ICCAM 2010: Programme Schedule (June 29 version)

Registration for the conference will be open at the conference site, room 00.10, in the Naamsestraat 69, Leuven, on Monday, July 5, from 9 am to 5 pm. From Tuesday till Friday, the registration desk will be staffed from 8.30 am to 9 am, from 1.30 pm to 2 pm and during coffee break hours.

Monday, July 5

Plenary Session

Room 02.28: chair S. Vandewalle
10.45 – 11.00 Opening remarks
11.00 – 12.00 Ian Sloan
Lifting the curse of dimensionality - numerical integration in very high dimensions

Plenary Session

Room 02.28: chair M. Van Daele
14.00 – 15.00 Craig Douglas
Algebraic multigrid on GP-GPU clusters

Session 1

Room 02.28: chair R. Vandebril
15.30 – 16.00 Karl Meerbergen, A. Spence, R. Vandebril
The solution of a class of two-parameter eigenvalue problems and a connection with the implicitly restarted Arnoldi method
16.00 – 16.30 Kensuke Aishima, T. Matsuo, K. Murota, M. Sugihara
Global convergence of Wilkinson-like multishift QR algorithm for symmetric eigenvalue problems
16.30 – 17.00 Andrey Chesnokov, M. Van Barel, N. Mastronardi
Homotopy algorithm for symmetric diagonal-plus-semiseparable eigenvalue problems
17.00 – 17.30 Jeroen De Vlieger, K. Meerbergen
On properties and calculation of the largest/smallest eigenvalue of uncertain generalized eigenvalue problems

Room 00.85: chair J. Vanbiervliet
15.30 – 16.00 Carmen Galé, H.I. Calvete
Bilevel linear programming with interval coefficients
16.00 – 16.30 Mohamed El Ghami, Z.A. Guennoun, S. Bouali, T. Steihaug
Interior-point methods for linear optimization based on a kernel function with trigonometric barrier term
16.30 – 17.00 Csaba Meszaros
Regularization techniques in interior point methods and their use in nonconvex optimization
17.00 – 17.30 Jan Van lent, C. J. Budd
Exploiting solution sparsity in the linear programming formulation of the Monge-Kantorovich optimal transport problem

Room 01.85: chair W. Vanroose
15.30 – 16.00 Nico Schlémer, W. Vanroose, D. Avitabile
Numerical continuation and symmetry breaking in the Ginzburg–Landau equations
16.00 – 16.30 Andrei Bourchei, L. Bourchei
Explicit finite difference schemes with extended stability for advection equations
16.30 – 17.00 J.H.M. ten Thije Boonkkamp, M.E. Hochstenbach
A coupled discretisation scheme for advection-diffusion-reaction systems
17.00 – 17.30 Do Wan Kim, S. Jun
Axial Green’s function formulation for incompressible Navier-Stokes flow
Room 00.74: chair P. Miana
15.30 – 16.00 Pedro J. Miana, N. Romero
Poincaré like inequalities for fractional powers of infinitesimal generators
16.00 – 16.30 Cristina Popirlan
(CQ) algorithm - analysis and implementation
16.30 – 17.00 Mohammad Masjed-Jamei
Exact solutions of a class of first order linear functional differential equations
17.00 – 17.30 Iurie Nicolae Caraus, C. Barbarosie
Finelib: a C++ library for the finite element method

Social programme
18.00 – 19.00 Welcome Reception in the City Hall Leuven (Wandelzaal)

Tuesday, July 6

Plenary Session
Room 02.28: chair M. Van Daele
9.00 – 10.00 Francesco Mazzia
Fifty years of stiffness

Session 1
Room 02.28: chair R. Lamour
10.30 – 11.00 Anna Mozartova, W. Hundsdorfer, M. Spijker
Monotonicity and boundedness properties of general linear methods
11.00 – 11.30 Luis Randez, M. Calvo, J.M. Franco, J.I. Montijano
On low storage implementations of Runge–Kutta methods
11.30 – 12.00 Veerle Ledoux, M. Van Daele
On CP, LP and other piecewise perturbation methods for the numerical solution of the Schrödinger equation
12.00 – 12.30 Davy Hollevoet, M. Van Daele, G. Vanden Berghe
Exponentially fitted deferred correction for BVPs

