

## Bio-Data

- Name:** Dr. Tarkehrswar Singh
- Date of Birth:** 01/08/1969
- Nationality:** Indian
- Sex:** Male
- Academic Qualification:** Ph.D. (University of Delhi, Delhi, 2004)  
M.Sc.(Maths), V.B.S. Purvanchal University Jaunpur (1992).  
B.Sc.(Physics, Chemistry, Mathematics), V.B.S. Purvanchal University Jaunpur (1990).
- Position:** Professor
- Institute/University:** Department of Mathematics, Birla Institute of Technology and Science, Pilani, KK Birla Goa Campus, Goa-403726, India.
- Area of Specialization:** Graph Theory (Discrete Mathematics).
- Research Interest:** Graph Labeling Problems, Dominations and Spectra of Graphs and Signed Graphs.
- Award and recognition:**
- *Junior Research Fellowship (1998-2001)*, MHRD, New Delhi Govt. of India.
  - *Young Scientist (2003)* by the Department of Science and Technology (Ministry of Science and Technology, Govt. of India).
  - *Teacher's Excellence Award (2023)*, BITS Pilani K K Birla Goa Campus, Goa.
  - *Distinguished Service Award (2024)*, Vijnana Parishad of India (VPI) on 25<sup>th</sup> Annual Conference of VPI on March 01, 2024.
- Courses Taught:** Graphs & Networks, Discrete Mathematics, Elementary Real Analysis, Mathematics-I (Advanced Calculus), Mathematics-II (Linear Algebra and Function of Complex Variables) Mathematics-III (Differential Equations) Numerical Analysis, Elementary Real Analysis, Algebra-I & II (Abstract Algebra), Higher Engineering Mathematics, Number Theory and Combinatorial Mathematics.

**Teaching Experience:** **Worked as Visiting Faculty**, in the Department of Applied Mathematics, Delhi College of Engineering from August 1, 1996 to March 31, 2002 and Jan. 1, 2003 to May 15, 2003.

**Worked as Lecturer**, in the Department of Mathematics, BITS Pilani, KK Birla Goa Campus, Goa from July 19, 2005 to July 31, 2007.

**Worked Assistant Professor**, in the Department of Mathematics, BITS Pilani, K K Birla Goa Campus, Goa from August 1, 2007 to Jan 31, 2015.

**Worked as Associate Professor**, in the Department of Mathematics, BITS Pilani, K K Birla Goa Campus, Goa from February 01, 2015 to May 31, 2021.

**Working as Professor**, in the Department of Mathematics, BITS Pilani, K K Birla Goa Campus, Goa from June 01, 2021 to till date.

**Research Experience:** **Worked as Visiting Fellow**, in the Institute of Mathematical Science, Chennai from April 3, 2002 to Oct. 2, 2002.

**Worked as Visiting Scientist**, in Statistical-Mathematical Division, Indian Statistical Institute Kolkata, from July 7, 2003 to December 31, 2004.

**Worked as Principal Investigator**, in Statistical Mathematical Division, Indian Statistical Institute Kolkata, from Jan, 2005 to July 15, 2005 and transferred the same project in Mathematics Group at BITS Pilani, K.K. Birla, Goa Campus, Goa in April 2007 and completed the project July 2008.

### **Research Project Completed as PI:**

#### **1. Hypergraceful Graphs (Fast Track Proposals for Young Scientist)**

DST No.: SR/FTP/MS-01/2003.

Total Amount: Rs.7,92,000/. For three years.

*This project was transferred from ISI Kolkata to BITS Pilani Goa Campus after joining the mathematics department of BITS Pilani K K Birla Goa Campus. (First Sponsored Project of BITS Pilani, Goa Campus Goa).*

**Funding Agency: SERC, Department of Science and Technology, Govt. of India.**

## **2. Studies on Neighborhood Magic Graphs.**

(Reference No. SR/S4/MS: 734/11).

Total Amount: Rs.12, 69,360/-

**Duration: July 01, 2013 to June 30, 2016.**

**Funding Agency: SERB, Department of Science and Technology, Govt. of India.**

## **3. Magic and Antimagic Labeling of Graphs**

(Reference No. CRG/2018/002536)

Total Amount: Rs.19, 54,832/-

**Duration May 27, 2019 to May 26, 2022.**

**Funding Agency: Science and Engineering Research Board, Govt. of India.**

**Academic/Professional Membership:** Life member of

1. Ramanujan Mathematical Society
2. Indian Mathematical Society
3. Forum for Interdisciplinary Mathematics
4. Academy of Discrete Mathematics and Applications  
(founder member)

## **Academic Achievements:**

1. **Member of Editorial Board** of Journal of Indian Academy of Mathematics, during 2011-2013.
2. **Member of Advisory Board** of Indian Academy of Mathematics, during 2013-2015.
3. **Member of Editorial Board** of Journal of Vijnan Parishad, India.
4. **Member of Editorial Board** of Journal of International Academy of Physical Sciences (JIAPS).
5. **Associate Editors** of South East Asian Journal of Mathematics and Mathematical Sciences.
6. **Member of the Reviewer Committee** in *Mathematical Review of American Mathematical Society (AMS)*.
7. **Member of the Advisory Body** of Department of Mathematics for the academic year 2010-11, 2014-16 in KLS Gogte Institute of Technology, Belgaum.
8. **Member of the Advisory Body** of Department of Mathematics for the academic year 2012-14, Goa University.
9. **Member of Executive Council** of Academy of Discrete Mathematics and

