

RESUME

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RESEARCH INTEREST: Chemical Graph Theory

TEACHING EXPERIENCE: 11 years of teaching experience and 7 years in research

- ❖ Worked as Lecturer from 1st Sep 2012 to 24th May 2013 at GM Institute of Technology, Davanagere, Karnataka, India.
- ❖ Worked as Assistant Professor from 22nd July 2013 to 23rd June 2022 at Jain Institute of Technology, Davanagere, Karnataka, India.
- ❖ Working as Assistant Professor from 24th June 2022 to till date at Bapuji Institute of Engineering & Technology, Davanagere, Karnataka, India.

EDUCATION

- ❖ Post-Doctoral Fellowship (PDF) from Srinivas University, Mangalore, Karnataka, India.
- ❖ Ph.D (Mathematics) from VTU, Belagavi.
- ❖ M.Sc (Mathematics) from Davangere University, Davanagere.
- ❖ B.Sc (Mathematics, Physics & Electronics) from Kuvempu University, DVS Arts and Science College, Shimoga.
- ❖ B.Ed (Physics & Mathematics) from Kuvempu University.

PROFESSIONAL MEMBERSHIP:

- ❖ Life Member of Indian Society for Technical Education (**LM126313**).

PUBLICATIONS

- 1) **M.C. Shanmukha**, Sokjoon Lee, A. Usha, K.C. Shilpa, Muhammad Azeem, “[Structural descriptors of anthracene using topological coindices through CoM-polynomial](#)”, Journal of Intelligent & Fuzzy Systems, 2023 : 1-12. **(Q2)**
- 2) Naresh Patel, K.M., Ashoka, K., Park, Choonkil, **Shanmukha, M.C.**, Azeem, Muhammad, “[Disease categorization with clinical data using optimized bat algorithm and fuzzy value](#)”, Journal of Intelligent & Fuzzy Systems, 2023 : 5467 – 5479. **(Q2)**
- 3) **M.C. Shanmukha**, A. Usha, K.C. Shilpa, Muhammad Kamran Siddiqui, “[Structural investigation of carbon nanocone through topological coindices](#)”, International Journal of Quantum Chemistry, e27109. **(Q2)**
- 4) **Shanmukha Mulleman Channappa**, Shilpa Kalajji Channabasappa, Usha Arcot, and Anil Kumar Kempasidpla Nagarajappa, “[Generalized Redefined Zagreb Index on Some Nanostructures](#)”, Suranaree J. Sci. Technol. 30(1):030097(1-7). **(Q4)**
- 5) **M.C. Shanmukha**, Sokjoon Lee, A. Usha, K.C. Shilpa and Muhammad Azeem, “[DegreeBased Entropy Descriptors of Graphenylene Using Topological Indices](#)”, Computer Modelling in Engineering & Sciences, 2023, 1-25. **(Q2)**
- 6) Xiujun Zhang, H.G. Govardhana Reddy, Arcot Usha, **M.C. Shanmukha**, Mohammad Reza Farahani, Mehdi Alaeiyan “[A study on anti-malaria drugs using degree-based topological indices through QSPR analysis](#)”, Mathematical Biosciences and Engineering, 20(2), 2023, 3594-3609. **(Q2)**
- 7) **M.C. Shanmukha**, A. Usha, “[Comparative Study of Chitosan Derivatives through CoM-polynomial](#)”, International Journal of Quantum Chemistry, 2022, 1-16. **(Q2)**
- 8) A. Usha, **M.C. Shanmukha**, B.M. Praveen, S. Yadhu Krishnan, K.C. Shilpa, “[Variation of Adriatic and Wiener indices for Different Cycle lengths and Paths](#)”, Discrete Mathematics, Algorithms and Applications. <https://doi.org/10.1142/S1793830922501257>. **(Q3)**
- 9) **M.C. Shanmukha**, A. Usha, B.M. Praveen, Abalo Douhadji, “[Degree Based Molecular Descriptors and QSPR Analysis of Breast Cancer Drugs](#)”, Journal of Mathematics, 2022, 1-13. **(Q3)**
- 10) **M.C. Shanmukha**, K.N. Anil Kumar, N.S. Basavarajappa, and A. Usha, “[Neighborhood Topological Indices of Metal Organic Networks](#)”, Jnanabha, 52(1) , 2022, 174-181. **(UGC)**
- 11) **M.C. Shanmukha**, A. Usha, M.K. Siddiqui, Samuel Asefa Fufa and Asare-Tuah, “[Degree-Based Molecular descriptors of Guar Gum and Its Chemical Derivatives](#)”, Journal of Chemistry, 2022, 1-14. **(Q2)**

