



21st BIENNIAL CONFERENCE ON NUMERICAL ANALYSIS
UNIVERSITY OF DUNDEE, SCOTLAND, UK
 Tuesday 28th June - Friday 1st July, 2005

Timetable

Click here for [List of Participants](#).

Lecture Rooms

These are all located in West Park Conference Center.

- CC: Main Auditorium in the Conference Centre
- Longf'n: Longforgan Room
- Kils'die: Kilspindie Room
- Kinnaird Room

If you email your files for dataprojection (to conferences@westparkcentre.net), please tell them which room you will be using.

Monday, 27 June

[Leslie Fox Prize Meeting](#). (The timetable is now available)

Talks will be given in the Main Auditorium of West Park Conference Center.

Last update Monday, 20 June, 14:30

Tuesday 28 June

Chair: CC: *GA Watson* Longf'n: *G Opfer* Kils'die: *DB Duncan* Kinnaird: *G v'n Berghe*

8:50-8:55 **Opening Remarks**

8:55-9:50

Ten Digit Algorithms
N Trefethen

9:50-10:35

Arnoldi-type algorithms for
 computing stationary distributions
G Golub

10:40-11:00 Page Ranking by Balancing
P Knight

Computing the Gamma function
 using contour integrals and rational
 approximations.
T Schmelzer

A finite volume spatial discretization
 for PDEs with axisymmetry
A Gerisch

An efficient code based on the two-
 stage Gauss method for second order
 problems
S Gonzalez-Pinto

11:30-11:50

Reducing the Bandwidths and

Fast Runge-Kutta approximation of

Pseudospectral Solution of the

The numerical solution of Sturm-

	Profiles of a Sparse Unsymmetric Matrix J Reid	inhomogeneous parabolic differential equations C Palencia	Periodic Flow on a Rotating Elliptical Cylinder R Hunt	Liouville and Schrödinger problems using... V Ledoux
11:55-12:15	On Solving Large Sparse Linear Systems Out of Core J Scott	A Comparison of Integration Contours for the Numerical Inversion of the Laplace... A Weideman	Boundary and corner reflections due to high order semi-discretizations of... M Parsaei	Analysis and numerical approximation of singular boundary value P Lima
12:20-12:40	An Adaptation of BiCGStab for Nonlinear Systems. P Graves-Morris	A spectral order method for inverting sectorial Laplace transforms M Lopez-Fernandez	Insights on inflow boundary conditions and high order methods E Sousa	Two classes of new hybrid multistep Runge-Kutta methods for stiff problems P Onumanyi
Chair:	CC: <i>KW Morton</i>	Longf'n: <i>NIM Gould</i>	Kils'die: <i>NJ Higham</i>	Kinnaird: <i>JJH Miller</i>
2:00-2:45	On Convergence of Adaptive Finite Element Methods. C Carstensen			
2:50-3:10	A Posteriori Error Estimation for Discontinuous Galerkin FEM M Ainsworth	A sparse implementation of Lawson and Hanson's convex NNLS method P Guerrero-Garcia	Computing determinants with BiCG, QMR, BiCGSTAB and related methods B Garcia-Archilla	On a parameter-uniform iterative scheme for a system of singularly-perturbed... N Madden
3:15-3:35	Flux Limiting for Diffusion Discretizations W Hundsdoerfer	Preconditioning Indefinite Systems in Interior Point Methods for Large Scale... G Aljeiroudi	Hamilton meets Newton G Opfer	An adaptive mesh method for a singularly perturbed convection-diffusion problem S Sikwila
TEA				
4:00-4:45	Experiences with Large Scale Parallel Numerical Simulation U Rüde			
4:50-5:10	Multi-Domain Hybrid Spectral-WENO Method for Non-Linear Conservation Laws R Sendersky	Computing Helmholtz transformations A Watson	Padé error estimates for the logarithm of block triangular matrices J Cardoso	Pointwise bounds on derivatives of solutions of elliptic convection-diffusion... M Stynes
5:15-5:35	High order accurate multistage Fluctuation Splitting schemes for unsteady convection... N Mebrate	Optimization in Medical Imaging A Mills	Numerical Linear Algebra for Continuous Functions and Operators Z Battles	Approximation of boundary-layer solutions in a 2d singularly perturbed nonlinear... N Kopteva
5:40-6:00	A multiresolution viscosity finite element method for conservation laws M Calhoun-Lopez	Optimization of large-scale dynamic systems in a reduced multiple shooting... E Luna-Ortiz	A continuation of singular values of a parameter-dependent matrix D Janovská	Anisotropic meshes and streamline-diffusion stabilization T Linss

