

## PROGRAM


All lectures will be held in Auditorium 232 and room 814, Amado Mathematics Building

**Monday, 18 May**

### Auditorium 232


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|--------------------|---|
| 8:30-9:00          | Registration  |
| 9:00-9:15          | Greetings   |
| 9:15-9:45          | Steve Kirkland<br><i>Eigenvalues and the Scrambling Index for Stochastic Matrices</i>                               |
| 9:45-10:15         | Thomas Laffey<br><i>Some Inequalities Satisfied by the Spectra of Nonnegative Matrices</i>                          |
| 10:15-10:45        | Assaf Goldberger<br><i>On a Conjecture on a Laplacian with Integral Spectrum</i>                                    |
| 10:45-11:15        |                                   |
| 11:15-11:45        | Wayne Barrett<br><i>Zero Forcing and the Minimum Rank Problem for Planar Graphs</i>                                 |
| 11:45-12:15        | Olga Holtz<br><i>Some Enumerative Problems for Matrices, Graphs and Matroids</i>                                    |
| 12:15-12:45        | Henry Wolkowicz<br><i>Sensor Network Localization, Euclidean Distance Matrix Completions, and Graph Realization</i> |
| <b>12:45-14:00</b> | <b>Lunch Break</b>  |
| 14:00-14:30        | Moshe Goldberg<br><i>Minimal Polynomials and Radii of Elements in Finite-Dimensional Power-Associative Algebras</i> |
| 14:30-15:00        | Robert Shorten<br><i>Quadratic Stability and Singular SISO Switching Systems</i>                                    |

15:00-15:30 Vladimir Sergeichuk  
*Canonical Matrices of Bilinear Forms over the Field of  $p$ -adic Numbers*

15:30-16:00 

16:00-16:30 Gilbert Strang  
*Key Points in a Linear Algebra Course*

16:30-17:00 Steven Leon  
*Linear Algebra Education Reform: Accomplishments of the Past and Challenges for the Future*

17:00-17:15 

### **Auditorium 232**

17:15-17:45 Luda Shvartsman  
*Understanding of the Concept of Equivalence Relations*

17:45-18:15 Eman Atrash  
*Pedagogical Development of a Linear Algebra Lecturer Through Teaching with Electronic Response Systems*

18:15-18:45 Batya Amit  
*Using Google's Pagerank to Introduce Linear Algebra to High-School students*

### **Room 814**

John Maroulas  
*Investigating the Numerical Range of Non Square Matrices*

Amir Niknejad  
*Matrix Methods in Biological Networks*

Nathan Keller  
*Linear Transformations of Monotone Functions on the Discrete Cube*

**19:00 Reception hosted by the Center for Mathematical Sciences**




**Tuesday, 19 May**

**Auditorium 232**

- 09:00-09:30    **ILAS LECTURE**  
Leiba Rodman  
*Linear Preservers of Higher Rank Numerical Ranges*
- 09:30-10:00    Peter Semrl  
*Adjacency Preserving Maps on Hermitian Matrices*
- 10:00-10:30    Jaroslav Zemanek  
*On Positive Commutators*
- 10:30-11:00    
- 11:00-11:30    Hans Schneider  
*On Visualization Scaling, Subeigenvectors and Kleene Stars in Max Algebra*
- 11:30-12:00    Ludwig Elsner  
*Some Applications of the Max Algebra*
- 12:00-12:30    Michael Neumann  
*The Group and Drazin Generalized Inverses of Singular M-Matrices and their Applications*
- 12:30-13:00    Bit-Shun Tam  
*Maximizing Spectral Radius of Signless Laplacian Matrix*
- 13:00-14:30    **Lunch Break**
- 14:30-15:00    Alex Lubotzky  
*Isospectral (Cayley) Graphs and CW-Complexes*
- 15:00-15:30    Joseph Landsberg  
*Pfaffians and Valiant's Holographic Algorithms*

15:30-16:00 Roy Meshulam  
*Fourier Matrix and the Topology of Hypertrees*

16:00-16:30 Tracy Hall  
*Minimum Degree and Minimum Rank*

16:30-17:00 

**Auditorium 232**

17:00-17:30 Franz Rendl  
*Linear Optimization with  
Completely Positive Matrices*

17:30-18:00 Marko Stosic  
*On Generalized Procrustes  
Problem and Quadratic  
Programming*

18:00-18:30 Achiya Dax  
*Imputing Missing Entries  
in a Data Matrix*

18:30-19:00 Oded Schwartz  
*Communication-Optimal  
Parallel and Sequential  
Cholesky Decomposition*

