



UNIVERSITAT
POLITÈCNICA
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2012 SIAM Conference on
Applied Linear Algebra
SIAM June 18th - 22nd

Wednesday, June 20

Room: Plenary Room

9:00–9:45	IP 6	<i>PDE-constrained optimization</i> Roland Herzog (Chair: Valeria Simoncini)
10:10–10:55	IP 7	<i>Hierarchical tensor decomposition and approximation</i> Lars Grasedyck (Chair: Peter Benner)
11:00–12:40	MS 36	<i>Hybrid solvers for sparse linear equations</i> Organizer: Iain S. Duff and Luc Giraud
	11:00–11:25	<i>The augmented block-Cimmino distributed method</i> Mohamed Zenadi
	11:25–11:50	<i>On a parallel hierarchical algebraic domain decomposition method for a large scale sparse linear solver</i> Luc Giraud
	11:50–12:15	<i>A two-level Schwarz method for systems with high contrasts</i> Nicole Spillane
	12:15–12:40	<i>A 3-level parallel hybrid preconditioner for sparse linear systems</i> Erik Boman
14:10–14:55	IP 8	<i>Improving performance and robustness of incomplete factorization preconditioners</i> Anshul Gupta (Chair: Iain S. Duff)
15:00–16:40	MS 43	<i>Challenges for the solution and preconditioning of multiple linear systems - Part II of II</i> Organizer: Eric de Sturler and Daniel B. Szyld
	15:00–15:25	<i>Low-rank techniques for parameter-dependent linear systems and eigenvalue problems</i> Christine Tobler
	15:25–15:50	<i>Recycling Krylov subspace information in sequences of linear systems</i> Nemanja Bozovic
	15:50–16:15	<i>Efficiently updating preconditioners in quantum Monte Carlo simulations</i> Arielle Grim McNally
	16:15–16:40	<i>A domain decomposition preconditioned recycling GMRES for stochastic parabolic PDE</i> Xiao-Chuan Cai
17:00–18:40	CP 26	<i>Eigenvalue problems III</i>
	17:00–17:25	<i>Eigenvalues of matrices with prescribed entries</i> Gloria Cravo
	17:25–17:50	<i>Characterizing and bounding eigenvalues of interval matrices</i> Milan Hladik
	17:50–18:15	<i>Lifted polytopes methods for the computation of joint spectral characteristics of matrices</i> Raphael M. Jungers



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Room: B

17:00–18:40	CP 29	<i>Miscellaneous IV</i>
	17:00–17:25	<i>Modified Structure exploited algorithm for solving palindromic quadratic eigenvalue problems</i> Linzhang Lu
	17:25–17:50	<i>A spectral multi-level approach for eigenvalue problems in first-principles materials science calculations</i> Andrew Canning
	17:50–18:15	<i>Spectrum of Sylvester operators on triangular spaces of matrices</i> A. R. Sourour
	18:15–18:40	<i>Modulus-based successive overrelaxation method for pricing american options</i> Jun-Feng Yin

CANCELED



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Room: A

11:00–12:40	MS 40	<i>Different perspectives on conditioning and numerical stability - Part I of II</i> Organizer: Froilán M. Dopico and Ilse C.F. Ipsen
	11:00–11:25	<i>Highly accurate numerical linear algebra via rank revealing decompositions</i> Froilán M. Dopico
	11:25–11:50	<i>Stability of numerical algorithms with quasiseparable matrices</i> Pavel Zhlobich
	11:50–12:15	<i>Gram-Schmidt orthogonalization with standard and non-standard inner product: rounding error analysis</i> Miroslav Rozložník
	12:15–12:40	<i>Backward stability of iterations for computing the polar decomposition</i> Nicholas J. Higham
15:00–16:40	MS 44	<i>Different perspectives on conditioning and numerical stability - Part II of II</i> Organizer: Froilán M. Dopico and Ilse C.F. Ipsen
	15:00–15:25	<i>Accuracy and sensitivity of Monte Carlo matrix multiplication algorithms</i> John T. Holodnak
	15:25–15:50	<i>Hyperdeterminant and the condition number of a multilinear system</i> Lek-Heng Lim
	15:50–16:15	<i>Condition numbers and backward errors in functional setting</i> Agnieszka Miedlar
	16:15–16:40	<i>Orthogonality and stability in large-sparse-matrix iterative algorithms</i> Chris Paige
17:00–18:40	CP 30	<i>Iterative methods II</i>
	17:00–17:25	<i>On convergence of MSOR-Newton method for nonsmooth equations</i> Li Wang
	17:25–17:50	<i>A framework for deflated BiCG and related solvers</i> Martin H. Gutknecht
	17:50–18:15	<i>Prescribing the behavior of the GMRES method and the Arnoldi method simultaneously</i> Jurjen Duintjer Tebbens
	18:15–18:40	<i>Efficient error bounds for linear systems and rational matrix functions</i> Andreas Frommer