- Application (ADMA) for the period of 2014-16.
10. Appointed as a **University Nominee of Visvesvaraya Technological University** to the Board of Studies in Mathematics of Siddaganga Institute of Technology, Tumkuru, for two years (07/07/2017 to 06/07/2019).
  11. **Member of Committee for promotion and compounded increments**, Directorate of Higher Education, Govt. of Goa as subject expert.
  12. **Member of Governing Body of Association for Computer Science and Discrete Mathematics** till 2022.
  13. **Subject Experts** in Goa Public Service Commission, Govt. of Goa.
  14. **Subject Experts** in Navodaya Vidyalaya Samiti.
  15. **DRC member** in the Department of Mathematics, Goa University.
  16. **DRC member** in the Department of Applied Sciences, IIIT Allahabad.

## **Participation in Academic Meetings as Faculty/Resource**

### **Person:**

1. Delivered a lecture on “*Graph Labeling Problems*” in **National Workshop on Discrete Mathematics and its Application** during March 21-24, 2005 organized by the Department of Pure Mathematics, University of Kolkata, Kolkata.
2. Acted as a Tutorial leader in **CARDMATH National Group Discussion on Signed Discrete Structures and their Applications**, during Nov. 15-24, 2005, organized by the Regional Institute of Education, Mysore.
3. Delivered 5 lectures on “*Graceful and Skolem Graceful Signed Graphs and its Applications in Design Theory*”, in **Group Discussion on Labelings of Discrete Structures and Applications**, during April 19-28, 2006, organized by the Department of Mathematics, Mary Matha Arts & Science College, Mananthavady, Kerala.
4. Delivered 4 lectures on “*Graph Labeling Problems and its Application to Coding Theory*”, in **National Workshop on Graph Theory and**

*Applications*, during Oct. 9-16, 2006, organized by the Department of Mathematics, North-East Regional Institute of Science and Technology (NERIST), Nirujali, Itanagar, Arunachal Pradesh.

5. Delivered an invited talk on “*Construction of graceful trees from Skolem sequences*” and chaired a session in ***National Conference on Combinatorics and Graph Theory***, during March 10-12, 2007, organized by Department of Mathematics, Saurashtra University, Rajkot, Gujarat.
6. Delivered an invited talk on “*Skolem gracefulness of 2-sitars*” and chaired one session in ***Graph Theory Day III & International Conference on Recent Developments of Combinatorics and Graph Theory***, during June 10-14, 2007, at Kalasalingam University, Anand Nagar, Tamil Nadu.
7. Delivered four invited talks on *Applications of Graceful and Skolem graceful Signed Graphs*, in ***National Workshop on Uniform Hypergraphs*** at CR Reddy International Institute of Mathematics, Eluru, Andhra Pradesh during Jan 29- Feb 5, 2008.
8. Delivered an invited talk on *Graceful Signed Graphs on  $C_{3k}$* , in **5<sup>th</sup> International Workshop on Graph Labelings**, Kalasalingam University, Krishnankoil, Tamil Nadu, during Jan. 07-10, 2009.
9. Delivered 4 invited lectures on *Graceful Graphs and its Application* in ***Instructional Workshop on Graph Theory and its Application***, Institute of Mathematics and Applications, Bhuvneshwer, during Dec.17 -21, 2009.
10. Delivered 3 invited Lectures on *Graceful Signed Graphs and its Applications*, in ***National Workshop on Discrete Mathematics***, Banasthali University, Rajasthan, during May 1-5, 2010.
11. Delivered 4 invited lectures on *Graph Labeling Problems and its Applications* in refresher course in Mathematics in “***Algebraic and Number Theoretic Aspects in Graphs and Applications***” at UGC Academic Staff College, University of Mysore, Mysore, during June

11-12, 2010.

12. Delivered an invited talk on *Neighborhood Magic Graphs* in “**National Conference in Distance in Graphs**” during Oct. 3-5, 2010, at Department of Mathematics, Poorna Prajna College, Udupi, Karnataka.
13. Attended and presented a research paper entitled *Graceful Signed Trees*, **International Conference on Recent Trends in Graph Theory and Combinatorics (ICRTGC-2010)**, Cochin University of Science and Technology, Cochin, during August 12-15, 2010.
14. Delivered an invited talk on *Embedding Skolem Graceful Graphs* in the **Conference on Algorithms, Computing, Graph Theory and Combinatorics**, at Vishvesvaraya Technological University Belgaum, during April 18-20, 2011.
15. Delivered 3 invited talks on *Graph Algorithms* in **National Instructional Workshop on Graph Theory and Applications** at DST – Center for Interdisciplinary Mathematical Sciences (DTS-CIMS BHU), Banaras Hindu University, Varanasi, during May 23-28, 2011.
16. Delivered an invited talk on *Some Embedding Problems on Graceful Signed Graphs* in **Seventh Annual Conference of Academy of Discrete Mathematics and Application and Graph Theory Day VII** at National Institute of Technology Calicut, during June 9-11, 2011.
17. Acted as resource person in **ISTE Approved Short Term Training Programme on Graphs and Algorithms**, at Padre Conceicao College of Engineering, during July 4-9, 2011.
18. Delivered an invited talk on *Application of Linear Algebra in Graph Theory* in **National Conference on Linear Algebra and Applications** at Milagres College Udupi, Karnataka during August 4-5, 2011.
19. Acted as tutorial leader in **Advanced School on Graph Algorithms**, Department of Mathematics, Birla Institute of Technology and Science Pilani, KK Birla Goa Campus, Goa, during July, 23-27, 2012.
20. Acted as Faculty Experts in **Workshop on Mathematics Project Guidelines and Evaluations**, organized by State Council for

Educational Research and Training (SCERT), Govt. of Goa, Goa, on Sept.6, 2012.

