

Householder Symposium XVIII on Numerical Linear Algebra

June 12-17, 2011

Granlibakken Conference Center & Lodge
Tahoe City, California

PROGRAM

Notes

- Location of events.
 - Breakfasts will be served in Granhall.
 - Lunches will be served on Garden Deck.
 - * Seating will be assigned randomly.
 - Dinners will be served on Garden Deck, except for the Wednesday banquet, which will be served in Granhall.
 - Plenary sessions will be in the Mountain Ballroom.
 - Concurrent sessions will be in the Mountain, Lake, and Bay Rooms (which are partitions of the Mountain Ballroom).
 - Poster summaries will be delivered in the Mountain Ballroom and poster presentations will be in the Pavilion.
- Chairs of concurrent sessions:
 - For each concurrent session, the last speaker will serve as the session chair.
- Poster sessions:
 - Each poster will be assigned to one side of a poster board. The space available to each poster is 4' (height) by 8' (width) (or 1.2m by 2.4m) and will be labeled with the poster presenter's name. Push pins, velcro, glue, scotch tape, and some large binder clips will be available.
 - Granlibakken will set up the poster boards on Monday morning, so poster presenters will be able to put up their posters anytime from Monday noon onwards.
 - The posters can be left on display during the entire meeting. However, they must be removed by Thursday evening.
 - The poster presentations will be in the Pavilion, which is an outdoor area but under a tent. Thus, it is advisable to have a light jacket or sweater for the evening sessions on Monday and Tuesday.
 - Each of the two poster sessions will begin with a 45-minute poster summary session. Each poster presenter will have an opportunity to give a 1.5-minute summary of his/her poster. The summaries will be presented in the Mountain Ballroom. The summaries will be scheduled in a random order (see the list on the last two pages); 21 presenters will summarize their posters on Monday and 20 will do so on Tuesday. **Please note that the 1.5-minute duration will be strictly enforced.**
 - Each poster presenter may use **ONE** viewgraph during the poster summary session. The one-page viewgraph, as a pdf file, should be sent to EGNg@lbl.gov no later than June 8, 2011, so that all viewgraphs can be put on the same computer. This avoids the need to change computer during the poster summary sessions.
- Free time in the afternoon on Wednesday (June 15, 2011):
 - Outdoor activities, such as hiking and exploring Lake Tahoe, are available. Further information can be obtained from the staff at Granlibakken.