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Room: 2.8

11:00–12:40	MS 37	<i>Optimization methods for tensor decomposition</i> Organizer: Hans De Sterck
	11:00–11:25	<i>Efficient algorithms for tensor decompositions</i> Laurent Sorber
	11:25–11:50	<i>Symmetric tensor decomposition via a power method for the generalized tensor eigenproblem</i> Jackson R. Mayo
	11:50–12:15	<i>All-at-once optimization for coupled matrix and tensor factorizations</i> Evrin Acar
	12:15–12:40	<i>An algebraic multigrid optimization method for low-rank canonical tensor decomposition</i> Killian Miller
15:00–16:40	MS 46	<i>Structured solution of nonlinear matrix equations and applications - Part II of II</i> Organizer: Eric King-wah Chu and Wen-Wei Lin
	15:00–15:25	<i>A large-scale nonsymmetric algebraic Riccati equation from transport theory</i> Hung-Yuan Fan
	15:25–15:50	<i>Structure-preserving Arnoldi-type algorithm for solving eigenvalue problems in leaky surface wave propagation</i> Tsung-Ming Huang
	15:50–16:15	<i>Structure-preserving curve for symplectic pairs</i> Yueh-Cheng Kuo
	16:15–16:40	<i>A doubling algorithm with shift for solving a nonsymmetric algebraic Riccati equation</i> Chun-Yueh Chiang
17:00–18:40	CP 25	<i>Tensors and multilinear algebra</i>
	17:00–17:25	<i>Decomposition of semi-nonnegative semi-symmetric three-way tensors based on LU matrix factorization</i> Lu Wang
	17:25–17:50	<i>Random matrices and tensor rank probabilities</i> Goran Bergqvist
	17:50–18:15	<i>A new truncation strategy for the higher-order singular value decomposition of tensors</i> Nick Vannieuwenhoven
	18:15–18:40	<i>Probabilistic matrix approximation</i> Birkan Tunç



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Room: 2.9

11:00–12:40	MS 39	<i>Challenges for the solution and preconditioning of multiple linear systems - Part I of II</i> Organizer: Eric de Sturler and Daniel B. Szyld
	11:00–11:25	<i>Preconditioners for sequences of shifted linear systems</i> Martin B. van Gijzen
	11:25–11:50	<i>Krylov subspace recycling for faster model reduction algorithms</i> Peter Benner
	11:50–12:15	<i>Krylov subspace recycling for families of shifted linear systems</i> Kirk M. Soodhalter
	12:15–12:40	<i>Solving sequences of linear systems with application to model reduction</i> Kapil Ahuja
15:00–16:40	MS 45	<i>Recent advances in model reduction - Part II of II</i> Organizer: Athanasios C. Antoulas and Serkan Gugercin
	15:00–15:25	<i>Automating DEIM for nonlinear model reduction</i> Danny Sorensen
	15:25–15:50	<i>Model reduction for optimal control problems in field-flow fractionation</i> Tatjana Stykel
	15:50–16:15	<i>Numerical implementation of the iterative rational Krylov algorithm for optimal H_2 model order reduction</i> Zlatko Drmac
	16:15–16:40	<i>Low rank deflative/iterative solutions of Lur'e equations</i> Timo Reis
17:00–18:40	CP 28	<i>Structured matrices II</i>
	17:00–17:25	<i>Structured matrices and inverse problems for discrete Dirac systems with rectangular matrix potentials</i> Alexander Sakhnovich
	17:25–17:50	<i>Applications of companion matrices</i> Aaron Melman
	17:50–18:15	<i>On factorization of structured matrices and GCD evaluation</i> Skander Belhaj
	18:15–18:40	<i>An anti-triangular factorization of symmetric matrices</i> Paul Van Dooren