21. Attended and presented a paper entitled “*Additively Graceful Signed Graphs*” in *Twenty first International Conference of FIM on Interdisciplinary Mathematics, Statistics and Computational Techniques IMSCT 2012 – FIM XXI* at the Department of Statistics, Panjab University Chandigarh, during Dec. 15-17, 2012.
22. Acted as a resource person in the panel discussion *Is research a good career option?* in *Research Promotion Workshop on Introduction to Graph and Geometric Algorithms* at the Department of Mathematics, Birla Institute of Technology and Science Pilani, KK Birla Goa Campus, Goa, during Jan. 17-19, 2013.
23. Delivered two lectures on *Discrete Mathematical Models and its Applications* in a Workshop on *A tribute to S. Ramanujan and Prof. S. Chandrashekar (Life and Work)* at Department of Mathematics, T.D. P.G. College (Purvanchal University Jaunpur) Jaunpur during April 18-22, 2013.
24. Presented a paper on *d-Distance Neighborhood Magic Graphs* in *3<sup>rd</sup> International Conference on Discrete Mathematics (ICDM-2013)* held at Karnataka University Dharwad, during June 10-14, 2013.
25. Attended a *Workshop on MATHEMATICA* at the Department of Mathematics, Birla Institute of Technology and Science Pilani, KK Birla Goa Campus, Goa, during July, 24-25, 2013.
26. Delivered an invited talks on *Hooked Skolem Graceful Signed Graphs* in the *3<sup>rd</sup> India-Taiwan Conference in Discrete Mathematics* organized by Department of Mathematics, National Chiao Tung University, Hsinchu, Taiwan during November 19-22, 2013.
27. Delivered an invited talk on *Neighborhood Magic Graphs: A Survey in National Seminar on Recent Trends in Mathematics and its Applications* organized by Department of Mathematics, Gogte Institute of Technology, Belgaum, Karnataka during Jan 28-29, 2014.

28. Delivered 4 invited lectures on *Applications of Graceful and Skolem Graceful Graphs(Signed Graphs)*, in an **Instructional Workshop on Graph Labeling Problems**, organized by n-CARDMATH (national center for advanced research in Discrete Mathematics) Kalasalingam University, Anand Nagar, Krishnankovil, Tamil Nadu during Feb. 5-11, 2014.
29. Delivered an invited talk on *Application of Graph Theory in Partition Theory* in a DST Sponsored Workshop on **Thoughts on Mathematics** at Department of Mathematics, T.D. P.G. College (V.B.S. Purvanchal University) Jaunpur during Nov. 2-6, 2014.
30. Delivered an invited talk on *(k,d)-Skolem Graceful Graphs*, in **8<sup>th</sup> International Workshop on Graph Labelings**, Kalasalingam University, Krishnankoil, Tamil Nadu, during Dec.03- 06, 2014 and **chaired a session**.
31. Delivered an invited talk on *d-Distance Neighborhood Magic Graphs* in **National Conference in Graph Theory and its Applications(NCRTGTA-2015)** organized by Department of Mathematics, Mangalore University, Mangalore during Feb.5-6, 2015 and **chaired a session**.
32. Delivered an invited talk on *Some Neighborhood Magic Graphs* in **National Conference on Discrete Mathematics and its Applications** organized by Department of Mathematics, Manonmaniam Sundarnar University, Tirunelveli, Tamil Nadu during July 15-17, 2015.
33. Delivered an invited talk on *New Measures of Gracefulness of Graphs* in **Indo-Hungarian Pre-Conference School of Conference on Algorithm and Discrete Applied Mathematics (CALDAM 2016)** organized by Department of Future Studies, University of Kerala, Thiruvananthapuram, during Feb.18-20, 2016.
34. Delivered five invited talks *Labeling of Signed Graphs and their Applications* in **ADMA Pre-Conference Workshop on Recent Advances in Signed Graphs and their Applications**, organized by



Department of Mathematics, Siddaganga Institute of Technology, Tumkur, Karnataka, during June 06-08, 2016.