- 12) **Shanmukha, M. C.**, Usha, A., Shilpa, K. C., & Basavarajappa, N. S. (2021). “**M-polynomial and neighborhood M-polynomial methods for topological indices of porous graphene**”. The European Physical Journal Plus, 136, 1-16. (Q2)
- 13) **M.C. Shanmukha** and A. Usha, “**Degree-Based Numerical Invariants of Grasmere Geometric Graph**”, 6th International Conference on Combinatorics, Cryptography, Computer Science and Computing, 2021, 660-668.
- 14) Weidong Zhao, **M.C. Shanmukha**, A. Usha, Mohammad Reza Farahani and K.C. Shilpa “**Computing SS Index of Certain Dendrimers**”, Journal of Mathematics, 2021, 1-14. (Q3)
- 15) **M.C. Shanmukha**, A. Usha, M.K. Siddiqui, K.C. Shilpa and Asare Tuah, “**Novel Degree-Based Topological Descriptors of Carbon Nanotubes**”, Journal of Chemistry, 2021, 1-15. (Q2)
- 16) Abdul Jalil M. Khalaf, **M.C. Shanmukha**, A. Usha and K.C. Shilpa “**Degree-base topological indices and polynomials of cellulose**”, Journal of Prime Research in Mathematics, 17, 2021, 7083. (Q4)
- 17) A. Usha, **M.C. Shanmukha**, K.N. Anil Kumar and K.C. Shilpa “**Comparison of Novel Index with Geometric-Arithmetic and Sum-Connectivity Indices**”, Journal of Mathematical and Computational Science, 11, 2021, 5344-5360.
- 18) **M.C. Shanmukha**, N.S. Basavarajappa, K.N. Anil Kumar, A Usha, “**Molecular structure investigation of Anticancer drugs by topological indices**”, Italian Journal of Pure and applied Mathematics (Scopus), Vol. 46, 2021, 972-983. (Q4)
- 19) **M.C. Shanmukha**, A. Usha, N.S. Basavarajappa, K.C. Shilpa, “**Graph entropies of porous graphene using topological indices**”, Computational and Theoretical Chemistry, Vol. 1197, 2021, 113142, <https://doi.org/10.1016/j.comptc.2021.113142>. (Q3)
- 20) **M.C. Shanmukha**, A. Usha, N.S. Basavarajappa, K.C. Savitha, K. C. Shilpa, “**A general neighborhood redefined Zagreb index on Boron Nanotubes**”, Malaya Journal of Matematik (MJM), Vol.9, No.1, 2021, 836-843, <https://doi.org/10.26637/MJM0901/0147>.
- 21) K.N. Anil Kumar, **M.C. Shanmukha**, N.S. Basavarajappa, C.M. Veena, K.C. Shilpa, “**Cyclohexane based isomers discrimination using topological indices**”, Malaya Journal of Matematik, Vol. 9, No.1, 2021, 524-532, <https://doi.org/10.26637/MJM0901/0088>.
- 22) **M.C. Shanmukha**, N.S. Basavarajappa, A. Usha, K.C. Shilpa, “**Novel neighbourhood redefined first and second Zagreb indices on carborundum structures**”, Journal of Applied Mathematics and Computing , Vol. 66, 2020, 263-276, <https://doi.org/10.1007/s12190-020-01435-3>. (Q2)
- 23) **M.C. Shanmukha**, A. Usha, N.S. Basavarajappa, K.C. Shilpa, “**M-Polynomials and Topological Indices of Styrene-Butadiene Rubber(SBR)**”, Polycyclic Aromatic Compounds (Taylor and Francis), 2020, 1-16, <https://doi.org/10.1080/10406638.2020.1852283>. (Q3)