Wednesday, June 20

Room: 2.11

11:00–12:40	MS 42	<i>Structured solution of nonlinear matrix equations and applications - Part I of II</i> Organizer: Eric King-wah Chu and Wen-Wei Lin
	11:00–11:25	<i>Structured solution of large-scale algebraic Riccati and nonlinear matrix equations</i> Eric King-wah Chu
	11:25–11:50	<i>Accurate solutions of nonlinear matrix equations in queueing models</i> Qiang Ye
	11:50–12:15	<i>A numerical approach for solving nonlinear matrix equations in economic dynamics</i> Matthew M. Lin
	12:15–12:40	<i>A structure-preserving doubling algorithm for quadratic eigenvalue problems arising from time-delay systems</i> Tiexiang Li
15:00–16:40	MS 49	<i>Analysis and computation on matrix manifold</i> Organizer: Bruno Iannazzo
	15:00–15:25	<i>Best low multilinear rank approximation of symmetric tensors by Jacobi rotations</i> Mariya Ishteva
	15:25–15:50	<i>Differential geometry for tensors with fixed hierarchical Tucker rank</i> Bart Vandereycken
	15:50–16:15	<i>Deterministic approaches to the Karcher mean of positive definite matrices</i> Yongdo Lim
	16:15–16:40	<i>The Karcher mean: first and second order optimization techniques on matrix manifolds</i> Ben Jeuris
17:00–18:40	CP 33	<i>Matrices and graphs</i>
	17:00–17:25	<i>Complex networks metrics for software systems</i> Caterina Fenu
	17:25–17:50	<i>On Euclidean distance matrices of graphs</i> Jolanda Modic
	17:50–18:15	<i>Evaluating matrix functions by resummations on graphs: the method of path-sums</i> Pierre-Louis Giscard
	18:15–18:40	<i>An estimation of general interdependence in an open linear structure</i> Roland Lantner



Wednesday, June 20

Room: 2.12

11:00–12:40	MS 38	<i>Generalized inverses and applications - Part I of II</i> Organizer: Dragana S. Cvetkovic-Ilic, Néstor Thome and Yimin Wei
	11:00–11:25	<i>The group inverse of additively modified matrices</i> Nieves Castro González
	11:25–11:50	<i>The Moore-Penrose inverse of a linear combination of commuting generalized and hypergeneralized projectors</i> Dragana S. Cvetkovic-Ilic
	11:50–12:15	<i>Generalized inverses of operators on Hilbert C^*-modules</i> Dragan S. Djordjevic
	12:15–12:40	<i>Some results on the reverse order law</i> Dijana Masic
15:00–16:40	MS 47	<i>Generalized inverses and applications - Part II of II</i> Organizer: Dragana S. Cvetkovic-Ilic, Néstor Thome and Yimin Wei
	15:00–15:25	<i>On a partial order defined on certain matrices</i> Néstor Thome
	15:25–15:50	<i>Generalized inverses and path products</i> Pedro Patrício
	15:50–16:15	<i>On structured condition numbers for a linear functional of Tikhonov regularized solution</i> Yimin Wei
	16:15–16:40	<i>Explicit characterization of the Drazin index</i> Qingxiang Xu
17:00–18:40	CP 27	<i>Multigrid I</i>
	17:00–17:25	<i>Algebraic multigrid for solution of discrete adjoint Reynolds-averaged Navier-Stokes (RANS) equations in compressible aerodynamics</i> Anna Naumovich
	17:25–17:50	<i>Symmetric multigrid theory for deflation methods</i> H. Rittich
	17:50–18:15	<i>Aggregation-based multilevel methods for lattice QCD</i> Matthias Rottmann
	18:15–18:40	<i>Adaptive algebraic multigrid methods for Markov chains</i> Sonja Sokolovic