**Room 814**

Mikhail Klin  
*A New Rank 4 Coherent Algebra  
of Order 125*


Natalia Vanetik  
*Classifying Finite 2-nilpotent  $p$ -group  
Lie Algebras and Graphs: Equivalent  
Wild Problems*

Ruvim Lipyanski  
*Automorphisms of the Semigroup of  
Endomorphisms of Free Algebras of  
Homogeneous Varieties*

G. Katsouleas  
*Min-Max Theorems for Selfadjoint  
Pencils and Normal Matrices*

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**Wednesday, 20 May****Auditorium 232**

- 09:00-09:30 Harm Bart  
*Vector-Valued Logarithmic Residues and Non-Commutative Gelfand Theory*
- 09:30-10:00 Nir Cohen  
*A Matrix-Theoretic Interpretation for the Pick Test*
- 10:00-10:30 Tamir Shalom  
*Various Linear Algebra Industrial Applications*
- 10:30-11:00 

**Special Session in celebration of Leiba Rodman's 60<sup>th</sup> birthday**

- 11:00-11:15 Greetings to L. Rodman by Israel Gohberg
- 11:15-11:45 Israel Gohberg  
*Matrix Polynomials*
- 11:45-12:15 Ilya Spitkovsky  
*On Common Invariant Cones for Families of Matrices*
- 12:15-12:45 Andre Ran  
*Stability of Invariant Subspaces of Matrices with Symmetries*
- 12:45-13:15 Rien Kaashoek  
*The Sylvester Resultant Matrix and Quasi Commutativity of Regular Matrix Polynomials*
- 13:15-14:15 Lunch break**
- 14:15-14:45 Alexander Markus  
*Convexity of Ranges and Connectedness of Level Sets of Quadratic Forms*
- 14:45-15:15 Daniel Alpay  
*Linear Stochastic Systems: A White Noise Approach*

15:15-15:45 Yuli Eidelman  
*Completion Problems, Quasiseparable Matrices and Numerical Methods*

15:45-16:00 

16:00-16:30 Izchak Lewkowicz  
*A Generalization of Nevanlinna-Pick Interpolation - A Matrix Theory Point of View*

16:30-17:00 Harry Dym  
*Some Factorizations for Matrix Valued Functions*

**17:15 Departure to Conference Banquet**

The banquet will be held at the Science Museum, which is located in the Technion's historic building.

We will start the banquet at 18:30.



**Thursday, 21 May**

**Auditorium 232**

09:00-09:30 Andre Klein  
*Matrix Differential Calculus Applied to Multiple Stationary Processes and an Extended Whittle Formula for Information Matrices*

09:30-10:00 Marina Arav  
*Sign Patterns That Require Almost Unique Rank*

**Room 814**

Marija Dodig  
*On Matrix Pencils Completion Problems*

Maxim Bershadsky  
*Canonical Form of  $m$ -by- $2$ -by- $2$  Matrices Over an Arbitrary Field*

**Auditorium 232**

- 10:00-10:30 Michael Karow  
*Structured Pseudospectra and the Condition of a Nonderogatory Eigenvalue*
- 10:30-11:00 
- 11:00-11:30 Paul Fuhrmann  
*Rank Conditions for Matrix Similarity*
- 11:30-12:00 Christian Mehl  
*Sesquilinear Versus Bilinear - What is the Real Scalar Product*
- 12:00-12:30 Karl-Heinz Förster  
*The Block-Numerical Range of Matrix Polynomials and Expansion Graphs*
- 12:30-14:00 Lunch Break**
- 14:00-14:30 Miroslav Fiedler  
*Some Observations and Problems about Cauchy Matrices*
- 14:30-15:00 Dario Bini  
*On Some Properties of Matrix Geometric Means*
- 15:00-15:30 Shmuel Friedland  
*Results and Problems for 3-Tensors*
- 15:30-16:00 Eugene Tyrtyshnikov  
*Large Efficient and Stable Decomposition for Tensors in Many Dimensions*
- 16:00-16:30 

- 16:30-17:00 Yuri Lyubich  
*Quaternion Norms with Only the Trivial Isometries*
- 17:00-17:30 Vladimir Protasov  
*The Joint Spectral Characteristics, Extremal Norms, and the Complex Polytope Extremality Conjecture*
- 17:30-18:00 Roger Horn  
*Primary Matrix Functions and the Implication  $e^A e^B = e^B e^A \Rightarrow AB = BA$*
- 18:00 **Concluding Remarks**