

Householder Symposium XIX
June 8-13, Spa Belgium



Schedule of the technical program

Sponsors

We gratefully acknowledge financial support from the following sponsors :



<http://www.mathworks.de/academia>



<http://www.nag.co.uk>



<http://sites.uclouvain.be/dysco>



<http://www.fnrs.be>



<http://www.ilasic.org>



<http://www.siam.org>

Lecture room plan

All plenary talks are in room **Pierre le Grand**

The parallel sessions take place in the following three rooms:

Pierre le Grand (room 1) for parallel sessions I-VIa

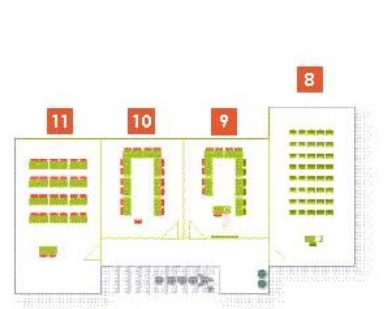
Source de la Reine + Wellington (rooms 2+3) for parallel sessions I-VIb

Groesbeeck (room 5) for parallel sessions I-VIc

The room **Pouhon Pia** (room 4) can be used for informal discussions or practice

The rooms at the second level are available for committee meetings

The conference site has an open **wireless network** named “solcressguest”.



		m ²	↑	↔	↕	🪑
1	Pierre Le Grand + scène	240 33,6	3,45 2,50-2,65	20	12	300
2	Wellington	60	2,75	8,1	7,4	60
3	Source de la Reine	60	2,75	8,1	7,4	60
2 + 3	Source de la Reine et Wellington	120	2,75	16,2	7,4	140
4	Pouhon Pia	60	2,75	8,1	7,4	60
5	Groesbeeck	60	2,75	8,1	7,4	60
8	Berizenne	32	2,6	8,15	4	30
9	Marie-Henriette	24	2,6	6	4	25
10	Le Tonnelet	24	2,6	6	4	25
11	Warfaaz	34	2,6	8,5	4	30

Arriving on Sunday June 8:

- 16:00- Check in to your rooms
If you arrive earlier, you can leave your luggage at the front desk
- 17:00-19:00 Registration desk for the conference material
- 17:30-19:00 Beer-tasting reception at the Bar Spaloumont
- 19:00-21:00 Buffet dinner

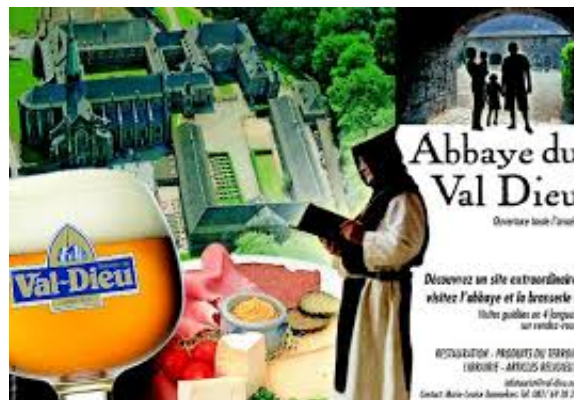
Excursion on Wednesday June 11 :

On Wednesday afternoon, there will be an excursion to the **Abbey of Val-Dieu** (see http://www.abbaye-du-val-dieu.be/1_EN/).

Val-Dieu is a former Cistercian monastery, founded in 1216, in the Land of Herve, located north-east of Liège. The site has been taken over by a small lay community since the last monks left in 2001. Guided tours will be organized in the abbey and its brewery, and we will get to taste some of their beer and cheese.

This excursion is free of charge and all participants are invited to join.

The coaches will be waiting for us in the main parking lot in front of the conference site by 2pm, and they will depart at **2:15pm**. For the return, the coaches are scheduled to depart from Val-Dieu at **5:45pm**. Make sure to reach the coaches well on time.