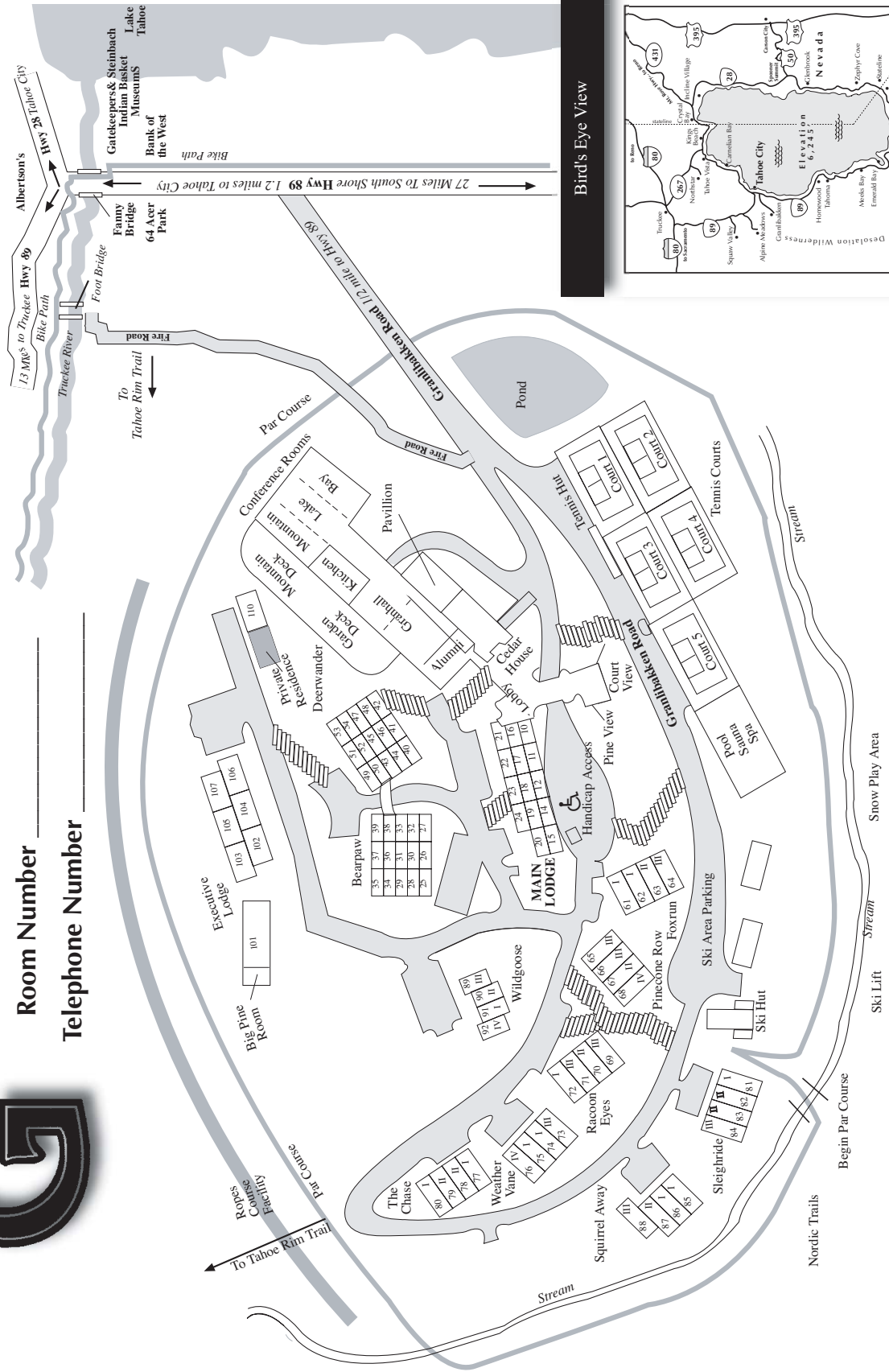
- An excursion to the Donner Memorial State Park and the Emerald Bay State Park has been organized. For those that have signed up for the excursion, the chartered buses will pick up the participants from Granlibakken at 1:30pm. It is expected that the buses will return to Granlibakken around 5:30pm. The excursion is oversubscribed; some of the participants who have cars may be asked to drive.



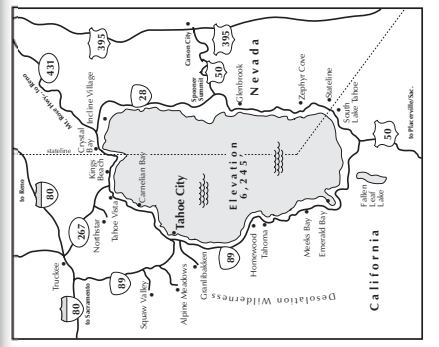
Granlibakken Resort

Room Number _____

Telephone Number _____



Bird's Eye View



Sunday, June 12, 2011

Reception – Granhall (5:30pm – 7:30pm)

Dinner – Garden Deck (7:30pm – 9:30pm)

Monday, June 13, 2011

Breakfast – Granhall (7:30am – 9:00am)

Opening Remarks – Mountain Ballroom (8:30am – 9:00am)

Plenary Session 1 – Mountain Ballroom (9:00am – 10:00am)

Chair: Michael L. Overton

9:00am – 9:30am	Charles Van Loan <i>Block Tensor Computation</i>
9:30am – 10:00am	Sue Thorne <i>Preconditioners for PDE-constrained Problems with Nonlinear PDEs in the Constraints</i>

Break (10:00am – 10:30am)

Plenary Session 2 – Mountain Ballroom (10:30am – 12:00pm)

Chair: Ilse Ipsen

10:30am – 11:00am	Lars Eldén, ILAS Lecturer <i>Computing Low-Rank Approximations of Sparse Tensors using Krylov Methods, and Applications in Information Sciences</i>
11:00am – 11:30am	Peter Benner <i>Rational Krylov Subspaces for Nonlinear Model Reduction</i>
11:30am – 12:00pm	Andreas Frommer <i>Computational Proofs of the Stability of Lyapunov Equations</i>