Room 00.85: chair I. Sloan
10.30 – 11.00 Koen Poppe, R. Cools
Multivariate Clenshaw-Curtis integration using Chebyshev lattices
11.00 – 11.30 Miodrag M. Spalevic
Error estimates of anti-Gaussian quadrature formulae
11.30 – 12.00 Vasile Sinescu
Lattice rules for numerical multiple integration
12.00 – 12.30 Iurie Nicolae Caraus
Approximative solution of singular integro-differential equations

Room 01.85: chair J. Van lent
10.30 – 11.00 Yusuke Onoue, S. Fujino
A proposal of GS-based preconditioning
11.00 – 11.30 Faisal A. Fairag
Schur complement preconditioners for saddle point problems
11.30 – 12.00 Toshiyuki Kohno, T. Nitta, H. Niki
On the SOR-like method as preconditioner of CGS
12.00 – 12.30 Keiichi Morikuni, K. Hayami
Iterative preconditioners for least squares problems
Room 00.74: chair L. Vanherpe
10.30 – 11.00  Münevver Tezer-Sezgin, G. Meral
              On the DRBEM and DQM solutions of nonlinear reaction-diffusion equations with FEM time integration
11.00 – 11.30 Zhaocheng Yuan, Y.H. Li, Z.F. Zhou, Q.J. Zhang
              An upper bound method for strain energy of elasticity by a modified finite element method
11.30 – 12.00 Önder Türk
              FEM solution of natural convection flow under a magnetic field
12.00 – 12.30 Selçuk Han Aydin
              Stabilized FEM solution of steady natural convection flow in a square cavity

Plenary Session

Room 02.28: chair S. Vandewalle
14.00 – 15.00 Alfio Borzi
              Multilevel methods for PDE control problems

Session 2

Room 02.28: chair K. Debrabant
15.30 – 16.00 Yves Frederix, D. Roose
              Diffusion estimation for stochastic multiscale problems
16.00 – 16.30 Volker Michel
              Tomography—problems and multiscale solutions
16.30 – 17.00 Doreen Fischer
              Recovering a tomographic model of the earth by sparse regularization of inverse gravimetry

Room 00.85: chair P. Silva
15.30 – 16.00 Ramon F. Alvarez-Estrada, G. F. Calvo, H. Serrano
              Transfer integral technique for a class of linear integral equations: convergence and applications to DNA
16.00 – 16.30 José Augusto Ferreira, P. Oliveira, P. Silva
              Reaction diffusion in viscoelastic polymers
16.30 – 17.00 Abdallah Ali Badr, M.A. Abdella
              On the solution of the functional integral equation of Fredholm type with degenerate kereneel

Room 01.85: chair H. Speleers
15.30 – 16.00 Malik Zawwar Hussain, M. Sarfraz, F. Hussain
              Convex data modeling using spline functions
16.00 – 16.30 Jamal Mamedkhanov
              A new characteristic approximation problem
16.30 – 17.00 Tian-Xiao He
              Eulerian polynomials and B-Splines

Room 00.74: chair J. Dhaene
15.30 – 16.00 Pedro M. Suarez, L. Bayon, J.M. Grau, M.M. Ruiz
              An algorithm for the calculus of the analytic solution for economic dispatch with multiple fuel units
16.00 – 16.30 Chieh Sen Huang, Y.-C. Huang, P.-J. Lai
              CUDA-based modified genetic algorithms for solving fuzzy flow shop scheduling problems
16.30 – 17.00 Cristinca Fulga
              Utility-based mean-risk portfolio optimization
17.00 – 17.30 Zhaoning Shang
              On the pricing of path-dependent option with stochastic time

Social programme
18.00 – 19.00 Guided visit of Leuven, departure in front of the City Hall
Wednesday, July 7

Plenary Session

Room 02.28: chair M. Goovaerts
9.00 – 10.00  Tim Hopkins
              The collected algorithms of the ACM – past, present and future