35. Delivered an invited talk on *S-Magics Graphs*, in *International Conference on Current Trends in Graph Theory and Computation* at South Asian University, New Delhi, during September 17-19, 2016 and **chaired two sessions**.
36. Delivered an invited talk on *d-Distance Magic Labeling of Graphs* in *International Conference on Theoretical Computer Science and Discrete Mathematics (ICTCSDM 2016)* organized by n-CARDMATH, Kalasalingam University Krishnankoil during Dec.19-21, 2016 and **chaired a session**.
37. Delivered five invited talks *Graph Labeling and its Variations* in *Two Weeks Faculty Development Program on Graph Theory: Algorithms & Applications*, organized by Department of Mathematics, BMS College of Engineering, Bangaluru (Sponsored by Technical Education Quality Improvement Program TEQIP-II) during Dec. 26, 2016-Jan 07, 2017.
38. Delivered an invited talk on *S-magicness and Integer Partitioning*, in UGC sponsored National Conference on Recent Advances in Mathematical Sciences (RAIMS-2017) at Govt. Science College, Bangaluru, during Feb.09-10, 2017.
39. Chaired a session on Graph Algorithms in *International Conference on Algorithms and Discrete Applied Mathematics (CALDAM 2017)*, organized by the Department of Mathematics, BITS Pilani K K Birla Goa Campus, during Feb. 16-18, 2017.
40. **Attended a workshop on TEACHING STRATEGIES IN MATHEMATICS** organized by the Department of Mathematics, BITS Pilani K K Birla Goa Campus, during April 28-29, 2017.
41. Delivered an invited talk on *Distance Magic and Antimagic Labeling of some Graphs* in *National Conference on Graph Theory and Discrete Mathematics* organized by Department of Mathematics, Mangalore

University, Mangalore during Feb.5-6, 2018, also **chaired a session**.

42. Delivered an invited talk on *S-Magics and Nearly Magic Labeled Graphs* in *International Conference on Recent Trends in Graph Theory and Combinatorics (ICRTGC 2018)* organized by Department of Mathematics, Cochin University of Science and Technology, Cochin India during April 26-29, 2018.
43. Delivered an invited talk on *S-Magics and Nearly Magic Labeled Graphs* in *10<sup>th</sup> International Workshop on Graph Labeling (IWOGL 2018)* organized by School of Computer Science, Ball State University, Muncie, during September 26-28, 2018.
44. Delivered an invited talk on *Magic and Antimagic Graphs*, in *International Conference on Graph Theory and its Applications* at Department of Mathematics, Amrita Vishwa Vidyapeetham, Coimbatore, during Jan.04-06, 2019 and also **chaired a session**.
45. Attended and chaired a session in *6<sup>th</sup> India-Taiwan Conference on Discrete Mathematics(ITCDM-2019)*, at Department of Mathematical Sciences, IIT-BHU, Varanasi, during Nov.15-18, 2019.
46. Delivered an Invited talk on *Application of Some Domination Parameters of Graphs*, *National Webinar on Applications of Mathematics and Contemporary use of its Scientific & Technical Terminology in Hindi (AM-CUSTT-H-2020)*, jointly organized by Commission for Scientific and Technical Terminology, MHRD, Govt. of India, India and School of Computational and Integrative Sciences, JNU, New Delhi, during, June 14-16, 2020.
47. Delivered an invited talks on *(k,d)-Skolem Graceful Graphs*, in *International Conference on Recent Trends in Mathematics to Graphs, Networks and Petri Nets (ICRTMA-GPN-2020)* at School of Computational and Integrative Sciences, JNU, New Delhi, during **July 20-24, 2020 also chaired two sessions**.

48. Chaired a paper presentation session in *Four-Day online National Conference on Pure and Applied Mathematics(NCPAM-20202)* organized by Department of Mathematics, KLS Gogte Institute of Technology, Belagavi, during August 11-14, 2020.
49. Delivered an invited talk on *Additively Skolem Graceful Graphs* in *International Webinar on Graph Labelings and Applications (ICGLA-2020)* organized by the department of Mathematics, University of Goa, during Sept. 17-20, 2020 also chaired two sessions and Co-chairman of the conference.
50. Delivered Key Note speech on *Local Distance Antimagic Labeling of Graphs*, in *11<sup>th</sup> International Workshop on Graph Labeling (IWONGL 2021) during Sept. 22-23, 2021*, organized by University of New Castle, University of Indonesia and Technical University Kosice Slovakia.
51. Delivered an invited talk on *Distance Magic Index of Graphs* in *International Conference on Graph Theory and Applications (GTA 2021)* organized by the department of Mathematics, University of Goa in association with International Academy of Physical Sciences (IAPS) during Oct. 26-28, 2021.
52. Delivered an invited talk on *Distance Magic Index of Graphs* in *International Conference on Recent Advances in Mathematics and Computational Optimizations (RAMCO 2021)* organized by School of Computational and Integrative Sciences, Jawahar Lal Nehru University, New Delhi in association with International Academy of Physical Sciences (IAPS) during Oct. 26-28, 2021.
53. Delivered an invited talk on *Local Distance Antimagic Coloring of Graphs* in *D.B. Wagh Endowment Lecture and One Day Mathematics Symposium*, organized by the department of Mathematics, University of Goa, on Nov. 28, 2022.
54. Delivered an invited talk on *Local Distance Antimagic Coloring of Graphs* in *International Conference on Graphs, Networks and Combinatorics (ICGNC 2023)* organized by the Department of

Mathematics, Ramanujan College, University of Delhi during 10-12 January 2023.