Lunch – Garden Deck (12:00pm – 1:30pm)

Plenary Session 3 – Mountain Ballroom (2:00pm – 3:30pm)

Chair: Volker Mehrmann

2:00pm – 2:30pm	Petr Tichý <i>On Best Approximation by Polynomials of Matrices</i>
2:30pm – 3:00pm	Françoise Tisseur <i>A Reliable Algorithm for the Complete Solution of Quadratic Eigenvalue Problems</i>

3:00pm – 3:30pm Daniel B. Szyld
Petrov Galerkin View of IDR (and BiCGStab)

Break (3:30pm – 4:00pm)

Concurrent Sessions A (4:00pm – 6:00pm)

Session A1 – Mountain Room

4:00pm – 4:20pm Iain Duff
Preconditioners based on Strong Components

4:20pm – 4:40pm Esmond G. Ng
A Combinatorial Problem in Sparse Orthogonal Factorization

4:40pm – 5:00pm Jianlin Xia
Efficient Structured Solvers and Preconditioners for Large Sparse Linear Systems

5:00pm – 5:20pm Miro Rozložník
Orthogonalization with a Non-standard Inner Product and Approximate Inverse Preconditioning

5:20pm – 5:40pm Jennifer Pestana
On Choice of Preconditioner for Minimum Residual Methods for Nonsymmetric Matrices

5:40pm – 6:00pm Miroslav Tůma
On the Way Towards Robust Algebraic Preconditioners

Session A2 – Lake Room

4:00pm – 4:20pm Serkan Gugercin
Optimal \mathcal{H}_2 Points in action: From Model Reduction to Lebesgue Constant

4:20pm – 4:40pm Athanasios C. Antoulas
Model Reduction of Parameter-Dependent Systems

4:40pm – 5:00pm Christopher Beattie
Model Reduction of Hamiltonian Systems in Variational Data Assimilation

5:00pm – 5:20pm Younès Chahlaoui
Gramian Based Model Reduction of Switched Dynamical Systems

5:20pm – 5:40pm Saifon Chaturantabut
Error Analysis for Nonlinear Model Reduction Using POD-DEIM Technique

5:40pm – 6:00pm Vladimir Druskin
Optimal Rational Krylov Subspaces for Large-Scale Dynamical Systems

Session A3 – Bay Room

4:00pm	–	4:20pm	Mario Arioli <i>Generalized Golub-Kahan Bidiagonalization and Stopping Criteria</i>
4:20pm	–	4:40pm	Xiaobai Sun <i>A Divide and Conquer Method for the SVD of a Banded Matrix</i>
4:40pm	–	5:00pm	Ivo Panayotov <i>Ritz Vectors in the Lanczos Process</i>
5:00pm	–	5:20pm	Ron Morgan <i>A New Approach to Nonsymmetric Lanczos and to Avoiding Breakdown</i>
5:20pm	–	5:40pm	Raf Vandebril <i>The Interplay of Givens Rotations and the QR-factorization in Inversion, Unitary Similarity Transforms and QR-algorithms</i>
5:40pm	–	6:00pm	Fei Xue <i>Efficient Preconditioned Inner Solves for Inexact Rayleigh Quotient Iteration and Their Connections to the Simplified Jacobi-Davidson Method</i>

Dinner – Garden Deck (6:00pm – 8:00pm)

Poster Session (8:00pm – 10:00pm)

8:00pm	–	8:45pm	Poster Summaries – Mountain Ballroom
8:45pm	–	10:00pm	Poster Presentation – Pavilion (with dessert & coffee)

Tuesday, June 14, 2011

Breakfast – Granhall (7:30am – 9:00am)

Plenary Session 4 – Mountain Ballroom (8:30am – 10:00am)

Chair: Valeria Simoncini

8:30am	–	9:00am	Michele Benzi <i>Computation of Matrix Functions Arising in Graph Analysis</i>
9:00am	–	9:30am	Haim Avron <i>Randomized Algorithms in Numerical Linear Algebra: From Theory to Practice</i>
9:30am	–	10:00am	Lek-Heng Lim <i>Fundamental Difficulties of Numerical Multilinear Algebra</i>

