Report on
INTERNATIONAL CONFERENCE ON DISCRETE MATHEMATICS-2023 (ICDM-2023)
&
19th GRAPH THEORY DAY
8th to 10th JUNE 2023
(Sponsored by SERB,Promath technologies,ISTE,VTU)

Discrete mathematics is the study of mathematical structures that can assume only distinct, separated values rather than continuous. The objects studied in discrete mathematics such as integers, graphs, and statements in logic do not vary smoothly but have distinct, separated values. Research in discrete mathematics increased in the latter half of the twentieth century partly due to the development of digital computers, which operate in discrete steps and store data in discrete bits. Concepts and notations from discrete mathematics are useful in studying and describing objects and problems in branches of computer science, such as computer algorithms, programming languages, cryptography, automated theorem proving, and software development. Conversely, computer implementations are significant in applying ideas from discrete mathematics to real-world problems, such as in operations research.

The study of how discrete objects combine with one another and the probabilities of various outcomes is known as combinatorics. Discrete Mathematics provides a common forum for significant research in many areas of discrete mathematics and combinatorics. Among the fields covered by Discrete Mathematics are graph and hypergraph theory, network theory, enumeration, coding theory, block designs, the theory of partially ordered sets, extremal set theory, matroid theory, algebraic combinatorics, polyhedra, combinatorial and discrete geometry, matrices, and discrete probability theory.

The conference was intended for young faculty and researchers from all interdisciplinary courses like Mathematical Sciences, Computer Science, Electronics, and Biological Sciences who was interested in the field.

The following experts in the Discrete Mathematics across the globe delivered the talks during the conference:

Endowment Lectures

R. Balakrishnan Endowment Talk 1 by Prof. Yuval Roichman

Title: Gallai Colorings, Transitivity and Schur Positivity

Frank Harary Endowment Talk 2 by Prof. Daniel Nagy

Title: Forbidden structure in the Boolean lattice

Paulraja Endowment Talk-4 by Dr. T. Asir

Title: Cohen-Macaulayness of Grimaldi graphs

E. Sampathkumar Endowment Talk-5 by Prof. Ambat Vijayakumar

Title: Steiner Distance problems in Graphs-A Survey

V. Swaminathan Endowment Talk-6 by Prof. Arvind Ayyer

Title: The monopole-dimer model on Cartesian products of planar graphs

Invited Speakers

Invited talk-1 by Prof. Sudarshan Iyengar S R

Title: The confluence of Graph theory and modern computing

Invited Talk-2 by Prof. G. O. H. Katona

Title: Some new Turan type theorems in extremal graph theory

Invited Talk-3 by Prof. Ron Holzman

Title: On Convex holes in d-dimensional point sets

Invited Talk-4 by Prof. D. D. Bantva

Title: Distance constrained labeling of graphs

Invited Talk-5 by Prof. Charusheela Deshpande

Title: History and Future of Semigraphs: A tribute to Prof. E. Sampathkumar

Invited Talk-6 by Pranjali Sharma

Title: Signed Unit Graph associated with finite commutative rings

Invited Talk-7 by Prof. S. Ganesamurthy

Title: Decompositions of line graphs of complete graphs into paths and cycles

Invited Talk-8 by N. Chandramowliswaran

Title: Combinatorial computations of Multiplicative functions over simple graphs and their applications in cryptography

Invited Talk-9 by Dr. Rakshith B. R.

Title: Signless Laplacian Spectral Determination of some join of two graphs

Invited Talk-10 by Dr. Purnima Gupta

Title: Graphs with equal domination and independent domination numbers

Participants: Participation was invited from all over the country by sending invitation to the Heads of the Departments of Mathematics/ Computer Science of various Institutes/ Universities and Research Organizations and also announcing the conference on the website of ADMA: **www.adma.co.in.** More than 200 participants across the country participated in the conference(particularly from states Gujarat, Tamil Nadu, Andhra Pradesh, Kerala, Kashmir, and Karnataka). In addition to this, faculty members and research students from VVCE also participated. There were 70 contributed papers received for the presentation. Among 70 papers, 40 papers are categorized for best paper presentations, and 4 best paper awards were given and the rest were oral presentations.

The inaugural ceremony commenced with invocation of Ganapathi Vandana by Vishnu M. followed by the lightning of the lamp by a group of dignified persons- Gundappa Gowda(President VVS), Er. P. Vishwanath(Secretary VVS), Shreeshaila Ramannavar(Treasurer VVS), Principal Dr. B. Sadashive Gowda, Dr. N. Bhaskar head department of Mathematics, Prof. Yuval Roichman (Bar-Ilan University, Israel)Chief Guest, and guest of honors Prof. E. Sampathkumar, Prof. S. Arumugam, Prof. Mukti Acharya, Dr. A. K., Singh, Prof. Joseph Vargese(Christ University)(ADMA-Treasurer) , Dr. M. A. Sriraj(Convenor) and Dr. K. N. Prakasha(Co-convenor) the programme.