At Val-Dieu we will be welcomed by four guides. Please take note of your group number according to the alphabetic order of last names:

- Group 1: A–D
- Group 2: E–K
- Group 3: L–R
- Group 4: S–Z

Schedule of the talks and sessions

Monday June 9:

8:45-9:00 Opening Remarks

Chair : Paul Van Dooren

9:00-9:30 Charles Van Loan, Cornell University, USA

Rank-Revealing Decompositions for Matrices with Multiple Symmetries

9:30-10:00 Pierre-Antoine Absil, Université catholique de Louvain, Belgium

Algorithms for the Nearest Correlation Matrix Problem with Factor Structure

10:00-10:30 Coffee Break

10:30-12:10 Parallel Sessions I
(3 streams of 5 talks each)

12:15-14:15 Lunch

Chair : Zdeněk Strakoš

14:30-15:00 Zlatko Drmač, University of Zagreb, Croatia

A new Framework for Polynomial Filtering in Implicitly Restarted Arnoldi type Algorithms

15:00-15:30 Stefan Güttel, University of Manchester, UK

Perfectly Matched Layers via the Iterated Rational Krylov Algorithm

15:30-16:00 Gerard Meurant, Commissariat à l'Énergie Atomique, France

On the Convergence of QOR and QMR Krylov Methods for Solving Linear Systems

16:00-16:30 Coffee Break

16:30-18:50 Parallel Sessions II
(3 streams of 6 or 7 talks)

19:00-21:00 Dinner

Parallel Session Ia (Room 1, Monday 10:30-12:10)

- 10:30 : A.C. Antoulas and A.C. Ioniță
Model Reduction of Nonlinear Systems in the Loewner Framework
- 10:50 : N.K. Nichols, A. El-Said, A.S. Lawless and R.J. Stappers
Conditioning and Preconditioning of the Weakly-Constrained Optimal State Estimation Problem
- 11:10 : Eric de Sturler, Serkan Gugercin, Misha Kilmer, Chris Beattie, Saifon Chaturantabut, and Meghan O'Connell
Model Reduction Techniques for Fast Nonlinear Inversion
- 11:30 : Saifon Chaturantabut, Christopher A. Beattie and Serkan Gugercin
Structure-Preserving Model Reduction for Nonlinear Port-Hamiltonian Systems
- 11:50 : Kirsty Brown, Igor Gejadze and Alison Ramage
Efficient Computation of the Posterior Covariance Matrix in Large-Scale Variational Data Assimilation Problems

Parallel Session Ib (Room 2-3, Monday 10:30-12:10)

- 10:30 : James Demmel
Communication Avoiding Algorithms for Linear Algebra and Beyond
- 10:50 : Grey Ballard, James Demmel, Laura Grigori, Mathias Jacquelin, Hong Diep Nguyen, and Edgar Solomonik
Reconstructing Householder Vectors from Tall-Skinny QR
- 11:10 : Erin Carson and James Demmel
Improving the Maximum Attainable Accuracy of Communication-Avoiding Krylov Subspace Methods
- 11:30 : Pieter Ghysels, Xiaoye S. Li, Artem Napov, François-Henry Rouet and Jianlin Xia
Hierarchically Low-Rank Structured Sparse Factorization with Reduced Communication and Synchronization
- 11:50 : E. Agullo, L. Giraud, P. Salas Medina and M. Zounon
Preliminary Investigations on Recovery-Restart Strategies for Resilient Parallel Numerical Linear Algebra Solvers

Parallel Session Ic (Room 5, Monday 10:30-12:10)

- 10:30 : Marco Donatelli and Martin Hanke
Fast Nonstationary Preconditioned Iterative Methods for Image Deblurring
- 10:50 : Matthias Bolten
Block-smoothing in Multigrid Methods for Circulant and Toeplitz Matrices
- 11:10 : Julianne Chung, Misha Kilmer and Dianne O'Leary
A Framework for Regularization via Operator Approximation
- 11:30 : Iveta Hnětynková, Marie Michenková and Martin Plešinger
Noise Approximation in Discrete Ill-posed Problems
- 11:50 : Jakob Hansen, Michael Horst and Rosemary Renaut
Resolution Arguments for the Estimation of Regularization Parameters in the Solution of Ill-Posed Problems

Parallel Session IIa (Room 1, Monday 16:30-18:30)

