


PROGRAM

All lectures will be held in the Samuel Neaman Institute, Butler Auditorium.
Concurrent sessions will take place at the Butler Auditorium and Seminar room.

Monday, 12 November

- 8:15-8:45 Registration
- 8:45-9:00 Greetings - Prof. Ron Holzman, Dean Elect, Dep. of Mathematics, Technion
- 9:00-9:30 Nathan Linial
What are high-dimensional permutations and how many are they?
- 9:30-10:00 Charles F. Van Loan
Matrix factorization challenges associated with tensor and tensor-like computation
- 10:00-10:30 Thomas Laffey
On the characteristic polynomials of nonnegative matrices
- 10:30-11:00 John Hannah
Learning the language of linear algebra
- 11:00-11:30 **Break, Butler Foyer** 



11:30-13:30	Butler Auditorium	Seminar Room
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| 11:30-12:00 | Yuli Eidelman
<i>Divide and conquer method for matrices with quasiseparable representations</i> | Sepideh Stewart
<i>Embodied, symbolic and formal thinking in linear algebra</i> |
| 12:00-12:30 | Genrich Belitskii
<i>Normal forms of matrices over the ring of formal series</i> | Eman Atrash/ Boris Koichu
<i>Teaching linear algebra: pedagogical practices of experienced lecturers</i> |
| 12:30-13:00 | Dmitry Kerner
<i>On local and global determinantal representations</i> | Rima Sobol
<i>Misleading terms and misconceptions about algebraic structures among undergraduate students</i> |
| 13:00-13:30 | Andrei Voynov
<i>Scrambling sets of column-stochastic matrices</i> | Aliza Malek
<i>A concept is born</i> |

13:30-15:00 Lunch Break

15:00-16:30 Butler Auditorium Seminar Room

15:00-15:30 Oded Schwartz
*Recent progress in communication
minimizing algorithms for dense linear
algebra*

Orly Alter
*Discovery of mechanisms and
prognosis of cancers from matrix and
tensor modeling of large-scale
molecular biological data*

15:30-16:00 Daniel Alpay
On Generalized Positive systems

Sri Priya Ponnappalli
*A higher-order generalized singular
value decomposition for comparison of
global mRNA expression from multiple
organisms*

16:00-16:30 Izchak Lewkowicz
On Generalized positive systems

Orr Shalit
*Unitary N -dilations of for commuting
matrices*

16:30- 17:00 **Break, Butler Foyer** 

17:00-17:30 Olga Holtz
Generalized Hurwitz matrices and forbidden sectors of the complex plane

17:30-18:00 Ron Adin
Character formulas and matrices

18:00-18:30 Miroslav Fiedler
Some new classes of matrices

18:30-20:00 Reception hosted by the Center for Mathematical Sciences, Butler foyer




Tuesday, 13 November, In memory of Prof. Uri Rothblum

- 8:45-9:00 Opening: Prof. Boaz Golany, Technion Vice President for External Relations & Resource Development
- 9:00-9:30 Hans Schneider
Matrices that commute with their derivative: A letter from Schur to Wielandt in 1934
- 9:30-10:00 Moshe Haviv
On singularly perturbed stochastic matrices and time scales
- 10:00-10:30 Shmuel Friedland
A proof of the set-theoretic version of the Salmon Conjecture
- 10:30-11:00 Roger A. Horn
Simultaneous unitary similarity and congruence
- 11:00-11:30 **Break, Butler Foyer** 
- 11:30-12:00 Bit-Shun Tam
Every rational number is the entries sum of the inverse of the adjacency matrix of a nonsingular graph
- 12:00-12:30 Adi Ben-Israel
The matrix volume: theory and applications
- 12:30-13:00 Peter Šemrl
Adjacency preserving maps
- 13:00-13:30 Matej Brešar
Linear maps on matrix algebras determined by noncommutative polynomials

13:30-15:00 Lunch Break

15:00-15:30 Moshe Goldberg
Submultiplicativity and stability of sup norms on homotonic algebras

15:30-16:00 Volker Mehrmann
Matrix polynomials with structure and their extension to self-adjoint differential operators