Session 1

Room 02.28: chair C. Douglas
10.30 – 11.00  Dirk Abbeloos, M. Diehl, M. Hinze, S. Vandewalle
              Multigrid of the second kind for the optimal control of time-periodic, parabolic, partial
              differential equations
11.00 – 11.30  Bram Reps, W. Vanroose, H. bin Zabair
              Multigrid preconditioners for the Helmholtz equation on complex stretched grids
11.30 – 12.00  Eveline Rosseel, N. Scheerlinck, S. Vandewalle
              Multigrid solution of biological reaction-diffusion problems with random coefficients
12.00 – 12.30  Emmanuel N. Mathioudakis, V.G. Mandikas, N.A. Kampanis and J.A. Ekaterinaris
              Multigrid schemes for high-order accurate numerical solutions for the pressure correction of
              the incompressible Navier-Stokes equations

Room 00.85: chair J.-P Berrut
10.30 – 11.00  Javier Segura
              Fast and reliable computation of the zeros of special functions using a fourth order method
              with global convergence
11.00 – 11.30  Grzegorz Rzadkowski
              On some expansions, involving falling factorials, for the Euler Gamma function and the
              Riemann Zeta function
11.30 – 12.00  Amparo Gil, J. Segura, N.M. Temme
              Numerical schemes and software for computing parabolic cylinder functions
12.00 – 12.30  Joao R. Cardoso, A.F. Loureiro
              Iteration functions for $p$th roots of complex numbers

Room 01.85: chair A. Bourchtein
10.30 – 11.00  Sharif E. Guseynov, J.S. Rimshans
              Analytical-numerical methods for inverse problems of deep magnetotelluric sounding
11.00 – 11.30  Yuto Miyatake, T. Matsuo
              Conservative fine difference schemes for the Degasperis–Procesi equation
11.30 – 12.00  Paulino Jose Garcia Nieto, J.J. del Coz Diaz, D. Castro-Fresno, P. Menendez Rodriguez
              Numerical simulation of the particle collection efficiency of a new urban sustainable gravity
              settler using design of experiments by FVM
12.00 – 12.30  Janis S. Rimshans, Sh.E.Guseynov, D. Zaime, P.Morevs
              Construction of the mathematical model on the Ollendorff method for filtration of weakly
              compressible chemical compound in the porous heterogeneous 3D medium

Room 00.74: chair Ö. Türk
10.30 – 11.00  Wided Medjroubi, B. Stoevesandt, J. Peinke
              DNS of the unsteady aerodynamics of plunging airfoils using spectral/hp element method
11.00 – 11.30  Michael L. Hall
              Increased efficiency for temporal spherical harmonic thermal photon transport
11.30 – 12.00  Subir Singh Lamba, P. Dutt
              Pulsating spectral element methods for hyperbolic problems
Plenary Session

Room 02.28: chair M. Van Daele
14.00 – 15.00 René Lamour
DAEs are different

Session 2

Room 02.28: chair F. Mazzia
15.30 – 16.00 Severiano Gonzalez Pinto, D. Hernandez-Abreu, S. Perez-Rodriguez
Second order and third order methods for the time integration of multidimensional
advection-diffusion-reaction PDEs
16.00 – 16.30 Chittaranjan Mishra, K. J. in ’t Hout
Stability of the MCS scheme for two-dimensional convection-diffusion problems with mixed
derivative term
16.30 – 17.00 Dejan R. Bojovic, B. S. Jovanovic
Convergence of a finite difference method for a 2D parabolic interface problem

Room 00.85: chair Y. Saridakis
15.30 – 16.00 Liesbeth Vanherpe, N. Moelans, B. Blanpain, S. Vandewalle
Three-dimensional phase field simulations of grain growth in a polycrystalline microstructure
with anisotropic grain boundary properties
16.00 – 16.30 Hassam Goldani-Moghaddam, Wayne H. Enright
Generic monitor functions for use in adaptive mesh refinement for partial differential
equations
16.30 – 17.00 Douglas Azevedo Castro, S.M. Gomes, J. Stolfi
Multiresolution scheme for numerical solution of hyperbolic conservation laws on dyadic grids