- 16:30 : Peter Benner, Heike Faßbender, and Chao Yang
On complex J -symmetric eigenproblems
- 16:50 : Shreemayee Bora and Ravi Srivastava
Distance Problems for Hermitian Matrix Pencils
- 17:10 : Emre Mengi, Emre Alper Yildirim and Mustafa Kilic
Numerical Optimization of Eigenvalues of Hermitian Matrix-Valued Functions
- 17:30 : Daniela Calvetti, Lothar Reichel and Hongguo Xu
A CS Decomposition Method for Eigenvalues of Orthogonal Matrices
- 17:50 : Frederico Poloni and Christian Schröder
Computing the Nearest Pencil $A - \lambda A^T$ without Unimodular Eigenvalues
- 18:10 : Cleve Moler
Resurrecting the Symmetric Generalized Matrix Eigenvalue Problem

Parallel Session IIb (Room 2-3, Monday 16:30-18:30)

- 16:30 : Michael W. Mahoney
Recent Results in Randomized Numerical Linear Algebra
- 16:50 : Petros Drineas and Abhisek Kundu
Identifying Influential Entries in a Matrix
- 17:10 : Ilse Ipsen
Randomized Algorithms for Numerical Linear Algebra
- 17:30 : Haim Avron, Michael Mahoney, Vikas Sindhwani and Jiyan Yang
Randomized and Quasi-Randomized Algorithms for Low-Rank Approximation of Gram Matrices
- 17:50 : Christos Boutsidis and David Woodruff
Optimal CUR Matrix Decompositions
- 18:10 : Josef Sifuentes, Zydrunas Gimbutas and Leslie Greengard
Randomized Methods for Computing Null Spaces, with Applications to Rank-deficient Linear Systems

Parallel Session IIc (Room 5, Monday 16:30-18:50)

- 16:30 : Jared Aurentz, Thomas Mach, Raf Vandebril and David S. Watkins
Fast, Stable, Computation of the Eigenvalues of Unitary-plus-rank-one Matrices
- 16:50 : Claude-Pierre Jeannerod and Siegfried M. Rump
Wilkinson-Type Error Bounds Revisited
- 17:10 : Beresford N. Parlett
The Fiedler Companion Matrix
- 17:30 : Chris Paige, Ivo Panayotov, Wolfgang Wüiling and Jens-Peter Zemke
Augmented Error Analyses of Vector Orthogonalization and Related Algorithms
- 17:50 : Jiří Kopal, Jennifer Scott, Miroslav Tůma and Miroslav Rozložník
Enhancing Incomplete Cholesky Decompositions
- 18:10 : Jeff Bezanson, Alan Edelman, Stefan Karpinski, Viral Shah and the greater community
Julia: A Fresh Approach to Technical Computing
- 18:30 : Paolo Bientinesi, Diego Fabregat and Yurii Aulchenko
Can Numerical Linear Algebra make it in Nature?

Tuesday June 10:

- Chair : Valeria Simoncini
- 8:30-9:00 Michele Benzi, Emory University, USA
Numerical Analysis of Quantum Graphs
- 9:00-9:30 Daniel Kressner, Ecole Polytech. Fed. Lausanne, Switzerland
On the Convergence of the Residual Inverse Iteration for Nonlinear Eigenvalue Problems
- 9:30-10:00 Inderjit Dhillon, University of Texas Austin, USA
Parallel Asynchronous Matrix Factorization for Large-Scale Data Analysis
- 10:00-10:30 Coffee Break
- 10:30-12:10 Parallel Sessions III
(3 streams of 5 talks each)
- 12:15-14:15 Lunch
- Chair : Pierre-Antoine Absil
- 14:30-15:00 Melina Freitag, Bath University, UK
New Algorithms for Calculating the H_∞ -norm and the Real Stability Radius
- 15:00-15:30 Per-Christian Hansen, Technical University Denmark Lingby, Denmark
Rotational Image Deblurring with Sparse Matrices
- 15:30-16:00 Yuji Nakatsukasa, University of Tokyo, Japan
Zolotarev's High-Order Rational Approximation
- 16:00-16:30 Coffee Break
- 16:30-18:30 Parallel Sessions IV
(3 streams of 6 talks each)
- 19:00-21:00 Dinner
- 21:00-22:30 Poster session 1 (16 posters)

