Program

All lectures will be held in Auditorium 232, Amado Mathematics Building, unless otherwise stated

Monday 3 January

08:15-08:55 Registration

08:55-09:00 Greetings and Opening remarks

Morning session

09:00-9:30 Roger Horn
Canonical forms for matrix congruence

9:30-10:00 Paul Fuhrmann
On conditioned invariant and observability subspaces

10:00-10:30 Ravindra Bapat
Determinant of the distance matrix of a tree with matrix weights

10:30-11:00 Michael Tsatsomeros
A spectrum localization result for complex matrices

11:00-11:30

11:30-12:00 Bertram Mond
On some ratio and difference inequalities

Michal Aharon (Amado 234)
On optimal dictionaries for sparse signal representations

12:05-12:35 Alexander Guterman
On the Schur theorem on linear preservers

Uri Itai (Amado 234)
On the eigenstructure of the Bernstein Kernel

12:40-13:10 Harm Bart
Schur complements and state space realizations.

13:10-14:30 Lunch Break

Afternoon Session

14:30-15:00 Adi Ben Israel
A geometry of linear separability in databases

P. N. Sabu (Amado 233)
Evaluation of determinants – a novel approach

15:05-15:35 Peter Semrl
Maps on idempotents

Dan Shemesh (Amado 233)
When does a common positive eigenvector exist?

15:35-16:00

16:00-16:30 Robert Plemmons
Nonnegative matrix factorization and biometric identification

16:30-17:00 **ILAS LECTURE**
Michael Neumann
Soules Matrices and the nonnegative matrix factorization

17:15 Departure to City Hall

18:00 Reception given by the Mayor of Haifa.

Tuesday, 4 January

Morning session

09:00-09:30 Roy Meshulam
Homological connectivity of random complexes

09:30-10:00 Shmuel Friedland
Singular value decomposition: mathematical and numerical challenges

10:00-10:30 David Chillag
Primitive normal matrices and covering numbers of finite groups

10:30-11:00 Karl-Heinz Förster
Nonmonic *matrix polynomials with nonnegative coefficients*

11:00-11:30

11:30-12:00 Yair Censor
On sequential and simultaneous projection methods for the best approximation problem

12:00-12:30 Alexander Markus
Joint zero sets and ranges of several hermitian forms over complex and quaternionic scalars

12:35-13:05 Achiya Dax
A minimum norm approach for low – rank approximations of a matrix

Amir Niknejad (Amado 234)
Missing data imputation for gene expression arrays: an algebraic approach

13:05-13:35 Angel Grrido Bullón
Martrix theory and artificial Intelligence

Orly Alter (Amado 234)
Genomic Signal Processing: Large-Scale Data, Matrix (and tensor) algebra and basic biological principles

13:35-15:00 Lunch Break

Afternoon Session

15:00-15:30 Leiba Rodman
Wiener–Hopf factorization of matrix functions

15:30-16:00 Avraham Feintuch
On the relationship between an operator and its inverse

16:00-16:30

16:30-17:00 Armenak Gasparyan
Matrix networks: theory and applications

Gregory Shapiro (Amado 233)
The Merris index of graphs

17:05-17:35 Harry Gingold
Power product expansions of functions of matrices

Felix Goldberg (Amado 233)
Laplacian eigenvalues of graphs and reverse Cauchy-Schwarz

inequalities

17:40-18:10 Eugene Tyrtyshnikov
A structure theorem on optimal Kronecker-product approximants for multilevel structured matrices

18:30 **Reception hosted by the Center for Mathematical Sciences**


Wednesday, 5 January

Morning session

09:00-09:30 Moshe Goldberg
Stable subnorms

09:30-10:00 Hans Joachim Werner
On the linear aggregation problem in the general Gauss-Markov model

10:00-10:30 Ludwig Elsner
Generalizing Hessenberg matrices

10:30-11:00 Avram Sidi
Approximation of largest eigenpairs of matrices and applications to pagerank computation .

11:00-11:30

11:30-12:00 Knut Hüper
Generalization of the Rayleigh quotient iteration for the iterative refinement of the eigenvectors of real symmetric matrices

Olga Holtz (Amado 234)
Nonnegativity-preserving functions of matrices

12:05-12:35 Izchak Lewkowicz
On the structur of convex invertible sets of real 2x2 matrices

Marina Arav (Amado 234)
Comparison theorems using general cones for norms of iteration matrices

12:40-13:10 Thomas Laffey
Relating results of Suleimanova and Guo Wuwen on the nonnegative inverse eigenvalue problem

13:10 **Departure for excursion to "Bet Shearim"** (expected return to Haifa at 17:30)

Thursday, 6 January

Morning session

09:00-09:30 Volker Mehrmann
Nonlinear, structured, parametric eigenvalue problems. How linear algebra can make the difference

09:30-10:00 Ron Adin
Sparse Matrices in Coxeter Group Representations

10:00-10:30 William Watkins
D-optimal designs and trace-minimal graphs

10:30-11:00 Genrich Belitskii

On classification of spatial matrices

11:00-11:30

11:30-12:00 Rom Pichasi — Gutierrez-Canãs Ignacio (Amado 233)

Linear Algebra approach to geometric graphs — *Preconditioning of hierarchically structured matrices arising in 3-D electromagnetic scattering problems*

12:05-12:35 Arie Leizarowitz — Shaofang Hong (Amado 233)

Computation of the stationary statistics of AIMD models of communication networks — *Nonsingularity of matrices associated with classes of arithemetical functions on lcm-closed sets*

12:35-13:05 Daniel Alpay

Rational Hyperholomorphic Functions in R^4

13:05-14:30 Lunch Break

Afternoon Session

14:30-15:00 Israel Gohberg

Differential equations with stably bounded solutions

15:00-15:30 Vadim Olshevsky

Potpourri on structured marices

15:30-16:00

16:00-16:30 Yuli Eidelman — Volodymyr Prokip (Amado 233)

Matrices of semiseparable over a field — *On divisors of polynomial matrices structure*

16:35-17:05 Andre Klein — Marek Szularz (Amado 233)

Fisher's information matrix of an ARMA process and the bezoutian — *An 'easier' GMRES*

17:10-17:40 Harry Dym

Pole zero cancellation

19:00 **Conference banquet at the "Holiday Inn" Hotel**

Friday, 7 January

Morning session

09:00-09:30 Allan Pinkus

Interpolation by matrices

09:30-10:00 Hans Schneider

The spectral radius of a positive element in a partially ordered algebra

10:00-10:30 Jonathan Arazy

Berezin transforms on bounded symmetric domains

10:30-11:00 Bit Shun Tam

On local Perron-Frobenius theory

11:00-11:30 

11:30-12:00 Yuri Lyubitch
Algebraic theory of divergent series

12:00-12:30 Victor Vinnikov
Realization of noncommutative rational matrix valued functions, noncommutative convexity, and linear matrix inequalities

12:30-13:00 Uriel Rothblum
Linear problems and linear algorithms

13:00-13:30 Bryan Shader
The minimum number of distinct eigenvalues among the symmetric matrices with a given graph

13:30-13:33 **Concluding Remarks**