

Program: ICLAA 2023

DAY 01

DECEMBER 18, 2023 (MONDAY)

08:30 - 09:15 - Registration

09:30 - 10:30 - Inauguration

10:30 - 11:00 - Tea Break

Plenary Talk (11:00 - 11:45)

Chair Person: Ravindra B Bapat, Indian Statistical Institute, Delhi Center, India

11:00 - 11:45 Abraham Berman, Technion-Israel Institute of Technology, Israel
Completely Positive Matrices, Perfect Graphs, and Spectral Graph Theory

Invited Talks (11:50 - 13:10)

Chair Person: Peter Semrl, Institute of Mathematics, Physics, and Mechanics, Slovenia

11:50 - 12:30 Apoorva Khare, Indian Institute of Science, Bengaluru, India
Total Positivity, Polya Frequency Sequences, and the Variation Diminishing Property

12:35 - 13:10 Debajit Kalitha, Tezpur University, Assam, India
Inverses of Bicyclic Graphs with Unique Perfect Matching

13:10 - 14:30 Lunch Break

Invited Talks (14:30 - 15:40)

Chair Person: TES Raghavan, University of Illinois at Chicago, USA

14:30 - 15:10 Peter Semrl, Institute of Mathematics, Physics, and Mechanics, Slovenia
From Lowner's Characterization of Operator Monotone Function to Fundamental Theorem of Chronogeometry

15:15 - 15:55 Murali K Srinivasan, Indian Institute of Technology Bombay, India
Subspaces, Subsets, and Motzkin Paths : Revisiting the Greene-Kleitman Problem

15:55 - 16:15 Tea Break

Invited Talks (16:15 - 17:45)

Chair Person: TSSRK Rao, MAHE & Shiv Nadar University, India

16:15 - 16:55 Sivakumar, Indian Institute of Technology Madras, India
On an Analogue of a Property of Singular M -matrices for the Lyapunov and the Stein Operators

17:00 - 17:40 S K Neogy, Indian Statistical Institute, Delhi Center, India
On a new Special Matrix Class and its Applications in Pivoting Algorithms and Game Theory

Parallel Sessions (17:45 – 19:25) : Contributory Talks

Contributory Talks - A (17:45 - 19:25)

Chair Person: Biswajit Deb, Sikkim Manipal Institute of Technology, Sikkim, India

- 17:45 - 18:05 Manu Mathew, Central University of Tamil Nadu, India
Self-duality and maximal angle of proper cones
- 18:05 - 18:25 Anusha L, Manipal Institute of Technology, MAHE, Manipal
The first vertex-block Zagreb energy of graphs
- 18:25 - 18:45 Madhab Mondal, Indian Institute of Technology, Guwahati, India
Incidence matrices of graphs with matrix weights
- 18:45 - 19:05 Partha Rana, Indian Institute Of Technology Guwahati, India
Construction of sign idempotent and sign 2-potent sign patterns
- 19:05 - 19:25 Neha Hotwani, Indian Institute of Technology Madras, India
 C^ -extreme entanglement breaking maps on operator systems*

Contributory Talks - B (17:45 - 19:25)

Chair Person: Murali Srinivasan, Indian Institute of Technology Bombay, India

- 17:45 - 18:05 Sirshendu Pan, Indian Institute of Technology Guwahati, India
Dominant eigenvalue and universal winners of digraphs
- 18:05 - 18:25 Sachin Acharya, Yenepoya Deemed to be University, Mangalore, India
Impact of class imbalance on prediction performance: A comprehensive evaluation of machine learning methods in health science datasets
- 18:25 - 18:45 Askar Ali M, BITS PILANI, K K Birla Goa Campus, Goa, India
Solutions to the matrix Yang-Baxter equation
- 18:45 - 19:05 Mushtaq Ali Ambalavan Poikayil, Vellore Institute of Technology, Vellore, India
Hypo-EP operators on Hilbert C^ modules*
- 19:05 - 19:25 Deekshitha Vivek Anchan, Manipal Institute of Technology, MAHE, Manipal
Energy of cluster graphs with self-loops