Parallel Session IIIa (Room 1, Tuesday 10:30-12:10)

- 10:30 : Nicola Mastronardi and Paul Van Dooren
The Anti-Triangular Factorization of Symmetric Matrices
- 10:50 : Nicola Mastronardi, Paul Van Dooren and Raf Vandebril
On Solving KKT Linear Systems arising in Model Predictive Control via Recursive Anti-Triangular Factorization
- 11:10 : Jen Pestana and Andy Wathen
Antitriangular Factorization for Saddle Point Matrices and the Null Space Method
- 11:30 : Daniel Ruiz, Annick Sartenaer and Charlotte Tannier
Using Partial Spectral Information for Block Diagonal Preconditioning of Saddle-Point Systems
- 11:50 : Miro Rozložník, Felicja Okulicka-Dłużewska and Alicja Smoktunowicz
Numerical Behavior of Indefinite Orthogonalization

Parallel Session IIIb (Room 2-3, Tuesday 10:30-12:10)

- 10:30 : B. Kågström
Stratification of some Structured Matrix Pencil Problems: how Canonical Forms Change under Perturbations
- 10:50 : Andrii Dmytryshyn, Stefan Johansson and Bo Kågström
Changes of Canonical Structure Information of Matrix Pencils associated with Generalized State-space Systems
- 11:10 : Fernando De Terán and Françoise Tisseur
Backward Error and Conditioning of Fiedler Companion Linearizations
- 11:30 : Froilán M. Dopico, Yuji Nakatsukasa and Vanni Noferini
New Properties of Vector Spaces of (Quasi) Linearizations
- 11:50 : D. Steven Mackey, F. De Terán, F. Dopico, Vasilije Perović and Françoise Tisseur
Quasi-Canonical Forms for Quadratic Matrix Polynomials

Parallel Session IIIc (Room 5, Tuesday 10:30-12:10)

- 10:30 : Peter Benner and Ludwig Kohaupt
The Riccati Eigenproblem
- 10:50 : Chun-Hua Guo, Changli Liu and Jungong Xue
Performance Enhancement of Doubling Algorithms for a Class of Complex Nonsymmetric Algebraic Riccati Equations
- 11:10 : Luka Grubišić and Daniel Kressner
Rapid Convergence for Finite Rank Approximations of Infinite-dimensional Lyapunov Equations
- 11:30 : Nguyen Thanh Son and Tatjana Stykel
Reduced Basis Method for Parameterized Lyapunov Equations
- 11:50 : Meiyue Shao
The Finite Section Method for Computing Exponentials of Doubly-Infinite Skew-Hermitian Matrices

Parallel Session IVa (Room 1, Tuesday 16:30-18:30)

16:30 : Laurent Sorber, Mikael Sorensen, Marc Van Barel and Lieven De Lathauwer
Coupled Matrix/Tensor Decompositions: an Introduction

16:50 : Karl Meerbergen
Tensor Padé Krylov Methods for Parametric Model Order Reduction

17:10 : Edgar Solomonik, Devin Matthews and James Demmel
Fast Algorithms for Symmetric Tensor Contractions

17:30 : André Uschmajew
Convergence of Optimization Schemes on Sets of Low-rank Matrices and Tensors

17:50 : Laurent Sorber, Marc Van Barel and Lieven De Lathauwer
Structured Data Fusion with Tensorlab

18:10 : Weiyang Ding, Yimin Wei and Liqun Qi
Fast Hankel Tensor-Vector Products and Application to Exponential Data Fitting

Parallel Session IVb (Room 2-3, Tuesday 16:30-18:30)

16:30 : Iain Duff and Mario Arioli
The Solution of Least-Squares Problems using Preconditioned LSQR

16:50 : Edmond Chow and Yousef Saad
Preconditioned Methods for Sampling Multivariate Gaussian Distributions

17:10 : Melina Freitag and Patrick Kürschner
Preconditioning for Inexact Inner-Outer Methods for the Two-sided, Non-Hermitian Eigenvalue Problem

17:30 : Kirk M. Soodhalter
Minimum Residual Methods for Shifted Linear Systems with General Preconditioning