Wednesday 29 June

Chair: CC: *MJD Powell* Longf'n: *P Jimack* Kils'die: *C Palencia*

9:00-9:45

The Return of the Filter
S Leyffer

9:50-10:10
 Sparse Nonnegative Solutions of Underdetermined Linear Equations by Linear...
J Tanner

Moving mesh finite elements for moving boundary problems
M Hubbard

Incorporation of a Gauss-Legendre multistep into a classical explicit Runge-Kutta...
J Prentice

10:15-10:35	How to solve QPs with 10^9 variables A Grothey	Stability Analysis of a Model Parabolic PDE in One Dimension Using a Moving... J Mackenzie	Order reduction and how to avoid it when implicit Runge-Kutta-Nyström methods... M J Moreta
10:40-11:00	Finding a well-centred point for a set of polyhedral constraints N Gould	An adaptive moving mesh method with local mesh refinement for one- dimensional... W Mekwi	The nonlinear stability of embedded Runge-Kutta pairs H Lamba
11:30-11:50	A New Look at Newton's Method R Fletcher	A three-time level implicit scheme for the numerical solution of the undamped... A Bratsos	On the contractivity of the matrices related to general linear methods. D Hernández-Abreu
11:55-12:40	Constrained global optimization A Neumaier		
Chair:	CC: <i>J Lyness</i>	Longfn: <i>IS Duff</i>	Kils'die: <i>R Fletcher</i>
2:00-2:45	Boundary element methods on degenerate meshes I Graham		
2:50-3:10	Numerical approximations of time domain electromagnetic scattering D Duncan	Preconditioning saddle-point problems A Wathen	Efficient Fitting of Scattered Data by a Two-Stage Method O Davydov
3:15-3:35	Higher order collocation schemes for time dependent boundary integral equations P Davies	Implicit-Factorization Constraint Preconditioners for Saddle-Point Problems S Dollar	Powell-Sabin splines with boundary conditions H Speleers
TEA			
4:00-4:20	Crowding revisited via a stable computation of Schwarz-Christoffel maps L Banjai	Stopping criteria for Krylov methods applied to the solution of mixed finite-element... M Arioli	On convergence rates of linesearch algorithms for unconstrained optimization C Cartis
4:25-4:45	Numerical methods for a nonlinear integral equation of Lighthill T Diogo	Preconditioners for mixed finite element discretization of the time- harmonic... C Greif	Computational experience with search directions in Interior Point Methods for... M Colombo
4:50-5:10	Use of dense curves in multiple oscillatory quadrature G Evans	Symmetric Weighted Matching Strategies for Preconditioning of Saddle Point... M Hagemann	Multilevel algorithms for solving nonsmooth optimisation problems from image... K Chen
5:15-5:35	A multi-resolution view on sequences of lattice rules for multi- variate integration D Nuyens	Element displacement preconditioners for linear elasticity and elastoplasticity J Staudacher	Multigrid Methods for Image Denoising. J Savage
20:00-21:00	Numerical Analysis in the UK, 1952-2005 KW Morton		

Thursday 30 June

Chair: CC: *P Graves-Morris*Longfn: *W Hundsdr*Kils'die: *R Hunt*

9:00-9:45

On multiquadric interpolation in
one dimension**M Powell**

9:50-10:10

Fourier and barycentric formulae for
equidistant Hermite trigonometric
interpolation**J Berrut**The effect of memory terms on the
behaviour of diffusion phenomena**A Araujo**Analysis of the linear elasticity
problem in conical domains and the
associated...**C Pester**

10:15-10:35

Barycentric rational interpolation
with optimized poles**R Baltensperger**A new method for the numerical
solution of the sideways heat
equation**J M Marban**The approximation theory of
eigenvalue problems on polygons**T Betcke**

