



Tuesday, June 19
Room: Plenary Room

9:00–9:45	IP 4	<i>Extending preconditioned GMRES to nonlinear Optimization</i> Hans De Sterck (Chair: Daniel B. Szyld)
10:10–10:55	IP 5	<i>Matrix iterations to summarize evolving networks</i> Des Higham (Chair: Michele Benzi)
11:00–12:40	MS 18	<i>Preconditioning for PDE-constrained optimization - Part I of II</i> Organizer: Martin Stoll and Andy Wathen
	11:00–11:25	<i>Structural spectral properties of symmetric saddle point problems</i> Valeria Simoncini
	11:25–11:50	<i>Preconditioned iterative methods for Stokes and Navier-Stokes control problems</i> John Pearson
	11:50–12:15	<i>Preconditioners for elliptic optimal control problems with inequality constraints</i> Walter Zulehner
	12:15–12:40	<i>Nearly optimal block preconditioners for block two-by-two linear systems</i> Zhong-Zhi Bai
15:00–16:40	MS 27	<i>Preconditioning for PDE-constrained optimization - Part II of II</i> Organizer: Martin Stoll
	15:00–15:25	<i>On linear systems arising in trust-region methods</i> Susann Mach
	15:25–15:50	<i>Preconditioning for PDE-constrained optimization using proper orthogonal decomposition</i> Ekkehard Sachs
	15:50–16:15	<i>Preconditioning for Allen-Cahn problems with non-local constraints</i> Luise Blank
	16:15–16:40	<i>A one-shot approach to time-dependent PDE control</i> Martin Stoll
17:00–18:40	CP 18	<i>Eigenvalue problems II</i>
	17:00–17:25	<i>Differentials of eigenvalues and eigenvectors under nonstandard normalizations with applications</i> Raffaello Seri
	17:25–17:50	<i>A solution to the inverse eigenvalue problem for certain singular hermitian matrices</i> Kwasi Baah Gyamfi
	17:50–18:15	<i>Divide and conquer the CS decomposition</i> Brian D. Sutton
	18:15–18:40	<i>The optimal perturbation bounds of the Moore-Penrose inverse under the Frobenius norm</i> Zheng Bing
18:50	SIAG/LA	<i>Meeting</i>



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Room: A

11:00–12:40	MS 26	<i>Advances in Krylov subspace methods</i> Organizer: Sou-Cheng Choi
	11:00–11:25	<i>The new challenges to Krylov subspace methods</i> Yousef Saad
	11:25–11:50	<i>Random shadow vectors in IDR(s): an explanation of its GMRES-like convergence</i> Peter Sonneveld
	11:50–12:15	<i>Truncated and inexact Krylov subspace methods for parabolic control problems</i> Daniel Szyld
	12:15–12:40	<i>Convergence of iterative solution algorithms for least-squares problems</i> David Tittley-Peloquin
15:00–16:40	MS 31	<i>Linear algebra for inverse problems - Part II of II</i> Organizer: L. Reichel and H. Sadok
	15:00–15:25	<i>Implicit filtering methods for inverse problems</i> J.G. Nagy
	15:25–15:50	<i>Iterative reconstruction methods for adaptive optics</i> R. Ramlau
	15:50–16:15	<i>Approximated nonstationary iterated Tikhonov with application to image deblurring</i> M. Donatelli
	16:15–16:40	<i>On the Richardson-Lucy method for image restoration</i> F. Sgallari
17:00–18:40	CP 22	<i>Matrix functions</i>
	17:00–17:25	Improved Schur-Padé algorithm for fractional powers of a matrix Lijing Lin
	17:25–17:50	<i>An automated version of rational Arnoldi for Markov matrix functions</i> Leonid Knizhnerman
	17:50–18:15	<i>Ranking hubs and authorities using matrix functions</i> Christine Klymko
	18:15–18:40	<i>The geometric mean of two matrices from a computational viewpoint</i> Bruno Iannazzo



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Room: B

17:00–18:40	CP 23	<i>Applications</i>
	17:00–17:25	<i>Study on efficient numerical simulation methods of dynamic interaction system excited via moving contact points</i> Akiyoshi Yoshimura
	17:25–17:50	<i>A matrix version of a digital signature scheme based on Pell equation</i> Aditya Mani Mishra
	17:50–18:15	<i>Evaluating computer vision systems</i> Mili Shah
	18:15–18:40	<i>On the complexity of optimizing PageRank</i> Roman Hollanders