17:50 : Pieter Ghysels, Wim Vanroose and Karl Meerbergen
High Performance Implementation of Deflated Preconditioned Conjugate Gradients with Approximate Eigenvectors

18:10 : Laura Grigori, Remi Lacroix, Frederic Nataf, and Long Qu
Direction Preserving Algebraic Preconditioners

Parallel Session IVc (Room 5, Tuesday 16:30-18:30)

16:30 : Mario Arioli and Daniel Loghin
A Spectral Analysis of a Discrete two-domain Steklov-Poincaré Operator

16:50 : Stefano Giani, Luka Grubisić, Agnieszka Miedlar and Jeffrey S. Owall
A Posteriori Error Estimates for hp-Adaptive Approximations of Non-selfadjoint PDE Eigenvalue Problems

17:10 : John W. Pearson, Martin Stoll and Andrew J. Wathen
The Development of Preconditioned Iterative Solvers for PDE-Constrained Optimization Problems

17:30 : Martin J. Gander
50 Years of Time Parallel Time Integration

17:50 : Krystyna Ziętak
The Dual Padé Family of Iterations for the Matrix p -Sector Function and one topic more on a Specific Procrustes Problem

18:10 : Panayot S. Vassilevski
Assigning Weights to Graph Edges for Community Detection

Poster Session 1 (Tuesday 21:00-22:30)

GMRES Convergence Bounds that Depend on the Right-Hand Side Vector

David Titley-Peloquin, Jennifer Pestana and Andrew Wathen

Fast Generation of Random Orthogonal Matrices

Nicholas J. Higham, Amal Khabou and Françoise Tisseur

Triplet Representations for Solving Matrix Equations in Queuing Theory

Giang T. Nguyen and Federico Poloni

Arnoldi-Tikhonov Methods for Sparse Reconstruction

Silvia Gazzola, James Nagy and Paolo Novati

Global Convergence of the Restarted Lanczos Method and Jacobi-Davidson Method for Symmetric Eigenvalue Problems

Kensuke Aishima

An Efficient Estimator of the Condition Number of the Matrix Exponential

Awad H. Al-Mohy

Numerical Methods for Computing the H_∞ -Norm of Large-Scale Descriptor Systems

Peter Benner, Ryan Lowe and Matthias Voigt

Error Bounds and Aggressive Early Deflation for Extended QR Algorithms

Thomas Mach, Raf Vandebril and David Watkins

Convergence of Restarted Krylov Subspace Methods for Matrix Functions

Andreas Frommer, Stefan Güttel and Marcel Schweitzer

Stable Discrete Empirical Interpolation Method based Quadrature Schemes for Nonlinear Model Reduction

Russell L. Carden and Danny C. Sorensen

The Two Sided Arnoldi Algorithm

Axel Ruhe

A Schur Logarithmic Algorithm for Fractional Powers of Matrices

Bruno Iannazzo and Carlo Manasse

Preconditioning Linear Systems arising in Constrained Optimization Problems

Tyrone Rees

The Geometric Matrix Mean: an Adaptation for Structured Matrices Dario A. Bini, Bruno Iannazzo,

Ben Jeuris and Raf Vandebril

Two Methods for Computing the Matrix Sign Function

Jie Chen and Edmond Chow

The Quest for a General Functional Tensor Framework for Blind Source Separation in Biomedical Data Processing

Sabine Van Huffel

Wednesday June 11:

- Chair : Heike Faßbender
- 8:30-9:00 Françoise Tisseur, University of Manchester, UK
Exploiting Tropical Algebra in Numerical Linear Algebra
- 9:00-9:30 Howard Elman, University of Maryland College Park, USA
Efficient Solution of Stochastic Partial Differential Equations
- 9:30-10:00 Chen Greif, University of British Columbia, Canada
Numerical Solution of Indefinite Linear Systems Arising from Interior-Point Methods
- 10:00-10:30 Coffee Break
- Chair : Jim Nagy
- 10:30-11:00 Misha Kilmer, Tufts University, USA
Model Correction using a Nuclear Norm Constraint
- 11:00-11:30 Jörg Liesen, Technische Universität Berlin, Germany
Matrix Iterations and Ptaks Method of Nondiscrete Induction
- 11:30-12:00 Stephen Vavasis, University of Waterloo, Canada
On the Relationship Between Nesterov's Optimal Convex Optimization Algorithm and Conjugate Gradient
- 12:15-14:15 Lunch
- 14:15-18:30 Excursion
- 18:45-19:00 Conference picture
- 19:00-22:00 Banquet (banquet speech by Nick Higham)