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Room: 2.13

11:00–12:40	MS 35	<i>Nonlinear eigenvalue problems</i> Organizer: K. Meerbergen, W. Michiels and C. Lecomte
	11:00–11:25	<i>Computable error bounds for nonlinear eigenvalue problems allowing for a minimax characterization</i> Heinrich Voss
	11:25–11:50	<i>A restarting technique for the infinite Arnoldi method</i> Elias Jarlebring
	11:50–12:15	<i>Robust successive computation of eigenpairs for nonlinear eigenvalue problems</i> Cedric Effenberger
	12:15–12:40	<i>Triangularization of matrix polynomials</i> Leo Taslaman
15:00–16:40	MS 50	<i>Advanced methods for large eigenvalue problems and their applications</i> Organizer: Tetsuya Sakurai and Nahid Emad
	15:00–15:25	<i>DQDS with aggressive early deflation for computing singular values</i> Kensuke Aishima
	15:25–15:50	<i>A scalable parallel method for large scale nonlinear eigenvalue problems</i> Kazuma Yamamoto
	15:50–16:15	<i>Application of the Sakurai-Sugiura method in the field of density functional theory on highly parallel systems</i> Georg Huhs
	16:15–16:40	<i>MERAM for neutron physics applications using YML environment on post petascale heterogeneous architecture</i> Christophe Calvin
17:00–18:40	CP 31	<i>Direct methods</i>
	17:00–17:25	<i>On sparse threaded deterministic lock-free Cholesky and LDL^T factorizations</i> Alexander Andrianov
	17:25–17:50	<i>A fast algorithm for constructing the solution operator for homogeneous elliptic boundary value problems</i> Adrianna Gillman
	17:50–18:15	<i>Eliminate last variable first!</i> Winfried Grassmann
	18:15–18:40	<i>Sharp estimates for the convergence rate of Orthomin(k) for a class of linear systems</i> Andrei Draganescu



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Room: 2.15

11:00–12:40	MS 41	<i>Recent advances in model reduction - Part I of II</i> Organizer: Athanasios C. Antoulas and Serkan Gugercin
	11:00–11:25	<i>The Loewner framework in data-driven model reduction</i> Athanasios C. Antoulas
	11:25–11:50	<i>Robust computational approaches to H_2-optimal model reduction</i> Christopher A. Beattie
	11:50–12:15	<i>Reduced order modeling via frames</i> Volker Mehrmann
	12:15–12:40	<i>Semidefinite Hankel-type model reduction based on frequency response matching</i> Aivar Sootla
15:00–16:40	MS 48	<i>Parallelization of efficient algorithms</i> Organizer: Matthias Bolten and Stefan Kunis
	15:00–15:25	<i>A highly scalable error-controlled fast multipole method</i> Ivo Kabadshow
	15:25–15:50	<i>A parallel fast Coulomb solver based on nonequispaced Fourier transforms</i> Michael Pippig
	15:50–16:15	<i>Generalized fast Fourier transforms via CUDA</i> Stefan Kunis
	16:15–16:40	<i>Efficient regularization and parallelization for sparse grid regression</i> Dirk Pfluger
17:00–18:40	CP 32	<i>Nonlinear methods</i>
	17:00–17:25	<i>On the performance of the algebraic optimized Schwarz methods with applications</i> Lahcen Laayouni
	17:25–17:50	<i>Optimizing additive Runge-Kutta smoothers for unsteady flow problems</i> Philipp Birken
	17:50–18:15	<i>On convergence conditions of waveform relaxation methods for linear differential-algebraic equations</i> X. Yang
	18:15–18:40	<i>On sinc discretization and banded preconditioning for linear third-order ordinary differential equations</i> Zhi-Ru Ren

NEW SPEAKER