Break (10:00am – 10:30am)

Plenary Session 5 – Mountain Ballroom (10:30am – 12:00pm)

Chair: Nick Higham

10:30am	–	11:00am	D. Steven Mackey <i>The Quadratic Realizability Problem for Matrix Polynomials</i>
11:00am	–	11:30am	Chris Paige <i>A Backward Rounding Error Analysis of the Lanczos Process, and its Implications for Other Krylov Subspace Methods</i>
11:30am	–	12:00pm	Danny C. Sorensen <i>Linear Methods in Nonlinear Model Order Reduction</i>

Lunch – Garden Deck (12:00pm – 1:30pm)

Concurrent Sessions B (2:00pm – 4:00pm)

Session B1 – Mountain Room

2:00pm	–	2:20pm	Chen Greif <i>Towards Block Structure-Preserving Saddle-Point Solvers</i>
2:20pm	–	2:40pm	Tyrone Rees <i>A Multipreconditioned GMRES Algorithm</i>

2:40pm	–	3:00pm	Carl Christian Kjelgaard Mikkelsen <i>Incomplete Cyclic Reduction for Narrow Banded and Diagonally Dominant Linear Systems</i>
3:00pm	–	3:20pm	Eric de Sturler <i>Convergence Bounds for Approximate Invariant Subspace Recycling for Sequences of Linear Systems</i>
3:20pm	–	3:40pm	Hassane Sadok <i>A New Approach to GMRES Convergence</i>
3:40pm	–	4:00pm	Josef Sifuentes <i>Convergence Theory for a Restarted GMRES Method with Approximate Deflation Preconditioning</i>

Session B2 – Lake Room

2:00pm	–	2:20pm	Emre Mengi <i>Nearest Pencils with Specified Eigenvalues</i>
2:20pm	–	2:40pm	Julio Moro <i>Directional Perturbation in Structured Eigenproblems</i>
2:40pm	–	3:00pm	Shreemayee Bora <i>Moving Eigenvalues with Structured Perturbations, Crawford Number and ϵ-pseudospectra</i>
3:00pm	–	3:20pm	Achiya Dax <i>The Eckart-Young Theorem and Ky Fan's Maximum Principle: Two Sides of the Same Coin</i>
3:20pm	–	3:40pm	Po-Ru Loh <i>A Numerical Linear Algebra View of the Tao-Vu Smallest Singular Value Limit and the SDO Extension</i>
3:40pm	–	4:00pm	Christopher J. Hillar <i>Spectral Relaxations of Hard Combinatorial Problems</i>

Session B3 – Bay Room

2:00pm	–	2:20pm	Awad H. Al-Mohy <i>An Improved Algorithm for the Matrix Logarithm (cancelled)</i>
2:20pm	–	2:40pm	Mike A. Botchev <i>Residual, Restarting and Richardson Iteration for the Matrix Exponential</i>
2:40pm	–	3:00pm	Anne Greenbaum <i>Bounds on Norms of Functions of Matrices Using the Field of Values</i>
3:00pm	–	3:20pm	Alan Edelman <i>Needle-like Triangles, Matrices and Lewis Carroll</i>
3:20pm	–	3:40pm	Zdeněk Strakoš <i>Matching Moments and Matrix Computations</i>
3:40pm	–	4:00pm	Michael W. Mahoney <i>Fast Approximation of Matrix Coherence</i>

Break (4:00pm – 4:30pm)

Concurrent Sessions C (4:30pm – 5:50pm)

Session C1 – Mountain Room

4:30pm – 4:50pm	Tamara G. Kolda <i>On the Best Symmetric Rank-k Approximation of a Symmetric Tensor</i>
4:50pm – 5:10pm	Stefan Ragnarsson <i>Symmetric Embeddings of Higher-Order Tensors</i>
5:10pm – 5:30pm	Thomas Huckle <i>Computations in Quantum Tensor Networks</i>
5:30pm – 5:50pm	Shmuel Friedland <i>Theoretical and Numerical Results and Problems in Tensors</i>