Thursday June 12:

- Chair : Jim Demmel
- 8:30-9:00 Bart Vandereycken, Princeton University, USA
Robust Integrators for the Dynamical Low-Rank Approximation using Rank-Structured Tensors
- 9:00-9:30 David Bindel, Cornell University, USA
Music of the Microspheres: from Eigenvalues Perturbations to Gyroscopes
- 9:30-10:00 Martin Stoll, Max Planck Institute Magdeburg, Germany
Fast Iterative Solvers for Fractional Differential Equations
- 10:00-10:30 Coffee Break
- Chair : Volker Mehrmann
- 10:30-11:00 Householder Prize Talk
- 11:10-12:10 Parallel session V (3 streams of 3 talks each)
- 12:15-14:15 Lunch
- 14:30-16:10 Parallel session VI (3 streams of 5 talks each)
- 16:10-16:40 Coffee Break
- 16:40-18:10 Poster session 2 (16 posters)
- 19:00-21:00 Dinner
- 22:00-24:00 Dance

Parallel Session Va (Room 1, Thursday 11:10-12:10)

11:10 : Martin H. Gutknecht

Is There a Market for Modified Moments?

11:30 : Gérard Meurant and Petr Tichý

A new Algorithm for Computing Quadrature-based Bounds in CG

11:50 : Carl Jagels, Miroslav Pranić and Lothar Reichel

Rational Orthogonal Functions and Rational Gauss Quadrature with Applications in Linear Algebra

Parallel Session Vb (Room 2-3, Thursday 11:10-12:10)

11:10 : Andrew Knyazev

Numerical Linear Algebra and Matrix Theory in Action

11:30 : Lijing Lin, Nicholas J. Higham and Jianxin Pan

Covariance Structure Regularization via Entropy Loss Function

11:50 : Nicolas Boumal and P.-A. Absil

Preconditioning for Low-Rank Matrix Completion via Trust-Regions over one Grassmannian

Parallel Session Vc (Room 5, Thursday 11:10-12:10)

11:10 : D.C. Sorensen and M. Embree

A DEIM Induced CUR factorization

11:30 : Michiel Hochstenbach and Ian N. Zwaan

Field of Values type Eigenvalue Inclusion Regions for Large Matrices

11:50 : Volker Mehrmann, Sarosh Quraishi and Christian Schröder

Numerical Solution of Large Scale Parametric Eigenvalue Problems arising in the Analysis of Brake Squeal

Parallel Session VIa (Room 1, Thursday 14:30-16:10)

- 14:30 : Esmond G. Ng and Barry W. Peyton
Revisiting Greedy Ordering Heuristics for Sparse Matrix Factorizations
- 14:50 : Jennifer Scott and Miroslav Tůma
Memory-Efficient Incomplete Factorizations for Sparse Symmetric Systems
- 15:10 : Iveta Hnětynková, Martin Plešinger and Diana M. Sima
The Core Problem within a Linear Approximation Problem with Multiple Right-Hand Sides
- 15:30 : Andrej Muhič and Bor Plestenjak
Computing all Values λ such that $A + \lambda B$ has a Multiple Eigenvalue
- 15:50 : Nicolas Gillis and Stephen A. Vavasis
Semidefinite Programming Based Preconditioning for More Robust Near-Separable Nonnegative Matrix Factorization

Parallel Session VIb (Room 2-3, Thursday 14:30-16:10)

- 14:30 : Nicola Guglielmi, Michael L. Overton and G. W. Stewart
An Efficient Algorithm for Computing the Generalized Null Space Decomposition
- 14:50 : Jesse L. Barlow
Block Gram-Schmidt Downtdating
- 15:10 : Edvin Deadman and Nicholas J Higham
Testing Matrix Functions Using Identities
- 15:30 : Daniel B. Szyld
Classical Iterative Methods for the Solution of Generalized Matrix Equations
- 15:50 : Roel Van Beeumen, Karl Meerbergen and Wim Michiels
Compact Rational Krylov Methods for the Nonlinear Eigenvalue Problem