- 55.** Delivered an invited talk on *A Complete Characterization of Magic Constants Arising from Distance Magic Graphs* & **Chaired paper presentation session** in *International Conference on Graph Theory and Application (ICGTA-2023)* organized by Department of Mathematics, Christ Deemed to University Bangalore during Nov. 30 to Dec. 01, 2023.
- 56.** Delivered an invited talks on *Some Combinatorial Proof Techniques and its Applications* in *8<sup>th</sup> Refresher Course in Mathematics for teachers of University and Colleges* organized by the UGC-Malviya Mission Teacher Training Centre during December 08-21, 2023.
- 57.** Delivered an invited talk on *A Complete Characterization of Magic Constants Arising from Distance Magic Graphs* & **Chaired two paper presentation sessions** in *International Conference on Graph Theory and Application (ICGTA-2023)* organized by Department of Mathematics, Amrita Viswavidyapeetham Coimbatore, Tamil Nadu during Dec. 18-20, 2023.
- 58.** Delivered an invited talk on *Local Distance Antimagic Coloring of graphs* and **acted as Symposium Coordinator on Graph Theory** in *89<sup>th</sup> Annual International conference of Indian Mathematical Society* organized by the Department of Mathematics, BITS Pilani Hyderabad Campus, during Dec. 22-25, 2023.
- 59.** Delivered an invited talk on *Local Antimagic Coloring of graphs* in the *25<sup>th</sup> Annual Conference of Vijnana Parishad of India and National Conference on New Thrust Areas in Mathematical Sciences*, organized by Govt. Geetanjali Girls P.G. College Bhopal, during March 01-02, 2024.
- 60.** Delivered an invited talk on *Some Combinatorial Proof Techniques* in the *National Conference on Mathematics and its Application for the Advancement of Computer Science and Technology*, organized by

Department of Mathematics T.D. College Jaunpur during **March 02 – 04, 2024.**

- 61.** Delivered an invited talk on *Graph Coloring and its Variations* in the **National Seminar on Ancient and Modern Indian Mathematics** organized by School of Computational and Integrative Sciences, Jawaharlal Nehru University, Delhi during March 15-17, 2024.
- 62.** Delivered an invited talk on *Coloring of Graphs and its Variations* in the online conference in **Graph Theory and Additive Combinatorics** organized by the Department of Applied Sciences, IIT Allahabad during May 03-05, 2024.
- 63.** Delivered an invited talk on *On Local Distance Antimagic Coloring of Graphs*, in **International Workshop on Graph Labeling(IWOGL-2024)** organized by the Department of Mathematics, AGH University, Krakow, Poland during June 24-26, 2024.
- 64.** Delivered an invited talk on *Coloring of Graphs and its Variations* in **2<sup>nd</sup> International Conference on Recent Advances in Applied Mathematics (RAAM 2024)** organized by the Department of Mathematical Sciences Indian Institute of Technology (BHU) during July 03-05, 2024.

### **Workshops Conducted:**

- 1.** Organizer of "**3<sup>rd</sup> Group Monitoring Workshop cum 6<sup>th</sup> meeting of re-constituted expert panel on FAST TRACK PROPOSALS FOR YOUNG SCIENTISTS**" in Physical and Mathematical Sciences held at BITS Pilani Goa Campus during Jan. 11-12, 2007.
- 2.** Member of the organizing committee of the International Workshop on "**Advances in Computational Partial Differential Equations**" holding at BITS-Pilani K.K. Birla Goa Campus from February 7 to March 5, 2011.
- 3.** Organizer of **Instructional Workshop on Graph Theory and Applications** during at BITS Pilani K K Birla Goa Campus, Goa, April 28-29, 2011.

4. Academic Coordinator of *National Instructional Workshop on Graph Theory and Applications*, at DST Center for Interdisciplinary Mathematical Sciences, Banaras Hindu University, Varanasi, during May 23-29, 2011.
5. Organizer of *School on Graph Algorithms* during at BITS Pilani KK Birla Goa Campus, Goa, December 15-19, 2011.
6. Convener of a National level “*Advanced School on Graph Algorithms*” at BITS Pilani KK Birla Goa Campus, Goa, sponsored by National Board of Higher Mathematics NBHM and Department of Science Technology and Environment (DSTE) Goa, during July 23-27, 2012.
7. Local convener of *Research Promotion Workshop on Introduction to Graph and Geometric Algorithms*, at BITS Pilani KK Birla Goa Campus, Goa, sponsored by National Board of Higher Mathematics NBHM in collaboration with School of Technology and Computer Science, Tata Institute of Fundamental Research(TIFR) Mumbai, during Jan. 17-19, 2013.
8. Convener of *Indo-German Pre-Conference School on Algorithms and Combinatorics* at BITS Pilani KK Birla Goa Campus, Goa, sponsored by National Board of Higher Mathematics NBHM in collaboration with RKM Vivekananda University, Belur Math and Karlsruhe Institute of Technology, Germany during February 13-14, 2017.
9. Conference Chair of 3<sup>rd</sup> *International Conference on Algorithms and Discrete Applied Mathematics (CALDAM-2017)* during February 16 -18, 2017.
10. Conference Chair of *International Conference on Discrete mathematics and its Applications to Network Science (ICDMANS 2018)*, during July 07-10, 2018.
11. Organize the *Workshop on Line Graphs and Labeling of Graphs*, during January 18-19, 2023.