16:00- 16:30 **Break, Butler Foyer** 

16:30-17:00 Karl-Heinz Förster
On the block numerical range of a semi-monic matrix polynomial with nonnegative coefficients

17:00-17:30 Vladimir Müller
On joint numerical radius

17:30-18:00 Paul A. Fuhrmann
On invariant subspaces and intertwining maps

18:05-22:00 A tour of Haifa and reception hosted by Mr. Yona Yahav, Mayor of Haifa in Madatech - The Israeli National Science Museum



Wednesday, 14 November

9:00-11:00

Butler Auditorium

Seminar Room

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| 9:00-9:30 | Alexander E. Guterman
<i>On the Pólya problem of conversion for permanent and determinant</i> | Dafna Shasha
<i>Completely positive house matrices</i> |
| 9:30-10:00 | Jaroslav Zemánek
<i>Power convergence of Abel averages</i> | Changqing Xu
<i>Nonnegative matrix factorization and its applications in compressive sensing</i> |
| 10:00-10:30 | Andre Klein
Transformed statistical distance measures and the Fisher information matrix | Oren Spector
<i>The symmetric nonnegative inverse eigenvalue problem for 5x5 matrices</i> |
| 10:30-11:00 | Dario A. Bini
<i>Bounds to the roots of matrix polynomials: an extension of Pellet's theorem with applications</i> | |

11:00-11:30

Break, Butler Foyer



11:30- 13:30


Butler Auditorium

Seminar Room

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| 11:30-12:00 | Robert Shorten
<i>New characterizations of passivity for Descriptor systems and their application to switched descriptor systems</i> | Achiya Dax
<i>On matrix residual problems that involve orthogonal quotient matrices</i> |
| 12:00-12:30 | Michael Margaliot
<i>Variational analysis of positive bilinear control systems: Where Pontryagin meets Perron-Frobenius</i> | Sergey Sergeev
<i>On the geometric approach to Perron-Frobenius and periodicity in max algebra</i> |
| 12:30-13:00 | Valdimir Protasov
<i>Primitive matrix families</i> | Yurii Burman
<i>Operators of rank 1, discrete path integrals, and graph Laplacians</i> |
| 13:00-13:30 | Elena Kreines
<i>Belyi pairs and anti-Vandermonde systems of equations</i> | Mikhail Klin
<i>Constructive enumeration of Schur algebras over groups A_5 and $AGL(1,8)$</i> |

13:30-15:00 Lunch Break

Thursday, November 15, In memory of Prof. Michael (Miki) Neumann


- 8:45-9:00 Opening: Prof. Daniel Hershkowitz
- 9:00-9:30 Assaf Goldberger
Miki's last paper
- 9:30-10:00 Richard A. Brualdi
The principal rank characteristic sequence of a real symmetric matrix
- 10:00-10:30 Robert J. Plemmons
Nonnegative matrix factorizations and random projections in remote sensing
- 10:30- 11:00 Minerva Catral
Sign patterns that allow strong eventual nonnegativity
- 11:00-11:30 **Break, Butler Foyer** 
- 11:30-12:00 Mirjam Dür
The use of copositive and completely positive matrices in optimization
- 12:00-12:30 Roland Hildebrand
On the structure of the 5×5 copositive cone
- 12:30-13:00 Jeffrey Hunter
Generalized inverses of Markovian kernels in terms of properties of the Markov chain

13:00-14:30 Lunch Break

14:30-15:00 Ravindra B. Bapat
Product distance matrix of a graph and edge orientation matrix of a tree

15:00-15:30 Allan Pinkus
Total Positivity and Best Rank n Matrix Approximations

15:30-16:00 Roy Meshulam
Cyclotomic polynomials and the topology of balanced complexes

16:00-16:30 **Break, Butler Foyer** 

16:30 -17:30 Butler Auditorium Seminar Room

David Kimsey
Multivariable matrix-valued moment problems and the complex cubic moment problem

Peter J.C. Dickinson
The Interior of the completely positive cone

17:00-17:30 Harry Dym
Trace formulas for truncated Wiener-Hopf-like operators

17:30-18:00 Rajendra Bhatia
Beyond the Polar Decomposition

18:00-18:05 Closing remarks