids, **Indian J. of pure and appl. Math.**, 32 (2)(2001), 215- 219.
7. M. M. Shikare and G. Azadi, Determination of the bases of a splitting matroid, **European Journal of Combinatorics** 24 (2003), 45-52.
8. M. M. Shikare, G. Azadi, and B. N. Waphare, Generalised splitting off operation for binary matroids, **Electronic Notes in Discrete Mathematics**, Vol. 15(2003), 188-190.
9. M. M. Shikare, B. N. Waphare (ed.), **Combinatorial Optimization**, Narosa Publishing House, New Delhi (2004).
10. M. M. Shikare and K. V. Dalavi, On splitting off operation for graphs and its applications, **International J. of Math. Sci and Engg. Appls.**, Vol. 1 No. 2 (2007), 317-331.
11. M. M. Shikare and B. N. Waphare, A characterization of connected matroids, **Ars Combinatoria**, 86 (2008), 345-347.
12. M. M. Shikare, Splitting lemma for binary matroids, **Southeast Asian Bulletin of Mathematics** 32 (2008), 151-159.
13. M. M. Shikare and S. Dhotre, Construction of a Hamiltonian cycle in generalized Petersen graph of order $4n$, **International J. of Math. Sci and Engg. Appls.**, Vol. 2 No. III (2008), 251-256.

14. M. M. Shikare, H. Azanchiler and B. N. Waphare, The cocircuits of splitting matroids, **J. Indian Math. Society**, Vol. 74, Nos. 3-4(2007), 185-202.
15. M. M. Shikare, K. V. Dalavi and Y. M. Borse, Forbidden-minor characterization for the class of graphic element splitting matroids, **Discussions Mathematicae Graph Theory** 29 (2009), 215-227.
16. M. M. Shikare and B. N. Waphare, Excluded minors for the class of graphic splitting matroids, **Ars Combinatoria** 97 (2010), 111-127.
17. M. M. Shikare, Y. M. Borse and K. V. Dalavi., Forbidden Minors for Graphic and Cographic ES-Splitting Matroids, **Lobachevskii J. of Math.** 31, (2010), 27-35
18. M. M. Shikare, G. Azadi and B. N. Waphare, Generalized Splitting operation for binary matroids and its applications, **J. Indian Math. Society**, Vol. 78, Nos. 1 - 4 (2011), 145-154.
19. M. M. Shikare, K. V. Dalvi and S. B. Dhotre, Splitting off Operation for binary matroids and Its applications, **Graphs and Combinatorics**, 27 (2011), 871-882.
20. Dalvi Kiran, Borse Y.M. and Shikare M.M., Forbidden-Minor characterization for the class of cographic element splitting matroids, *Discuss. Math. Graph Theory* 31 (2011), 601-606.
21. M. M. Shikare, S. D. Dhotre and K. V. Dalavi, A characterization of the graphic splitt-off matroids, **Australasian J. of Combinatorics**, 50 (2011), 25-35.
22. M. M. Shikare and S. B. Dhotre, Forbidden-minors for es-splitting binary Gammoids, **Lobachevskii Journal of Mathematics**, 33 (2012), 33-38.
23. M. M. Shikare and Pirouz Naiyer, Some results involving the splitting operation on binary matroids, **ISRN Discrete Mathematics** (2012), Art. ID 406147, 8 pages.
24. M. M. Shikare, S. B. Dhotre and P. P. Malvadkar, A Forbidden- minor characterization for the class of regular matroids which yield the cographic es-splitting matroids, **Lobachevskii Journal of Mathematics**, 34 (2) (2013), 173-180.
25. Y. M. Borse, M. M. Shikare and Kiran Dalvi, Excluded-Minor characterization for the class of cographic splitting matroids, **Ars Combinatoria**, 115 (2014), pp. 219-23.
26. M. M. Shikare, Generalizations of some graph-theoretic results to matroids, **The Mathematics Student**, Vol 83, Nos. 1-4 (2014), p. 1-15.
27. M. M. Shikare, P.P Malvadkar and S. B. Dhotre, A characterization of n-connected splitting matroids, **Asian-European Journal of Mathematics**, Vol. 7, No. 4, (2014), pp. . 601-607
28. Y. M. Borse, M. M. Shikare and Pirouz Naiyer, A characterization of graphic matroids which yield cographic splitting matroids, **Ars Combinatoria**, Vol. 118 (2015), pp. 357-366.

29. M. M. Shikare, S. B. Dhotre and P. P. Malvadkar, On 3-connected es-splitting binary matroids, **Asian-European Journal of Mathematics**, Vol. 9, No. 1 (2016) 1650017 (10 pages).
30. M. M. Shikare, Pirouz Nayer and K. V. Dalavi, Cographic element splitting matroids of regular matroids, **Utilitas Mathematica**, 101 (2016), 91-107.
31. M. M. Shikare, P. P. Malvadkar and S. B. Dhotre, A Characterization of cocircuits of an es-splitting matroid, **Journal of Combinatorial Mathematics and Combinatorial Computing** (2018).
32. M. M. Shikare, P. P. Malvadkar and S. B. Dhotre, Forbidden minors for the class of cographic matroids which yield the graphic element splitting matroids, **Southeast Asian Bulletin of Mathematics** (2018).
33. M. M. Shikare, P. P. Malvadkar, S. C. Patekar and Ivan Gutman, On Path Eigenvalues and Path Energy of Graphs, **MATCH Communications in Mathematical and in Computer Chemistry**, 79 (2018), 387-398.
34. M. M. Shikare, Extension of the splitting operation from Graphs to Binary Matroids, **Southeast Asian Bulletin of Mathematics** **42 (5), 2018**
35. M. M. Shikare, S. C. Patekar and S. A. Barde, On the average degree eigenvalues and average degree energy of graphs, **Journal of Mathematical and Computational Science** 9 (1), 46-59, 2019.