10:40-11:00

A rational Chebyshev collocation
method with poles computed from
Chebyshev-Pade...**W Tee**A wavelet method to solve the heat
equation**F Z Nouri**Numerical simulation of quantum
dots with axial symmetry**M Markiewicz**

11:30-11:50

A Minimum Norm Approach for
Low-Rank Approximations of a
Matrix**A Dax**On the rate of convergence of cell-
centered schemes**S Barbeiro**Stability computations for travelling
waves using the Evans function**J Niesen**

11:55-12:40

Convergence and Stability of
Iterations for Matrix Functions**N Higham**

Chair:

CC: *M Stynes*Longfn: *JK Reid*Kils'die: *A Weideman*

2:00-2:45

 $W^{1,p}$ estimates for the Stokes and
Navier-Stokes equations**V Girault**

2:50-3:10

Linear Algebra Issues Associated
with the Stochastic Finite Element
Method**H Elman**Condition numbers of roots of
polynomials using high order Taylor
series**J Winkler**Exponentially fitted one-step
methods based on continued
fractions**S Abelman**

3:15-3:35

A finite element method for two
factor convertible bonds**J de Frutos**Towards a stable static pivoting
strategy for symmetric indefinite
systems**S Pralet**Exponentially-fitted Störmer-Verlet
method**G Vanden Berghe**

TEA

4:00-4:45

On the Entropy Stability of
Difference Approximations for
Quasilinear Problems**E Tadmor**

4:50-5:10

An Adaptive Multigrid Algorithm for
Nonlinear Elliptic and Parabolic
Problems**P Jimack**Jacobi-Davidson-like Methods for
Nonlinear Eigenvalue Problems**H Schwetlick**Symbolic Derivation of Order
Conditions for ODE solvers**I Famelis**

5:15-5:35

A posteriori error estimates for fully
discrete non linear parabolic
problemsA New Preconditioned Conjugate
Gradient Scheme for Hermitian
Eigenvalue ProblemsFast and oblivious convolution
quadrature

J Novo**E Ovtchinnikov****A Schädle**

5:40-6:00 Residual based a posteriori error estimators for a mixed finite element discretisation...

C Powell

A tuned preconditioner for inexact inverse iteration applied to Hermitian eigenvalue...

M Freitag

An experimental modification of spectral methods for solving ODEs with singularity

M Saravi

Friday 1 July

Chair: CC: *A Spence*Longfn: *AJ Wathen*Kils'die: *DF Griffiths*

9:00-9:45

High Frequency Boundary
Element Methods

S Chandler-Wilde

9:50-10:10

Inexact Inverse Iteration

J Berns-Mueller

Coarse Grid Operators for Two-Level Additive Schwarz

R Scheichl

Analysis of defect correction on composite finite element meshes

A Chibi

10:15-10:35

Inexact Inverse Subspace Iteration to Exploit Partial Spectral Information...

C Balsa

Schwarz Preconditioners for Strongly Heterogeneous Media

P LechnerA robust numerical method for the k - ε turbulence model**S Mandica**

10:40-11:00

Chebyshev Polynomial preconditioners as a spectral filtering tool for the Conjugate...

A Touhami

Stability of a Pressure Projection Stabilized Finite Element Discretisation...

N Watson

A High Order Discontinuous Galerkin Method for Elastohydrodynamic Lubrication...

H Lu

11:30-11:50

Data analysis and visualisation for robust multi-criteria process optimisation

E Fraga

Algebraic multigrid and the convection diffusion problem

J Boyle

Efficient Solvers for Large-Scale Contact Problems

A Mihai

11:55-12:15

Fitting parametric curves and surfaces by ℓ_1 distance regression**I Al-Subaihi**

Singularly perturbed convection-diffusion problems with non-differentiable...

D Branley

12:20-12:40

Matrix Computations in Bioinformatics

D Higham

Adaptive Discontinuous Galerkin Methods for Advection-Diffusion Problems

E Hall

END OF CONFERENCE

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On 20 Jun 2005, 14:17.

Maintained by *David F Griffiths*
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