Contributory Talks - C (17:45 - 19:25)

Chair Person: Shivaramakrishnan Sivasubramanian, Indian Institute of Technology Bombay, India

- 17:45 - 18:05 Pooja B S, Department of Data Science, PSPH, MAHE, Manipal
Mapping relative risks of crime against women among Indian districts: A small area estimation approach
- 18:05 - 18:25 Sriram Balasubramanian, Indian Institute of Technology Madras, Chennai, India
On partially convex free polynomials
- 18:25 - 18:45 Pallavi B., Indian Institute of Science Education and Research, Trivandrum, India
Hoffman-Wielandt type inequality for block companion matrices of certain matrix polynomials
- 18:45 - 19:05 Kshittiz Chettri, Nar Bahadur Bhandari Govt. College, Tadong, Sikkim, India
On graph products preserving balance and canonical consistency of signed graphs

19:05 - 19:25 Nayan Bhat K., St. Joseph's University, Bangalore, India
Star partial order and rank 1 summands*

Contributory Talks - D (17:45 - 19:25)

Chair Person: Vinay Madhusudhanan, Manipal Institute of Technology, MAHE, Manipal, India

17:45 - 18:05 Vidhi Bhatia, National Institute of Technology, Jalandhar, India
Some inequalities involving extreme eigenvalues of positive definite matrices

18:05 - 18:25 Rounak Biswas, National Institute of Technology Karnataka, India
Additive properties of the generalized and pseudo n -strong Drazin inverse in Banach algebras

18:25 - 18:45 Shrinath Hadimani, Indian Institute of Science Education and Research, Trivandrum, India
Eigenvalue bounds for general matrix rational functions

18:45 - 19:05 Geeta Chowdhry, National Institute of Technology Karnataka, India
Generalized Core-EP inverse: Representational and computational aspects

19:05 - 19:25 Mahesh Kumar CV, Vellore Institute of Technology, Chennai, India
Application of intuitionistic fuzzy set in image processing

Contributory Talks - E (17:45 - 19:25)

Chair Person: Sachindranath Jayaraman, IISER Thiruvananthapuram, India

17:45 - 18:05 Debabrota Mondal, Indian Institute of Technology Bhubaneswar, India
On graphs with strong anti-reciprocal eigenvalue property

18:05 - 18:25 Samir Mondal, Indian Institute of Technology Madras, India
 P -matrix powers

18:25 - 18:45 Gyan Swarup Nag, Indian Institute of Technology Indore, India
Backward error analysis of specified eigenpairs of a semisimple eigenvalue for palindromic and anti-palindromic matrix pencils

18:45 - 19:05 Sachin Naik, National Institute of Technology Karnataka, India
Complementable operators and their Schur complements

19:05 - 19:25 Raju Nandi, Indian Institute of Technology Gandhinagar, India
Quadratic embedding constants of graphs

19:45 **Conference Dinner**

DAY 02

DECEMBER 19, 2023 (TUESDAY)

09:15 - 09:45 Thanks giving to Simo Puntanen and S Arumugam

Plenary Talk (09:50 - 10:35)

Chair Person: Dietrich von Rosen, Swidish University of Agricultural Sciences, Sweden

09:50 - 10:35 Stephen J Haslett, Massey University, New Zealand
Retaining BLUE's and their Covariance or their Error Sum of Squares in Linear Models, and Generating Cloned Datasets, under changes of Error Covariance

10:40 - 11:00 **Tea Break**

Invited Talks (11:00 - 13:00)

Chair Person: Asha Kamath, Department of Data Science, PSPH, MAHE, Manipal, India

11:00 - 11:40 Dietrich von Rosen, Swidish University of Agricultural Sciences, Sweden
Ridge Regression and Multivariate Linear Models

11:45 - 12:25 Sudeep R Bapat, Indian Institute of Management Indore, India
Maximum Precision Estimation for a Step-Stress Model using two stage Methodology