- 24) N.S. Basavarajappa, **M.C. Shanmukha**, K.M. Niranjana, K.C. Shilpa, “[Dakshayani Indices on Carbon and Boron Nitride Nanotubes](#)”, Letters in Applied NanoBioScience, Vol. 9 No.4, 2020, pp. 1680 – 1686, <https://doi.org/10.33263/LIANBS94.16801686>.
- 25) **M.C. Shanmukha**, N.S. Basavarajappa, K.N. Anil Kumar, K.C. Shilpa, “[Generalized reciprocal sanskruti index: chemical applicability and bounds](#)”, Letters in Applied NanoBioScience, 9(4), 2020, 1595-1601 <https://doi.org/10.33263/LIANBS94.15951601>.
- 26) K.N. Anil Kumar, N.S. Basavarajappa, **M.C. Shanmukha**, A. Usha, “[Reciprocal Atom-bond connectivity and Fourth Atom-bond connectivity indices for Polyphenylene structure of molecules](#)”, Eurasian Chemical Communications, Vol. 2, 2020, 1202-1209, <https://doi.org/10.22034/ECC.2020.255902.1095>.
- 27) K.N. Anil Kumar, N.S. Basavarajappa, **M.C. Shanmukha**, K.C. Shilpa, “[Degree-Based Topological Indices on Asthma Drugs with QSPR Analysis during Covid-19](#)”, European Journal of Molecular & Clinical Medicine, Vol. 7 No. 10, 2020, 53-66.
- 28) **M.C. Shanmukha**, N.S. Basavarajappa, K.C. Shilpa, A. Usha, “[Degree based topological indices on anticancer drugs with QSPR analysis](#)”, Heliyon(Cell Press), Vol. 6, 2020, e04235, <https://doi.org/10.1016/j.heliyon.2020.e04235>. **(Q1)**
- 29) **M.C. Shanmukha**, N.S. Basavarajappa, K.N. Anil Kumar, A. Usha, “[Degree based topological indices for DOX-loaded PEG-PASP polymer](#)”, Jnanabha, Vol. 50 No.1, 2020, 92-104. **(UGC)**
- 30) **M.C. Shanmukha**, K.N. Anil Kumar, N.S. Basavarajappa, K.M. Niranjana, “[Topological indices on properties of line graph of subdivision of plane graphs](#)”, Advances in Mathematics: Scientific Journal, Vol. 9 No. 4, 2020, 2121-2135, <https://doi.org/10.37418/amsj.9.4.72>. **(Q4)**
- 31) K.N. Anil Kumar, N.S. Basavarajappa, **M.C. Shanmukha**, “[QSPR analysis of Alkanes with certain degree based topological indices](#)”, Malaya Journal of Matematik, Vol. 8, No. 1, 2020, 314-330. <https://doi.org/10.26637/MJM0802/0003>.
- 32) **M.C. Shanmukha**, N.S. Basavarajappa, K.N. Anilkumar, “[Predicting Physico-chemical Properties of Octane isomers using QSPR approach](#)”, Malaya Journal of Matematik, Vol. 8, No. 1, 2020, 104-115, <https://doi.org/10.26637/MJM0504/0018>.

PAPER PRESENTED IN CONFERENCES/ SEMINAR/WORKSHOP

- 1) Paper entitled “[Degree-based Topological indices of Top Ranked Zinc Databased Inhibitors of SARS-CoV-2](#)”, International Conference on Combinatorics, Cryptography, Computer Science and Computing organized by School of Mathematics, Iran University of Science & Technology, Tehran, Iran held from 16th to 17th November 2022.