Session C2 – Lake Room

4:30pm – 4:50pm	Elisabeth Ullmann <i>Iterative Solvers for Stochastic Galerkin Discretizations of the Lognormal Diffusion Problem</i>
4:50pm – 5:10pm	Rüdiger Borsdorf <i>Computing a Nearest Correlation Matrix with Factor Structure</i>
5:10pm – 5:30pm	Ilse Ipsen <i>Numerical Accuracy and Sensitivity of Monte Carlo Matrix Multiplication</i>
5:30pm – 5:50pm	Federico Poloni <i>A Perron Vector-based Iteration for Solving Quadratic Vector Equations</i>

Session C3 – Bay Room

4:30pm – 4:50pm	Bo Kågström <i>Efficient and Reliable Algorithms for Challenging Matrix Computations targeting Multicore Architectures and Massive Parallelism</i>
4:50pm – 5:10pm	Lars Karlsson <i>Parallel Two-Stage Reduction to Hessenberg Form using Shared Memory</i>
5:10pm – 5:30pm	Nicola Mastronardi <i>An Algorithm for Computing and Updating a New Factorization of Large Symmetric Indefinite Matrices</i>
5:30pm – 5:50pm	Jennifer Scott <i>The Robust and Efficient Partial Factorization of Dense Symmetric Indefinite Matrices</i>

Dinner – Garden Deck (6:00pm – 8:00pm)

Poster Session (8:00pm – 10:00pm)

8:00pm – 8:45pm Poster Summaries – Mountain Ballroom

8:45pm – 10:00pm Poster Presentation – Pavilion (with dessert & coffee)

Wednesday, June 15, 2011

Breakfast – Granhall (7:30am – 9:00am)

Plenary Session 6 – Mountain Ballroom (8:30am – 10:00am)

Chair: Alan Edelman

8:30am	–	9:00am	James Demmel <i>Avoiding Communication in Numerical Linear Algebra</i>
9:00am	–	9:30am	Misha E. Kilmer <i>Approximations of Third Order Tensors as Sums of (Non-negative) Low-rank Product-Cyclic Tensors</i>
9:30am	–	10:00am	Melina A. Freitag <i>New Algorithms for Calculating the Distance to Instability and the Distance to a Nearby Defective Matrix</i>

Break (10:00am – 10:30am)

Concurrent Sessions D (10:30am – 12:10pm)

Session D1 – Mountain Room

10:30am	–	10:50am	David Chin-lung Fong <i>LSMR: An Iterative Algorithm for Least-squares Problems</i>
10:50am	–	11:10am	Christopher Maes <i>QPBLUR: A Regularized Active-set Method for Sparse Convex Quadratic Programming</i>
11:10am	–	11:30am	David Titley-Peloquin <i>Projected Residuals and Backward Error Estimates in LSQR</i>
11:30am	–	11:50am	Juan M. Molera <i>Accurate Solution of Structured Linear Systems and Least Square Problems through Rank Revealing Decompositions</i>
11:50am	–	12:10pm	Leslie V. Foster <i>Reliable Calculation of Numerical Rank, Null Space Bases, Basic Solutions and Pseudoinverse Solutions using SuiteSparseQR</i>

Session D2 – Lake Room

10:30am	–	10:50am	Christian Mehl <i>The Canonical Generalized Polar Decomposition</i>
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10:50am	–	11:10am	Yuji Nakatsukasa <i>Optimizing Halley's Iteration for Computing the Matrix Polar Decomposition</i>
11:10am	–	11:30am	David S. Watkins <i>The Next Step in the Never-ending Process of Generalizing Francis's Implicitly-shifted QR Algorithm</i>
11:30am	–	11:50am	Eugene Vecharynski <i>Preconditioned Locally Minimal Residual Method for Computing Interior Eigenpairs of Symmetric Operators</i>

Session D3 – Bay Room

10:30am	–	10:50am	Fernando de Terán <i>Congruence Orbits of Matrices and Palindromic Pencils, and the Solution of the Equation $XA + AX^T = 0$</i>
10:50am	–	11:10am	Niloufer Mackey <i>Möbius Transformations of Matrix Polynomials</i>
11:10am	–	11:30am	Alexander Malyshev <i>Low Displacement Rank Representations for the spectral Factorization of Matrix Polynomials</i>
11:30am	–	11:50am	Bo Zhang <i>A Fourier-Series-Based Kernel-Independent Fast Multipole Method</i>

Lunch – Garden Deck (12:00pm – 1:30pm)

Free Time (1:30pm – 6:00pm)

Pre-Banquet Reception – Garden Deck (6:00pm – 7:00pm)

Banquet – Granhall (7:00pm – 10:00pm)

There will be a banquet speaker.