12:30 - 13:00 N Eagambaram, Former DDG, ISS, India *Disjoint Sections of Positive Semidefinite Matrices and Their Applications in Gauss-Markov Models*

13:00 - 14:30 **Lunch Break**

Invited Talks (14:30 - 16:00)

Chair Person: Kuncham Syam Prasad, Manipal Institute of Technology, MAHE, Manipal, India

14:30 - 15:10 Sivaramakrishnan Sivasubramanian, Indian Institute of Technology Bombay, India
Maximum Four Point Condition Matrix of a Tree

15:15 - 15:55 Ajit Iqbal Singh, INSA Emeritus Scientist, Delhi, India
Interplay among Matrices, Polynomials and Quantum Entanglement

DAY 03

DECEMBER 20, 2023 (WEDNESDAY)

Plenary Talk (09:00 - 09:50)

Chair Person: Bojan Mohar, Simon Fraser University, Canada

09:00 - 09:45 Stephen J Kirkland, University of Manitoba, Canada
Eigenvalues for Stochastic Matrices with a prescribed Stationary Distribution

09:50 - 10:30 Thank giving to R B Bapat and Steve Kirkland

10:30 – 10:50 **Tea Break**

Invited Talks (10:50 - 13:00)

Chair Person: Rajesh Kannan, Indian Institute of Technology Hyderabad, India

10:50 - 11:30 Bojan Mohar, Simon Fraser University, Canada

Extremal trees for Eigenvalue Combinations

11:35 - 12:15 S Arumugam, Ramco Institute of Technology, Tamilnadu, india

Nullity of a Graph

12:20 - 13:00 R Balaji, Indian Institute of Technology Madras, India

An Equality for Diagonally Dominant Matrices

13:00 - 14:30 Lunch Break

Invited Talks (14:30 - 16:00)

Chair Person: TES Raghavan, University of Illinois at Chicago, USA

14:30 - 15:10 Rajesh Kannan, Indian Institute of Technology Hyderabad, India

On the Eccentricity Matrices of Trees : Inertia and Spectral Symmetry

15:15 - 15:55 TSSRK Rao, Adjunct Professor, MAHE & Shiv Nadar University, India

Proximality Properties under Finite Dimensional Perturbations

16:10 - 16:30 Tea Break

Invited Talks (16:30 - 17:30)

Chair Person: Debajit Kalita, Tezpur University, Assam, India

16:30 - 16:55 Biswajit Deb, Sikkim Manipal Institute of Technology, Sikkim, India

On graph products preseving balance and canonical consistency of signed graphs

17:00 - 17:25 David Raj Micheal, Vellore Institute of Technology, Chennai, India

Computational Aspects of core-EP inverse

Parallel Sessions (17:30 - 19:00) : Best Paper Award Contest & Contributory Talks

Paper Presentation for Best Paper Award : Young Scientist (Jr) (17:30 - 19:00)

Juries: S K Neogy, ISI Delhi and Harikrishnan P K, MIT, MAHE, Manipal

17:30 - 17:50 K Varsha, Mangalore University, Konaje, India

Exploring digital payment trends: A cross-sectional study

17:50 - 18:10 Shivani Parab, St Joseph's University, Bengaluru, India

Two Laplacians for the resistance distance matrix of a graph

Paper Presentation for Best Paper Award : Young Scientist (Sr) (17:30 - 19:00)

Juries: Shreemathi Mayya, DDS, PSPH, Manipal and Sudhakara G, PPC, Udupi

- 17:30 - 17:50 Shanmugapriya A, Central University of Tamilnadu, Thiruvavur, India
A construction of non-isomorphic polyhedral cones using Lyapunov rank
- 17:50 - 18:10 Aritra Narayan Hisabia, Department of Mathematics, Vignan University, AP, India
Sign pattern of semimonotone matrices
- 18:10 - 18:30 Shubham Nipadkar, Indian Institute of Technology Bombay, India
Universally optimal multivariate crossover designs
- 18:30 - 18:50 Archana Bhat, National Institute of Technology Warangal, India
On weak pseudo regular splitting of bounded linear operators and nonnegative Moore-Penrose inverse