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Room: 2.0

11:00–12:40	MS 24	<i>Novel and synergetic algorithms for multicore and multinode architecture</i> Organizer: Olaf Schenk and Ping Tak Peter Tang
	11:00–11:25	<i>Novel and synergetic linear algebra algorithms on multicore and multinode architecture</i> Ping Tak Peter Tang
	11:25–11:50	<i>PSPIKE – A hybrid sparse linear system solver</i> Olaf Schenk
	11:50–12:15	<i>Eigensolver based reordering and parallel TraceMIN</i> Murat Manguogluo
	12:15–12:40	<i>FEAST – A density matrix based eigensolver</i> Eric Polizzi



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Room: 2.8

11:00–12:40	MS 22	<i>Linear algebra for inverse problems - Part I of II</i> Organizer: : L. Reichel and H. Sadok
	11:00–11:25	<i>Block-extrapolation methods for linear matrix ill-posed problem</i> K. Jbilou
	11:25–11:50	<i>Convergence properties of the GMRES and RRGMES methods for ill-posed problems</i> H. Sadok
	11:50–12:15	<i>Inverse problems for regularization matrices</i> Silvia Noschese
	12:15–12:40	<i>Meshless regularization for the numerical computation of the solution of steady Burgers-type equations</i> A. Bouhamidi
14:05-14:55	CP 10	<i>Miscellaneous II</i>
	14:05–14:30	<i>Phylogenetic trees via latent semantic indexing</i> Jeffery J. Leade
	14:30–14:55	<i>Synchronization of rotations via Riemannian trust-regions</i> Nicolas Boumal
15:00–16:40	MS 32	<i>Orderings in sparse matrix computation</i> Organizer: Iain S. Duff and Esmond G. Ng
	15:00–15:25	<i>Orderings and solvers for “non-uniform sparse matrices”</i> Edmond Chow
	15:25–15:50	<i>On hypergraph partitioning based ordering methods for sparse matrix factorization</i> Bora Uçar
	15:50–16:15	<i>Orderings Governed by numerical factorization</i> Iain S. Duff
	15:15–16:40	<i>Reordering sparse Cholesky factorization: minimum fill vs. minimum FLOP count</i> Robert Luce
17:00–18:40	CP 20	<i>Control systems II</i>
	17:00–17:25	<i>Disturbance decoupling problem for singular switched linear systems</i> M. Dolors Magret
	17:25–17:50	<i>Invariant subspaces of switched linear systems</i> M. Eul`alia Montoro
	17:50–18:15	<i>On the pole placement problem for singular systems</i> Alicia Roca
	18:15–18:40	<i>Coordination control of linear systems</i> Pia L. Kempker



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Room: 2.9

11:00–12:40	MS 19	<i>Matrices and graphs - Part I of II</i> Organizer: Leslie Hogben and Stephen Kirkland
	11:00–11:25	<i>(0; 1) matrices and the analysis of social networks</i> Steve Kirkland
	11:25–11:50	<i>Necessary and sufficient conditions for a Hamiltonian graph</i> Irene Sciriha
	11:50–12:15	<i>On the eigenvalues of symmetric matrices associated with graphs</i> Miriam Farber
	12:15–12:40	<i>An extension of the polytope of doubly stochastic matrices</i> Richard Brualdi
14:05–14:55	CP 14	<i>Iterative methods I</i>
	14:05–14:30	<i>Meshless method for steady Burgers' equation: a matrix equation approach</i> Mustapha Hached
	14:30–14:55	<i>Tuned preconditioners for inexact two-sided inverse and Rayleigh quotient iteration</i> Patrick Kürschner
15:00–16:40	MS 28	<i>Matrices and graphs – Part II of II</i> Organizer: Leslie Hogben and Stephen Kirkland
	15:00–15:25	<i>Parameters related to maximum nullity, zero forcing number, and tree-width of a graph</i> Leslie Hogben
	15:25–15:50	<i>Colin de Verdiere numbers of chordal and split graphs</i> Felix Goldberg
	15:50–16:15	<i>On the null vectors of Graphs</i> Shaun Fallat
	16:15–16:40	<i>Kochen-Specker sets and the rank-1 quantum chromatic number</i> Simone Severini
17:00–18:40	CP 24	<i>Preconditioning II</i>
	17:00–17:25	<i>Overlapping blocks by growing a partition with applications to preconditioning</i> Stephen D. Shank
	17:25–17:50	<i>Communication avoiding ILU(0) preconditioner</i> Sophie Moufawad
	17:50–18:15	<i>Preconditioning for large scale μFE analysis of bone poroelasticity</i> Peter Arbenz
	18:15–18:40	<i>Block-triangular preconditioners for systems arising from edge-preserving image restoration</i> Yu-Mei Huang