Thursday, June 16, 2011

Breakfast – Granhall (7:30am – 9:00am)

Plenary Session 7 – Mountain Ballroom (8:30am – 10:00am)

Chair: Paul Van Dooren

8:30am	–	9:00am	Mark Embree <i>The Stability of GMRES Convergence with Applications to Inexact Preconditioning</i>
9:00am	–	9:30am	Howard C. Elman <i>Linear Algebra Problems Arising from Parameter-Dependent Partial Differential Equations</i>
9:30am	–	10:00am	Daniel Kressner <i>Bivariate Matrix Functions</i>

Break (10:00am – 10:30am)

Plenary Session 8 – Mountain Ballroom (10:30am – 12:00pm)

Chair: Andy Wathen

10:30am	–	11:00am	Stephen A. Vavasis <i>Finding Approximately Rank-one Submatrices with the Nuclear Norm and ℓ_1-norm</i>
11:00am	–	11:30am	Inderjit Dhillon <i>Social Network Analysis: Fast and Memory-Efficient Low-Rank Approximation of Massive Graphs</i>
11:30am	–	12:00pm	Oliver G. Ernst <i>Krylov Subspace Methods for Geoelectrical Exploration Problems</i>

Lunch – Garden Deck (12:00pm – 1:30pm)

Concurrent Sessions E (2:00pm – 4:00pm)

Session E1 – Mountain Room

2:00pm	–	2:20pm	Martin B. van Gijzen <i>An Elegant $IDR(s)$ Variant that Efficiently Exploits Bi-orthogonality Properties</i>
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2:20pm	–	2:40pm	Kirk M. Soodhalter <i>The Schur Complement Method for Nearly-Hermitian Linear Systems: An Effective Solver and Preconditioner</i>
2:40pm	–	3:00pm	Xiao-Wen Chang <i>LLL Reduction and Integer Least Squares Problems</i>
3:00pm	–	3:20pm	Suvrit Sra <i>Large-scale Nonnegative Least-Squares</i>
3:20pm	–	3:40pm	Homer F. Walker <i>Anderson Acceleration for Fixed-Point Iterations</i>

Session E2 – Lake Room

2:00pm	–	2:20pm	Karl Meerbergen <i>The Solution of a Two-Parameter Eigenvalue Problem and a Connection with the Implicitly Restarted Arnoldi Method</i>
2:20pm	–	2:40pm	Elias Jarlebring <i>Solving Nonlinear Eigenvalue Problems with a Linear Arnoldi Method in a Function Setting and a Characterization of Associated Invariant Pairs</i>
2:40pm	–	3:00pm	Vu Hoang Linh <i>Spectral Intervals for Differential-algebraic Equations and their Numerical Approximation by QR and SVD Algorithms</i>
3:00pm	–	3:20pm	Agnieszka Miedlar <i>Inexact Adaptive Finite Element Methods for PDE Eigenvalue Problems</i>
3:20pm	–	3:40pm	Wim Michiels <i>Linear and Nonlinear Eigenvalue Problems in the Analysis and Robust Control of Time-delay Systems</i>
3:40pm	–	4:00pm	Chun-Hua Guo <i>On a Nonlinear Matrix Equation Arising in Nano Research</i>

Session E3 – Bay Room

2:00pm	–	2:20pm	Michael L. Overton <i>Fast Algorithms for the Approximation of the Pseudospectral Abcissa and Pseudospectral Radius of a Matrix</i>
2:20pm	–	2:40pm	Mert Gurbuzbalaban <i>A Fast Algorithm for Approximating the Distance to Instability</i>
2:40pm	–	3:00pm	Alastair Spence <i>A New Algorithm for the Computation of the Real Distance to Instability</i>
3:00pm	–	3:20pm	Froilán M. Dopico <i>Structured Perturbation Theory of Diagonally Dominant Matrices and Numerical Applications</i>
3:20pm	–	3:40pm	David F. Gleich <i>Skew-symmetric Matrix Completion for Ranking</i>