Contributory Talks - A (17:30 - 19:00)

Chair Person: Kedukodi Babusri Srinivas, Manipal Institute of Technology, Manipal

- 17:30 - 17:50 Aishwarya Nayak, Manipal Institute of Technology, MAHE, Manipal, India
Hyperfilters and Convex subhyperlattices in Join hyperlattices
- 17:50 - 18:10 Pallavi P, Manipal Institute of Technology, MAHE, Manipal, India
Zero divisor graphs in meet hyperlattices
- 18:10 - 18:30 P. G. Romeo, Cochin University of Science and Technology, Ochin, India
On Lie groupoid bundles
- 18:10 - 18:30 Saroja Panda, BITS Pilani, KK Birla Goa Campus, India
The CEPGD-Inverse for Square Matrices

Contributory Talks - B (17:30 - 19:00)

Chair Person: Arathi Bhat, Manipal Institute of Technology, MAHE, Manipal, India

- 17:30 - 17:50 Shivaramakrishna Pragada, Simon Fraser University, Canada
Subdivision and adjacency spectra of graphs
- 17:50 - 18:10 Shivani Rai, Sikkim Manipal Institute of Technology, India
On Multiplicative Y-index of Product Graphs and Polycyclic Compounds
- 18:10 - 18:30 Puran Dangel, Sikkim Manipal Institute of Technology, Majitar, Sikkim, India
k-Rainbow domination in hypergraphs
- 18:10 - 18:30 Abhijit Datta Banik, Indian Institute of Technology Bhubaneswar, India
On the computing procedure for waiting-time distribution in a batch-arrival, finite-buffer and multi-server queue

Contributory Talks - C (17:30 - 19:00)

Chair Person: Varun Kumar, Department of Data Science, PSPH, MAHE, Manipal, India

- 17:30 - 17:50 Manisha Devi, Dr B R Ambedkar National Institute of Technology, Jalandhar
Spectrum of certain special matrices
- 17:50 - 18:10 Anjan Gautam, Sikkim Manipal Institute of Technology, Majitar, Sikkim, India
On the bounds of the domination number of the power graph of a graph

18:10 - 18:30 Arindam Ghosh, Indian Institute of Technology Patna, India
Non-commutativity of condition spectrum

18:10 - 18:30 Yashaswini H L, Manipal Institute of Technology, MAHE, Manipal
On 2-absorbing ideals of nearrings

DAY 04

DECEMBER 21, 2023 (THURSDAY)

Plenary Talk (09:15 - 10:00)

Chair Person: S K Neogy, Indian Statistical Institute, Delhi

09:15 - 10:00 Shaun Fallat, University of Regina, Canada
Total positivity: Entry-wise preservers to determinantal inequalities

Invited Talk (10:05 - 10:35)

Chair Person: S K Neogy, Indian Statistical Institute, Delhi

17:00 - 17:25 Mika Mattila, Tampere University, Finland
Applying a lattice theoretic method in the study of power LCM matrices

10:35 - 11:00 **Tea Break**

Parallel Sessions (11:00 - 13:00) : Contributory Talks

Contributory Talks - A (11:00 - 13:00)

Chair Person: Satyanarayana, Department of Data Science, PSPH, MAHE, Manipal, India

11:00 - 11:20 Aditi Howlader, Indian Institute of Technology Madras, India
Distance spectrum of minimal cages and associated distance biregular graphs

11:20 - 11:40 Sachindranath Jayaraman, IISER Thiruvananthapuram, India
Linear preservers of copositive and completely positive matrices

11:40 - 12:00 Kadali Kranthi Priya, Indian Institute of Technology Madras, India
Singular matrices possessing the triangle property

12:00 - 12:20 Umashankara Kelathaya, Manipal Academy of Higher Education, Manipal
A note on Khatri inverse

12:20 - 12:40 Amit Kumar, National Institute of Technology Raipur
A note on generalized-Drazin inverse