- 2) Paper entitled “[A Generalized Multiplicative Index of Some Chemical Structures](#)” in National conference on RECENT FRONTIERS IN FRACTIONAL CALCULUS THEORY AND ITS APPLICATIONS (NCFCTA 2021), organized by department of Mathematics Vel Tech High Tech Dr. Rangarajan Dr. Sakunthala Engineering College, Chennai, Tamilnadu, 7th to 8th March, 2021.
- 3) Paper entitled “[On The Dakshayani Indices of Carbon and Boron Nitride Nanotubes](#)” in International conference on Recent Trends in Mathematics and its Application to Graphs, Networks and Petri Nets (ICRTMA-GPN-2020), July 20-24, 2020) organized by School of Computational and Integrative Sciences, Jawaharlal Nehru University, New Delhi-110067, India, held during 20th and 24th July, 2020.
- 4) Paper entitled “[On Topological Indices of Aminopterin](#)” in International Conference on Present Scenario of Mathematical Sciences (ICPSMS-2020) organized by Department of Mathematics Karnatak University’s Karnatak Arts College, Dharwad, Karnataka, India held from 12th to 13th September 2020.
- 5) Paper entitled “[Degree Based Numerical Invariants of Grasmere Geometric Graph](#)” in International Conference on Combinatorics, Cryptography, Computer Science and Computing organized by School of Mathematics, Iran University of Science & Technology, Tehran, Iran held from 17th to 18th November 2021.
- 6) Paper entitled “[Degree Based Topological Indices of Porous Graphene](#)” in National Conference on Recent Advances in Mathematical Science and Technology (NCRAIMST-2021) organized by Department of Mathematics, JNNCE, Shivamogga, India held from 8th to 9th October 2021.
- 7) Paper entitled “[Predicting Physico-chemical Properties of Octane Isomers using QSPR Approach](#)” in International Conference on Innovations and Challenges in Science and Technology (ICICST-2019) organized by Don Bosco Institute of Technology, Bengaluru from 19th to 23rd December 2019.

SHORT TERM COURSES/WORSHOPS ATTENDED

- Participated in the webinar “[APPLICATIONS OF MATHEMATICS IN ENGINEERING](#)” held on 17/06/2021, organized by Department of Science and Humanities, V. P. Dr. P.G. Halakatti College of Engineering & Technology, Vijayapur.
- Participated in the TEQIP-111 Sponsored “[ONE DAY WORKSHOP ON ROLE OF MATHEMATICS IN SOCIETY](#)” (ONLINE) on 15th March 2021, organized by Department of Mathematics, Coimbatore Institute of Technology Coimbatore-641014.

- Participated in the TEQIP-111 Sponsored “TWO DAYS ONLINE FDP ON APPLICATIONS OF STATISTICS IN DATA ANALYSIS” organized by Department of Mathematics, Coimbatore Institute of Technology on 17th and 18th March 2021.
- Participated & completed successfully AICTE Training and Learning (ATAL) Academy Online FDP on “Mathematics for Machine learning” from 2021-1-18 to 2021-1-22 at Sri Jayachamarajendra College of Engineering, JSS Science and Technology University.
- Participated in a 5-Day FDP on “Applications of Mathematics and Statistics in Engineering” (AMSE-2020), 23rd -27th Nov, 2020 organized by the Department of Mathematics, Malla Reddy Engineering College (Autonomous), Secunderabad.
- Participated in the “Science Academies” Lecture workshop on Linear Transformations, Matrices and their Applications-2020 held in the S. V. U college of Science, S. V. University, Tirupati from 02-11-2020 to 07-11-2020.
- Participated in the webinar on “Applied Graph Theory - An Overview” organized by the Department of Mathematics, GSSSIETW, Mysuru held on 07 October 2020.
- Participated in the webinar on “Moments of Insight and Revelation For Topological Indices” held on August 28th, 2020 organized by Department of Mathematics, Don Bosco Institute of Technology, Bengaluru.
- Participated in 5 days Faculty Development Program on “Applications of Mathematics in Engineering” conducted by KPRIET held from 27-07-2020 to 31-07-2020.
- Participated in the online STTP on “MATLAB and MATHEMATICA for Scientific Research” organized by Arul Anandar college Karumathur from 27-07-2020 to 29-07-2020.
- Participated in two days international webinar on “Complex Analysis and its Applications” organized by K.L.E. society’s G.I. Bagewadi college, Nipani on 22nd and 23rd July 2020.
- Participated in the Online Quiz on “Engineering Mathematics” organized by Department of Engineering Mathematics S.T.J.Institute of Technology, Ranebennur on 22-07-2020.
- Participated in Three Days National Webinar Series on “Mathematica and its Applications” from 20.07.2020 to 22.07.2020 organized by the Department of Mathematics, Bapuji Institute of Engineering & Technology, Davanagere.
- Attended an online webinar on “Application of probability and statistics in speech recognition” on 11th July 2020 organized by AMC engineering College, Bangalore.
- Participated in Five Days National Level Online Faculty Development Program on “CURRENT TRENDS AND RESEARCH OPPORTUNITIES IN INFORMATION TECHNOLOGY” Organized by the Department of Computer Science and Engineering, Tontadarya College of Engineering from 6th July to 10th July 2020.