Break (4:00pm – 4:30pm)

Concurrent Sessions F (4:30pm – 6:10pm)

Session F1 – Mountain Room

4:30pm	–	4:50pm	Yogi Ahmad Erlangga <i>Multilevel Krylov Method for the Biharmonic Equation</i>
4:50pm	–	5:10pm	Jörg Liesen <i>On the Convergence of GMRES for a Convection-diffusion Model Problem</i>
5:10pm	–	5:30pm	Alison Ramage <i>Iterative Solution of Linear Systems in Liquid Crystal Modelling</i>
5:30pm	–	5:50pm	Kees Vuik <i>Recursively Deflated PCG for mechanical problems</i>
5:50pm	–	6:10pm	Mili Shah <i>Calibrating Robotic Vision Systems</i>

Session F2 – Lake Room

4:30pm	–	4:50pm	Julianne Chung <i>Windowed Spectral Regularization of Inverse Problems</i>
4:50pm	–	5:10pm	Iveta Hnětynková <i>The Golub-Kahan Iterative Bidiagonalization in Regularization of Ill-posed problems and Estimation of the Noise in the Data</i>
5:10pm	–	5:30pm	Marielba Rojas <i>New Methods for Least-Norm Regularization</i>
5:30pm	–	5:50pm	Rosemary Renault <i>Recycling Krylov Subspaces for Efficient Schwarz Algorithms with Extensions to Solve Regularized Least Squares Problems</i>
5:50pm	–	6:10pm	Marco Donatelli <i>Square Smoothing Operators Imposing Accurate Boundary Conditions</i>

Session F3 – Bay Room

4:30pm	–	4:50pm	Grey Ballard <i>Avoiding Communication using Successive Band Reduction</i>
4:50pm	–	5:10pm	Laura Grigori <i>CALU: A Communication Optimal LU Factorization Algorithm</i>

5:10pm	–	5:30pm	Ioana Dumitriu <i>Randomized Algorithms for Communication-Optimal SVD and EIG</i>
5:30pm	–	5:50pm	Oded Schwartz <i>Graph Expansion and Communication Costs of Fast Matrix Multiplication</i>
5:50pm	–	6:10pm	Julien Langou <i>A Critical Path Approach to Analyzing Parallelism of Algorithmic Variants</i>

Dinner – Garden Deck (7:00pm – 9:00pm)

Dance – Granhall (9:00pm – 12:00am)

Friday, June 17, 2011

Breakfast – Granhall (7:30am – 9:00am)

Plenary Session 9 – Mountain Ballroom (9:00am – 10:00am)

Chair: Zdeněk Strakoš

9:00am – 9:30am	David Bindel <i>A Matrix Factorization for Computer Network Tomography</i>
9:30am – 10:00am	Dianne P. O’Leary <i>Euclidean Distance Matrix Completion Problems and Protein Structure Determination</i>

Break (10:00am – 10:30am)

Plenary Session 10 – Mountain Ballroom (10:30am – 12:00pm)

Chair: James Demmel

10:30am – 11:00am	Householder Prize Talk
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Chair: Esmond G. Ng

11:00am – 12:00pm	Forward-Looking Session
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Lunch – Garden Deck (12:00pm – 1:30pm)