### **Research Papers published in International/National Journals:**

1. **T. Singh** and Mukti Acharya, *Skolem graceful signed graphs*, Extended abstract published in *Electronic Notes in Discrete Mathematics, Vol. 15 (2003), 9-10*.
2. **T. Singh** and Mukti Acharya, *Graceful signed graphs: III. The case of signed cycles in which negative sections form a maximum matching*, *Graph Theory Notes of New York, Vol. XLV, (2003), 11-15, MR 2040207*.
3. **T. Singh** and Mukti Acharya, *Graceful signed graphs*, *Czech. Math. Journal, Vol. 54(129)(2), (2004), 291-302, MR 2059251(2005 a:05193)*.
4. **T. Singh** and Mukti Acharya, *Graceful signed graphs: II. The case of signed cycle with connected negative section*, *Czech. Math. Journal, Vol. 55(130)(1), (2005), 25-40, MR 2121654*.
5. **T. Singh** and Mukti Acharya, *Graceful signed graphs: V. Union of  $k$  copies of the cycle of length three with one vertex in common*, *International Journal of*

- Management & Systems (IJOMAS), Vol. 20(3), (2004), 246-254.*
6. **T. Singh** and Mukti Acharya, *Construction of graceful signed graphs*, *Defense Science Journal*, Vol.56 (5) (2006), pp. 801-808.
  7. **T. Singh**, S.B. Rao, B.D. Acharya, *Minimum robust domination energy of graphs*, *AKCE International Journal of Graphs Combinatorics*, Vol. 4 No. 2 (2007), pp. 139-143.
  8. **T. Singh** and Mukti Acharya, *Two signed Stars are Skolem Graceful*, in *The Journal of Combinatorial Mathematics and Combinatorial Computing*, Vol. 69(2009), pp. 113-124.
  9. **T. Singh**, *Graceful Signed Graphs on  $C_3^k$* , *AKCE International Journal of Graphs and Combinatorics*, Vol. 6 No. 1(2009), pp. 201-208.
  10. **T. Singh**, B.D. Acharya, Mukti Acharya and S.B. Rao, *Hypergraceful complete graphs*, *Australasian Journal of Combinatorics*, Vol. 48 (2010), pp. 5-24.
  11. **T. Singh** and Mukti Acharya, *Skolem graceful signed graphs*, *Utilitas Mathematica*, 82(2010), 97-109.
  12. **T. Singh**, Utpal Roy and Veeky Baths, *Disruption of Cell wall fatty acid biosynthesis in Mycobacterium tuberculosis using graph theory*, *Theoretical Biology and Medical Modeling* 2011, 8:5 doi:10.1186/1742-4682-8-5.
  13. **T. Singh** and Mukti Acharya, *Embedding of Sigraths in Graceful Sigraths*, *ARS Combinatoria*, 111(2013), 421-426.
  14. **T. Singh**, Veeky Baths and Anil Kumar, *Disruption of Cell wall fatty acid biosynthesis in Mycobacterium tuberculosis using the concept of minimum robust domination energy of graph*, *Annual Research & Review in Biology*, 4(12) (2014), 2037-2041.
  15. **T. Singh**, Jessica Periera and S. Arumugam, *On  $(k,d)$ -Skolem graceful graphs*, *Electronic Notes in Discrete Mathematics*, 48(2015), 81-88.
  16. **T. Singh**, Aloysius Godinho and S. Arumugam, *On S-magic graphs*, *Electronic Notes in Discrete Mathematics*, 48(2015), 267-273.
  17. **T. Singh**, Jessica Periera and S. Arumugam, *A new measure for gracefulness of graphs*, *Electronic Notes in Discrete Mathematics*, 48(2015), 275-280.
  18. **T. Singh**, Jessica Periera and S. Arumugam, *On  $(k,d)$ -hooked Skolem graceful*

- graphs, *Journal of Combinatorics, Information & System Science*, **41 No.1-3(2016)**, 7-15.
19. **T. Singh**, Veeky Baths, S. Indumathi and S. Arumugam, *Graph theoretic concepts in the study of biological networks*, *Applied Analysis with Applications in Biological and Physical Sciences* (2016), 187-200.
  20. **T. Singh**, Veeky Baths, Marina Dhara and S. Arumugam, *Analysis of Tuberculosis-Human Protein Interaction Network using Centrality Measure*(accepted 2016).
  21. **T. Singh**, A.K. Handa, Aloysius Godinho and S. Arumugam, *Distance Antimagic Labeling of Join and Corona of two Graphs*, *AKCE International Journal of Graph and Combinatorics*, **14(2017)**, 172-177.
  22. **T. Singh** and Aloysius Godinho, *Some Distance Magic Graphs*, *Electronic Notes in Discrete Mathematics*, **63(2017)**, 311-315.
  23. **T. Singh**, A.K. Handa and Aloysius Godinho, *Distance Antimagic Labeling of Ladder Graphs*, *Electronic Notes in Discrete Mathematics*, **63(2017)**, 317-322.
  24. **T. Singh** and Aloysius Godinho, *Some Distance Magic Graphs*, *AKCE International Journal of Graph and Combinatorics*, **15(1) (2018)**, 1-6.
  25. **T. Singh**, Aloysius Godinho and S. Arumugam, *The Distance Magic Index of a Graph*, *Discussiones Mathematicae Graph Theory*, **38(1)(2018)**, 135-142.
  26. **T. Singh**, Manoj Kumar Singh, Dharm Raj Singh and Rajkishore Prasad, *Genetic Algorithm for Solving Multiple Travelling Salesmen Problem using a new Crossover and Population Generation*, *Computación y Sistemas*, **Vol. 22, No. 2 (2018)**, 491–503.
  27. **T. Singh**, S.B. Rao, E. Sampathkumar, Mukti Acharya and B.D. Acharya, *Saturated Edge Coverings of Graphs*, *Indian Journal of Discrete Mathematics*, **Vol. 4(1) 2018**, Published in 2019. ISSN: (2455-5819).
  28. **T. Singh**, Jessica Pereira and S. Arumugam, *Edge Consecutive Graceful Labeling of a Graph*, *Discrete Applied Mathematics*, **280(2020)**, 214-220.
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  30. **T. Singh**, Jessica Pereira and S. Arumugam, *Additively Graceful Signed Graphs*,