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11:00–12:40	MS 25	<i>Direction preserving and filtering methods for solving sparse linear systems</i> Organizer: Laura Grigori and Frederic Nataf
	11:00–11:25	<i>Algebraic two-level domain decomposition methods</i> Frederic Nataf
	11:25–11:50	<i>Filtering solvers</i> G. Wittum
	11:50–12:15	<i>Bootstrap algebraic multigrid</i> Karsten Kahl
	12:15–12:40	<i>Block filtering decomposition</i> Laura Grigori
14:05–14:55	CP 11	<i>Miscellaneous III</i>
	14:05–14:30	<i>A new multi-wayarray decomposition</i> I Evrim Korkmaz
	14:30–14:55	<i>Towards more reliable performances of accurate floating-point summation algorithms</i> Philippe Langlois
15:00–16:40	MS 34	<i>Least squares methods and applications</i> Organizer: Sanzheng Qiao and Yimin Wei
	15:00–15:25	<i>Block Gram–Schmidt algorithms with reorthogonalization</i> Jesse Barlow
	15:25–15:50	<i>A numerical method for a mixed discrete bilinear least squares problem</i> Xiao-Wen Chang
	15:50–16:15	<i>On condition numbers for constrained linear least squares problems</i> Huaian Diao
	15:15–16:40	<i>SOR inner-iteration GMRES for underdetermined least squares problems</i> Keiichi Morikuni
17:00–18:40	CP 19	<i>Positivity I</i>
	17:00–17:25	<i>Positivity preserving simulation of differential-algebraic equations</i> Ann-Kristin Baum
	17:25–17:50	<i>Computing the exponentials of essentially nonnegative matrices with high relative accuracy</i> Meiyue Shao
	17:50–18:15	<i>Sparse and unique nonnegative matrix factorization through data preprocessing</i> Nicolas Gillis
	18:15–18:40	<i>Iterative regularized solution of linear complementarity problems</i> Constantin Popa



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Room: 2.12

11:00–12:40	MS 21	<i>Reducing communication in linear algebra - Part I of II</i> Organizer: : Aydın Buluç and Oded Schwartz
	11:00–11:25	<i>Communication-optimal parallel algorithm for Strassen's matrix multiplication</i> Oded Schwartz
	11:25–11:50	<i>A communication-avoiding symmetric-indefinite factorization</i> Sivan Toledo
	11:50–12:15	<i>LU factorisation with panel rank revealing pivoting and its communication avoiding version</i> Amal Khabou
	12:15–12:40	<i>2.5D Algorithms for parallel dense linear algebra</i> Edgar Solomonik
14:05-14:55	CP 13	<i>Code theory</i>
	14:05–14:30	<i>Linear codes in LRTJspaces</i> Sapna Jain
	14:30–14:55	<i>On turbo codes of rate $1=n$ from linear systems point of view</i> Victoria Herranz
15:00–16:40	MS 30	<i>Reducing communication in linear algebra - Part II of II</i> Organizer: Aydın Buluç and Oded Schwartz
	15:00–15:25	<i>Communication-avoiding sparse matrix-matrix multiplication</i> Aydın Buluç
	15:25–15:50	<i>Improving the stability of communication-avoiding Krylov subspace methods</i> Erin Carson
	15:50–16:15	<i>Hiding global synchronization latencies in Krylov methods for systems of linear equations</i> Pieter Ghysels
	15:15–16:40	<i>Avoiding communication with hierarchical matrices</i> Nicholas Knight
17:00–18:40	CP 17	<i>Lyapunov equations</i>
	17:00–17:25	<i>Lyapunov matrix inequalities with solutions sharing a common Schur complement</i> Ana Catarina Carapito
	17:25–17:50	<i>Solving large scale projected periodic Lyapunov equations using structure-exploiting methods</i> Mohammad-Sahadet Hossain
	17:50–18:15	<i>A new minimal residual method for large scale Lyapunov equations</i> Yiding Lin
	18:15–18:40	<i>Contributions to the analysis of the extended Krylov subspace method (EKSM) for Lyapunov matrix equations</i> Carl Christian K. Mikkelsen