12:40 - 13:00 Chikkam Machara Verriyya, RGUKT Nuzvid (NIT-Andhra Pradesh), Andhra Pradesh, India
On Moore-Penrose inverse extensions of certain M -matrix properties and comparison results for proper regular splittings

Contributory Talks - B (11:00 - 13:00)

Chair Person: Md Gulzar ull Hasan, Department of Data Science, PSPH, MAHE, India

- 11:00 - 11:20 Iswar Mahato, Indian Institute of Technology Bombay, India
Maximum A_α -spectral radius of unicyclic and bicyclic graphs with fixed girth or fixed number of pendant vertices
- 11:20 - 11:40 Arup Majumdar, National Institute of Technology Karnataka, India
Approximate A-spectrum of A-bounded operators in semi-Hilbertian spaces
- 11:40 - 12:00 Athira Sathish K, National Institute of Technology Karnataka, India
Reverse order law for Moore-Penrose inverse of closed operators and its applications
- 12:00 - 12:20 Satya Prakash Singh, Indian Institute of Technology Kanpur, India
Min-max crossover designs for two treatments binary and Poisson crossover trials
- 12:20 - 12:40 Sarishti Singh, Indian Institute of Technology Kharagpur, India
Estimation of lower bound for smallest singular values of interval matrices
- 12:40 - 13:00 Bibekananda Sitha, BITS Pilani Goa Campus, Goa, India
Characterizations of weighted generalized inverses

Contributory Talks - C (11:00 - 13:00)

Chair Person: Sujatha HS, Manipal Institute of Technology, MAHE, India

- 11:00 - 11:20 Haritha T, National Institute of Technology Calicut, India
Resistance distance in central vertex join and central edge join of two graphs
- 11:20 - 11:40 Kurmayya Tamminana, National Institute of Technology Warangal, India
On B_+ - Splitting of bounded linear operators on ordered Hilbert space
- 11:40 - 12:00 Najiya V K, National Institute of Technology Calicut, India
 A_α -spectra of graphs formed by some unary operations
- 12:00 - 12:20 Savitha V, Manipal Academy of Higher Education, Manipal, India
GCND associated with core s-EP inverse
- 12:20 - 12:40 Piyush Verma, Indian Institute of Technology Bhubaneswar, India
On spectral properties of neighborhood second Zagreb matrix of graph
- 12:40 - 13:00 Caroline Vincy, Vellore Institute of Technology, Chennai, India
Exact Wirelength of $(K_{11} - C_{11})^n$ Embedded into Certain Graphs and Grid

Contributory Talks - D (11:00 - 13:00)

Chair Person: Rajesh Kannan, Indian Institute of Technology Hyderabad, India

- 11:00 - 11:20 Shivangi Yadav, Indian Institute of Technology Gandhinagar, India
Sign regularity via variation diminution: an overview
- 11:20 - 11:40 Mohammad Yasin, The New College, (Affiliated to University of Madras), India
On global dominator coloring of Mycielskian graphs

11:40 - 12:00 Dhanyashree Halambi, Manipal Academy of Higher Education, India
Graph of a gamma nearring with respect to an ideal

12:00 - 12:20 Nor-Elhouda Beghersa, University of Sciences and Technology Mohamed Boudiaf
of Oran Algeria, Algeria
A note on matrix pencils and their application for some implicit differential equations

13:00 - 14:30 **Lunch Break**

Invited Talks (14:30 - 16:30)

Chair Person: S Arumugam, Ramco Institute of Technology, Tamilnadu, india

14:30 - 15:10 TES Raghavan, University of Illinois at Chicago, USA
Coordinate free characterization of stochastic and doubly stochastic matrices

15:15 - 15:55 S K Jain, Ohio University, USA
Algebras whose nonunits are products of idempotents

16:00 - 16:30 Simo Puntanen, Tampere University, Finland
My Statistical and Photographic Journey through India

16:15 - 16:30 - Group Photo

16:15 - 17:00 - Valedictory Function

17:00 - High Tea