Parallel Session VIc (Room 5, Thursday 14:30-16:10)

- 14:30 : Yogi A. Erlangga and Reinhard Nabben
Multilevel Krylov Methods
- 14:50 : Ron Morgan
A Multigrid Arnoldi Method for Eigenvalues
- 15:10 : Jurjen Duintjer Tebbens and Gérard Meurant
On the Convergence Curves that can be generated by Restarted GMRES
- 15:30 : Christian Schröder and Leo Taslaman
Why does Shift-and-Invert Arnoldi work?
- 15:50 : Elias Jarlebring and Olof Runborg
The Infinite Arnoldi Method for the Waveguide Eigenvalue Problem

Poster Session 2 (Thursday 16:40-18:10)

Structured Low-Rank Approximation with Missing Data

Ivan Markovsky and Konstantin Usevich

Improved Divide-and-Conquer Algorithms for the Eigenvalue and Singular Value Problems

Shengguo Li, Ming Gu, Lizhi Cheng and Xuebin Chi

Computing the Rank and Nullspace of Rectangular Sparse Matrices

Nick Henderson, Ding Ma, Michael Saunders and Yuekai Sun

Computing Linear Combinations of φ Functions

Antti Koskela and Alexander Ostermann

Hierarchical Preconditioners for Higher Order FEM

Sabine Le Borne

A Numerical Linear Algebraic Approach to Compact Multi-Frame Blind Deconvolution

James G. Nagy, Stuart Jefferies and Helen Schomburg

The Sylvester Equation and Interpolatory Model Reduction of Linear/Bilinear Dynamical Systems

Serkan Gugercin and Garret Flagg

Extensions of the Symmetric Tridiagonal Matrix Arising from a Finite Precision Lanczos Computation

Anne Greenbaum

On the Sensitivity of Matrix Functions to Random Noise

Serge Gratton, David Tittley-Peloquin, Philippe Toint and Jean Tshimanga Ilunga

Computing the Exponential of a Large Block Triangular Block Toeplitz Matrix

D.A. Bini, S. Dendievel, G. Latouche and B. Meini

Matrix Functions and Their Krylov Approximations for Large Scale Wave Propagation in Unbounded Domains

Vladimir Druskin, Alexander Mamonov, Rob Remis and Mikhail Zaslavsky

Variational Principles and Scalable Solvers for the Linear Response Eigenvalue Problem

Zhaojun Bai, Ren-Cang Li, Dario Rocca and Giulia Galli

Computing Fréchet Derivatives in Partial Least Squares Regression

Lars Eldén

Hierarchical QR Factorization Algorithms for Multi-Core Cluster Systems

Julien Langou

The Hyperbolic Quadratic Eigenvalue Problem

Ren-Cang Li and Xin Liang

From PDEs through Functional Analysis to Iterative Methods, or there and back again

Josef Máleka and Zdeněk Strakoš

Friday June 13:

Chair : Andy Wathen

- 8:30-9:00 Froilán Dopico, Universidad Carlos III Madrid, Spain
The Inverse Complex Eigenvector Problem for Real Tridiagonal Matrices
- 9:00-9:30 Christopher Beattie, Virginia Tech, USA
Diffusion Models for Covariance Estimation
- 9:30-10:00 Mark Embree, Rice University Houston, USA
The Life Cycle of an Eigenvalue Problem
- 10:00-10:30 Coffee Break
- Chair : Ilse Ipsen
- 10:30-11:00 Christian Mehl, Technische Universitaet Berlin, Germany
Generic Rank-One Perturbations: Structure Defeats Sensitivity
- 11:00-11:30 Michael Overton, New York University, USA
Investigation of Crouzeix's Conjecture via Optimization
- 11:30-12:00 Nicholas Higham, University of Manchester, UK
How and Why to Estimate Condition Numbers for Matrix Functions
- 12:15-14:15 Lunch