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32. **T. Singh**, Aloysius Godinho, A.K. Handa, *On Local Distance Antimagic Labeling of Graphs*, *AKCE International Journal of Graph and Combinatorics* Vol. 21(1)(2024), 91-96. Accepted 04 Sep 2023, Published online: 30 Oct 2023.
33. **T. Singh** and Ravindra K. Pawar, *Distance Magic Labeling of Mycielskian Graphs*, *Electronic Journal of Graph Theory and Applications*, Vol. 12(1) (2024), 75-88.
34. **T. Singh**, Ravindra K. Pawar and J.S. Bagga, *Super Total Local Antimagic Vertex(Edge) Coloring of Graphs*, *Bulletin of the Institute of Combinatorics and its Applications* (accepted 2024).

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1. **T. Singh** and Mukti Acharya, *Characterization of signed graphs whose negations are switching equivalent to their iterated line sigraphs*, *Proc. of Conference of Graph Theory and Applications (CGTA-2001)* (Eds.: R.J. Wilson, R. Balakrishnan and G. Sethuraman), *Narosa Publishing House Pvt. Ltd. (2004)*, 15-24.
2. **S.B. Rao**, T. Singh and V. Parameswaran, *Some sigma labeled graphs: I*. *Proc. of National Conference of Graphs, Combinatorics, Algorithms and Applications (NCGCAA-2004)* (Eds.: S. Arumugam, B.D. Acharya and S.B. Rao), *Narosa Publishing House Pvt. Ltd. (2004)*, 125-134.
3. **T. Singh**, S.B. Rao, B.D. Acharya and Mukti Acharya, *Graceful complete signed graphs*, Extended abstract published in *Proc. of National Conference of Graphs, Combinatorics, Algorithms and Applications (NCGCAA-2004)* (Eds.: S. Arumugam, B.D. Acharya and S.B. Rao), *Narosa Publishing House Pvt. Ltd. (2004)*, 123-124.
4. **T. Singh**, *Skolem and hooked Skolem graceful sigraphs*, *Labelings of*

*Discrete Structures and Applications* (Eds.: B.D. Acharya, S. Arumugam, and A. Rosa), *Narosa Publishing House*, (2008), pp. 155-164.

5. **Tarkeshwar Singh**, Manoj Kumar Singh and Dharm Raj Singh, *A hybrid heuristic algorithm for Euclidean traveling salesman problem*, **IEEE Proc. International Conference on Computing, Communication and Automation (ICCCA 2015)** (2015), 767-772.
6. **Tarkeshwar Singh**, Manoj Kumar Singh and Dharm Raj Singh, *A Hybrid Algorithm with Modified Inver-Over Operator and Genetic Algorithm Search for Traveling Salesman Problem*, **Advanced Computing and Communication Technologies**, Springer Singapore (2016), 141-150.
7. Adarsh K. Handa, Aloysius Godinho, and **T. Singh**, *Some Distance Antimagic Labeled Graphs*, **Proc. Algorithms and Discrete Applied Mathematics (CALDAM 2016)**(Eds. Satish Govindrajan and Anil K. Maheshwari), **Lecture Notes in Computer Science (LNCS) Vol. 1906** (2016), 190-200, (SCI Listed Conference Proceedings).
8. **T. Singh**, Jessica Periera and S. Arumugam, *m-Gracefulness of Graphs*, **Proc. Algorithms and Discrete Applied Mathematics (CALDAM 2016)**(Eds. Satish Govindrajan and Anil K. Maheshwari), **Lecture Notes in Computer Science (LNCS) Vol. 1906** (2016), 289-298, (SCI Listed Conference Proceedings).
9. **T. Singh** and Aloysius Godinho, *Group Distance Magic Labeling of  $C_n$*  **Proc. Algorithms and Discrete Applied Mathematics (CALDAM 2016)**(Eds. Daya Gaur and N.S. Narayanaswamy), **Lecture Notes in Computer Science (LNCS) Vol. 10156** (2017), 187-192, (SCI Listed Conference Proceedings).
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## Research Papers Submitted for Publications:

1. **T. Singh, Jessica Pereira and S. Arumugam**, *Embedding of Graceful Sigraphs with Graph Theoretic Property P*( Revised and submitted 2022).
2. **T. Singh and Aloysius Godinho and S. Arumugam**, *d-Vertex Magic Graphs Labeling of Circulant Graphs*(Submitted 2023).
3. **T. Singh and Ravindra K. Pawar**, *Distance Magic Labeling of Generalized Mycielskian Graphs*(2023).
4. **T. Singh, Ravindra K. Pawar, Himadri Mukherji and J.S. Bagga**, *A Complete Characterization of Magic Constants Arising from Distance Magic Graphs*(Revised and submitted 2024).
5. **T. Singh, Ravindra K. Pawar, Himadri Mukherji**, *On Structural and Spectral Properties of Distance Magic Graphs* (Revised and submitted 2024).