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Room: 2.13

11:00–12:40	MS 20	<i>Tensor based methods for high dimensional problems in scientific computing – Part I of II</i> Organizer: A. Falcó and A. Nouy
	11:00–11:25	<i>Optimal a priori tensor decomposition for the solution of high dimensional problems</i> Anthony Nouy
	11:25–11:50	<i>Application of the Proper Generalized Decomposition (PGD) to 3D cracked plates and estimation of the discretization error</i> Eugenio Giner
	11:50–12:15	<i>A tensor calculus approach for Bézier shape deformation</i> Lucía Hilario
	12:15–12:40	<i>Tensor approximation methods for parameter identification</i> Alexander Litvinenko
14:05–14:55	CP 15	<i>Polynomial equations II</i>
	14:05–14:30	<i>Standard triples of structured matrix polynomials</i> Maha Al-Ammari
	14:30–14:55	<i>Solving systems of polynomial equations using (numerical) linear algebra</i> Philippe Dreesen
15:00–16:40	MS 29	<i>Tensor based methods for high dimensional problems in scientific computing – Part II of II</i> Organizer: A. Falcó and A. Nouy
	15:00–15:25	<i>A greedy algorithm for the convergence of a Laplacian operators in the blind deconvolution problem</i> Pantaleon David Romero
	15:25–15:50	<i>Algorithms for approximate inverse of operators for preconditioning systems of equations in tensor format</i> Loic Giraldi
	15:50–16:15	<i>Geometric structures in tensor representations</i> Antonio Falcó
17:00–18:40	CP 16	<i>Matrices and algebraic structures</i>
	17:00–17:25	<i>Determinantal range and Frobenius endomorphisms</i> Rute Lemos
	17:25–17:50	<i>On algorithms for constructing (0; 1)-matrices with prescribed row and column sum vectors</i> Henrique F. da Cruz
	17:50–18:15	<i>Elementary matrices arising from unimodular rows</i> Ratnesh Kumar Mishra
	18:15–18:40	<i>Nonsingular ACI-matrices over integral domains</i> Alberto Borobia



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11:00–12:40	MS 23	<i>Modern matrix methods for large scale data and networks</i> Organizer: David F. Gleich
	11:00–11:25	<i>Nonlinear eigenproblems in data analysis and graph partitioning</i> Matthias Hein
	11:25–11:50	<i>LSRN: a parallel iterative solver for strongly over- or under-determined systems</i> Xiangrui Meng
	11:50–12:15	<i>Solving large dense linear systems with covariance matrices</i> Jie Chen
14:05–14:55	12:15–12:40	<i>Fast coordinate descent methods with variable selection for non-negative matrix factorization</i> Inderjit S. Dhillon
	CP 12	<i>Matrix norms</i>
	14:05–14:30	<i>Numerical solutions of singular linear matrix differential equations</i> Ioannis K. Dassios
	14:30–14:55	<i>Matrix version of Bohr's inequality</i> Jagjit Singh
15:00–16:40	MS 33	<i>Moving from multicore to manycore in applied linear algebra</i> Organizer: Jens Saak and Alfredo Remó
	15:00–15:25	<i>Parallel preconditioners and multigrid methods for sparse systems on GPUs</i> Jan-Philipp Weiss
	15:25–15:50	<i>Towards a GPU-accelerated direct sparse solver</i> Pablo Ezzatti
	15:50–16:15	<i>Unleashing the power of multicore DSPs for matrix computations. The FLAME approach.</i> Francisco D. Igual
17:00–18:40	15:15–16:40	<i>High-performance genome studies</i> Lucas Beyer
	CP 21	<i>Matrix pencils</i>
	17:00–17:25	<i>Looking at the complexity index as a matrix measure</i> Anabela Borges
	17:25–17:50	<i>A matrix pencil tool to solve a sampling problem</i> Alberto Portal
	17:50–18:15	<i>A duality relation for matrix pencils with applications to Linearizations</i> Federico Poloni
	18:15–18:40	<i>Stability of reducing subspaces of a pencil</i> Gorka Armentia