- Participated in online webinar on “Teaching & Learning Process, course Outcomes and Program Outcomes” on 04-07-2020 organized by GM Institute of technology, Davanagere.
- Participated in the webinar on “Biofuel - A Promising Alternative Fuel” held on June 22nd, 2020 organized by Department of R & D and Chemistry, Don Bosco Institute of Technology, Bengaluru in association with Institution of Engineers (India), KSC and IEEE.
- Attended an online one-week Faculty development Program on “Recent Advances in Material Science and Mathematical Application” held during 15th June to 19th June 2020 organized by Department of Basic Science, Ghousia College of Engineering, Ramanagara-562159,
- Participated in webinar on “Applications of Differential Equations” on 19th June 2020 organized by Cambridge Institute of Technology North Campus, Bangalore
- Participated in 2 days National Conference on “Recent Developments of Mathematics in Industrial Applications” held during 11th to 12th April 2019 organized by Department of P.G. Studies and Research in Mathematics, Kuvempu University, Jnana Sahyadri, Shankaragatta-577451, Shimoga, Karnataka.
- Participated in the two days’ workshop on “Advanced Mathematical Techniques in Research and Engineering Application” held on 29th to 30th January 2018 organized by Department of Mathematics and Indian Society for Technical Education, IQAC-GMIT Davanagere.
- Participated in one day National Conference on “Recent Trends on the Applications of Science in Engineering (NCRSE-2018)” on 28th September 2018 held at Bapuji Institute of Engineering and Technology, Davanagere.
- Participated in one day Seminar on “Science in Engineering (SSE-2017)” held on 15th December 2017 at Bapuji Institute of Engineering and Technology, Davanagere.
- Participated in 2 days International Conference on “Differential Geometry, Analysis and Fluid Mechanics (ICDGA FM-2016)” held during 4th to 5th February 2016 organized by Department of P.G. Studies and Research in Mathematics, Kuvempu University, Jnana Sahyadri, Shankaragatta-577451, Shimoga.
- Attended one-week national level STTP on “A Pedagogy for Effective Use of Mathematics for Research in Science and Technology” sponsored by ISTE during 27th to 31st July 2015 at JNNCE, Shimoga.

Seminars/Workshops/Events Organized

- Organized One day International Conference on “[Innovation in Engineering-ICIE-2022](#)” at Jain Institute of Technology, Davangere, Karnataka on 3rd June 2022.

RESPONSIBILITIES

Worked as:

- Squad member for VTU examinations.
- External Deputy Chief Superintendent for VTU examinations.
- Internal Deputy Chief Superintendent for VTU examinations.

SUBJECTS TAUGHT

Engineering Mathematics I, Engineering Mathematics II, Engineering Mathematics III, Engineering Mathematics IV, Advanced Mathematics I, Advanced Mathematics II, Calculus and Linear Algebra, Advanced Calculus and Numerical methods, Transform Calculus, Fourier Series and Numerical Techniques, Complex Analysis, Probability and Statistical Methods.

Ph.D. Thesis: [“A STUDY ON GRAPH STRUCTURES AND THEIR UNDERLYING GEOMETRY THROUGH TOPOLOGICAL INDICES”](#)

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