## Current Research Collaborators:

- Professor S. Arumugam, Director (Professor Research) National Center for Advanced Research in Discrete Mathematics (n-CARDMATH) Kalasalingam University, Tamil Nadu.
- Professor Tao-Ming Wang, Tunghai University, Taichung, Taiwan.
- Professor Amitava Bhattacharya, TIFR Mumbai.
- Professor Jay S. Bagga, Ball State University, Muncie, Indiana, USA.
- Professor Veeky Baths, BITS Pilani K K Birla Goa Campus, Goa.
- Dr. Siddharth Gupta, BITS Pilani K K Birla Goa Campus, Goa.

## Research and Consultancy:

- *Guided 3 students for M.Phil. Degree*, Bharthiyar University, Coimbatore.
- *Guided 03 Ph.D. students:*
  - *Dr. Jessica Fernandes e Pereira, Ph.D. Thesis Title: Studies in Graceful Labelings of Graphs and its Variations.*(2016).
  - *Dr. Aloysius Godinho, Ph.D. Thesis Title: Studies in Neighborhood*

*Magic Graphs(2021).*

➤ *Dr. Adarsh Kumar Handa, Ph.D. Thesis Title: Studies in Distance Antimagic Graphs(2022).*

- *Guiding 02 Ph.D. students in BITS Pilani K K Birla Goa Campus.*
- Reviewed 20 research papers for AMS Mathematical Review.
- Refereed more than 100 research papers for national and international journals.
- Guided First Degree Projects in BITS Pilani K K Birla Goa Campus:
  - ❖ **Computer Project:** 60 students (Number Theory and Application to Graph Theory).
  - ❖ **Study Oriented Project:** 70 students (Graph Theory, Algorithmic Graph Theory, Spectral Analysis, Integral Transforms and Networks).
  - ❖ **Special Project:** 25 students,
  - ❖ **Design Project:** 30 students
  - ❖ **Reading Course** in Cryptography, Advanced Graph Theory, Graphs and Algorithms.
  - ❖ **First Degree Thesis:** As on-campus supervisor of **15** students.
  - ❖ *Examiner of Pre Ph.D. Qualifying Examination for 15 candidates in BITS Pilani Goa K K Birla Goa Campus.*

**Institutional Contribution:**

- Worked as **Resident Hostel Warden** in Student Welfare Division since July 01, 2006 to Dec. 31, 2013.
- **BITSAT** Examination duty May 19-30, 2016 in BITS Pilani K K Birla Goa Campus, Goa.
- **BITSAT center coordinator** at Lucknow-2 during May 17-26, 2018.
- **BITSAT center supervisor** at Gorakhpur during August 02-07, 2022.
- Actively involved in **CONVOCATION** during 2014-2019.
- *Instructor in Practice School-I* in 2006 in Goa.
- Invigilation Duties in *Work Integrated Learning Program (WILP)* four times.
- Worked as **Instructor** in Graphs and Networks since 2011 to Dec 31, 2015, Discrete Mathematical Structures for Computer Science in the current

semester in *Work Integrated Learning Program (WILP)* since 2011 to Dec 31, 2015, January-May 2017.

- **Resource Person** in *Teacher Training Workshop* during October 22-23, 2005 and November 26-27, 2007 for Higher Secondary School Teachers of Goa Board.
- Acted as **Head of Department of Mathematics (Jan.01, 2010-July 31, 2010, May 20, - July 21, 2014, August 05, 2016-Dec. 31, 2016)**.
- Convener, **Departmental Research Committee (till 2013)** Member of DRC since 2010-2018.
- Member, **Cross Campus Departmental Committee for Academics (Since 2010)**.
- Member, **Contract Committee of the institutes (Since 2012 till 2015)**.
- Chairman, **Department Level Shortlisting Committee (Since 2008)**.
- Member of **Project Implementation Group, DITS-FIST Scientific Computing Lab**, Department of Mathematics since 2015.
- Convener of **Students Faculty Council (2012-2019)**.
- Member of **Students Faculty Council** since 2012 till date.
- Member of **Board of Research Studies (University Wide) (2014-2016)**.
- **DCA Convenor** of Department of Mathematics, BITS Pilani, Goa Campus.
- Faculty member of **Ph.D. Entrance Test** since July 2013.
- Member of **Disciplinary Action Committee** of institute during March 11, 2015- March 10, 2016.
- Instructor of **Pre-Ph.D. course works** for the Department of Mathematics, Biological Sciences.
- **Ph.D. Qualifying Examiner** for the Department of Mathematics, Biological Sciences and Mechanical Engineering.