List of Posters

1. Ivan Oseledets – *Tensor Train Decomposition and Its Applications*
2. Michael Saunders – *AMRES: The Minimum-Residual Method for Augmented Systems*
3. Alfredo Buttari – *Fine Grained Sparse QR Factorization for Multicore Systems*
4. Berkant Savas – *Multilinear Rank- (r_1, r_2, r_3) Approximation of a Tensor: Optimality Conditions and Perturbation Theory of Local Optima*
5. Pavel Jiránek – *A Posteriori Error Estimates Including Algebraic Error and Stopping Criteria for Iterative Solvers*
6. Karen Braman – *Theoretical Foundations for Computation of Eigendecompositions of Third-Order Tensors*
7. Heike Fassbender – *Numerical Linear Algebra in POD for Model Order Reduction of Steady Aerodynamic Applications*
8. Bruno Iannazzo – *A Subspace Shift Technique for Nonsymmetric Algebraic Riccati Equations*
9. Sabine Van Huffel – *Successful Tensor Decompositions in Clinical Practice*
10. Ichitaro Yamazaki – *A Parallel Hybrid Linear Solver for Large-scale Highly-indefinite Linear Systems of Equations*
11. Shivkumar Chandrasekaran – *Numerical Linear Algebra Issues in the Design of Higher-order Minimum Sobolev Norm Finite Difference Schemes*
12. Chao Yang – *Solving Nonlinear Eigenvalue Problems in Electronic Structure Calculation*
13. Brian D. Sutton – *Stable Computation of the CS Decomposition: Simultaneous Bidiagonalization*
14. Mark Hoemmen – *Fault-tolerant Iterative Methods via Selective Reliability*¹
15. James Nagy – *A Computational Approach for Large Scale Nonlinear Least Squares Problems*
16. Russell Carden – *Ritz Values of Nonsymmetric Matrices and Convergence of the Restarted Arnoldi Method*
17. Stefan Güttel – *Towards Black-Box Rational Krylov Methods for $f(A)b$: Automated Parameter Selection for Markov Functions and Error Estimation*
18. Christian Schröder – *A Jacobi-Davidson Method for Two Real Parameter Nonlinear Eigenvalue Problems arising from Delay Differential Equations*
19. Volker Mehrmann – *Smooth SVD methods for the Computation of Sacker-Sell Spectra*
20. Bart Vandereycken – *Riemannian and multilevel optimization for rank-constrained matrix problems*

¹The title in the program is different from the title in the abstract book.

21. William Kahan – *Refining the General Symmetric Eigenproblem*
22. Ann-Kristin Baum – *Positivity Preserving Discretizations for Differential-Algebraic Systems*
23. Axel Ruhe – *Recent Developments of Rational Krylov Algorithms (withdrawn)*
24. G.W. Stewart – *When Is Twice Enough? (The Oblique Case)*
25. Linda Kaufman – *Modifications of an Algorithm for Factoring Symmetric Banded Indefinite Matrices*
26. Ivan Markovsky – *Nonlinearly Structured Low-Rank Approximation with Application to Algebraic Curve Fitting*
27. Lijing Lin – *A Schur–Padé Algorithm for Fractional Powers of a Matrix*
28. Ming Gu – *Reduced Rank Regression via Convex Optimization*
29. Stefan Johansson – *Stratification of Full Normal Rank Polynomial Matrices*
30. Zlatko Drmač – *Numerical Implementation of the Iterative Rational Krylov Algorithm for Optimal \mathcal{H}_2 Model Reduction*
31. Xiaoye S. Li – *Towards an Optimal Parallel Approximate Sparse Factorization Algorithm Using Hierarchically Semi-separable Structures*
32. David Amsallem – *Interpolation on Matrix Manifolds of Reduced-Order Models and Application to On-Line Aeroelastic Predictions*
33. Jurjen Duintjer Tebbens – *On Arbitrary Convergence Behavior of the Arnoldi Method*
34. Paolo Bientinesi – *A Modular and Systematic Approach to Stability Analysis*
35. Daniel Boley – *Commute Times for a Directed Graph using an Asymmetric Laplacian*
36. Martin Plešinger – *The Total Least Squares Problem with Multiple Right-Hand Sides*
37. Ren-Cang Li – *Accurate Solutions of M -Matrix Algebraic Riccati Equations*
38. Luka Grubišić – *Basic Iterative Algorithms of Numerical Linear Algebra as Building Blocks for Hybrid Adaptive Finite Element Methods*
39. Martin Stoll – *Preconditioning Time-Dependent Optimal Control Problems*
40. Zhaojun Bai – *Progress in Linear and Nonlinear Eigensolvers*
41. Martin H. Gutknecht – *Spectral Deflation in Krylov Solvers*