Room 01.85: chair E. Rosseel
15.30 – 16.00 Samuel Corveleyn, S. Vandewalle
Solution of fuzzy elliptic PDEs by a polynomial chaos expansion
16.00 – 16.30 Rama Rao Mallela, A. Pownuk, S. Vandewalle
A fuzzy finite element approach to computing the uncertain dynamic response of a simply-supported thin rectangular plate subjected to an impact load
16.30 – 17.00 Tzyy-Leng Horng, Chih-Yuan Tien
American options valuation: a parsimoniously numerical approach

Room 00.74: chair J. Ferreira
15.30 – 16.00 Mikheil Tsiklauri, J. Rogava
On local convergence of symmetric semi-discrete scheme for the abstract analog of the
Kirchhoff equation
16.00 – 16.30 Victor Rukavishnikov, H. Rukavishnikova
A new approach for the boundary value problem with strong singularity
16.30 – 17.00 Pascoal Martins Silva, J.A. Ferreira, P. de Oliveira
Flux tracking in delivery therapeutic lenses

Social programme

18.30 – 22.30 Guided visit to Brussels, departure by bus in front of the conference venue
Thursday, July 8

Plenary Session

Room 02.28: chair S. Vandewalle
9.00 – 10.00  Martin van Gijzen
The IDR approach for solving large nonsymmetric linear systems and eigenvalue problems

Session 1

Room 02.28: chair K. Meerbergen
10.30 – 11.00  Rudo Helfenstein, J. Koko
Parallel preconditioned conjugate gradient on GPU
11.00 – 11.30  Elena P. Papadopoulou, E. N. Mathioudakis, Y. G. Saridakis
Parallel Schur complement solution of the collocation equations
11.30 – 12.00  Jose J. Lopez-Espin, D. Giménez
Solution of simultaneous equation models in high performance systems
12.00 – 12.30  Wilfried Gansterer, G. Koenig, G. Niederbrucker
Controlled trading of accuracy for speed in structured large symmetric eigenvalue problems

Room 00.85: chair A. Gil
10.30 – 11.00  María Moncayo Hormigo, J.F. Reinoso
Non linear parametric multiresolution transform for optimal image fusion
11.00 – 11.30  Jean-Paul Berrut
A formula for the influence of jumps on finite sinc interpolants
11.30 – 12.00  Malik Zawwar Hussain, M. Sarfraz and M. Irshad
Spline approximation for capturing outlines of generic shapes using a genetic algorithm
12.00 – 12.30  Siraj Islam, B. Sarler, G. Kosec
Meshless method for the numerical solution of the nonlinear two-dimensional Burger’s equation

Room 01.85: chair D. Roose
10.30 – 11.00  Giovanni Samaey, V. Legat, T. Lelièvre, K. Debrabant
Accelerated micro/macro Monte Carlo simulation of stochastic models for FENE dumbbells
11.00 – 11.30  Dirk Nuyens, I. G. Graham, F. Y. Kuo, R. Scheichl, I. H. Sloan
Quasi-Monte Carlo methods for computing flow in random porous media
11.30 – 12.00  Angel Rodríguez-Rozas, J.A. Acebron
New probabilistic approaches to solve nonlinear parabolic partial differential equations by branching stochastic processes
12.00 – 12.30  Kristian Debrabant, M. Giles, A. Rößler
Numerical analysis of multilevel Monte Carlo path simulation using the Milstein discretisation

Room 00.74: chair K. in ‘t Hout
10.30 – 11.00  Kim Volders, K. in ‘t Hout
Stability of central finite difference schemes for the Heston equation
11.00 – 11.30  Tinne Haentjens, K. in ‘t Hout
The numerical valuation of European options in the Heston-Hull-White PDE model
11.30 – 12.00  Stefanie Schuurs
Option pricing with a direct sparse grid approach
12.00 – 12.30  Beom Jin Kim, C. Ahn, H. J. Choe
American put option pricing for Heston’s model via a direct computation scheme
Session 2

Room 02.28: chair R. Vandebril
14.00 – 14.30 Tijmen Collignon, M. B. van Gijzen
IDR(s) for Grid Computing
14.30 – 15.00 Toshihiro Nitta, T. Kohno, H. Niki
On the SOR-like method
15.00 – 15.30 Masato Niki, T. Nitta, T. Kohno, M. Morimoto
The extended GS method for linear systems arising the boundary element method

Room 00.85: chair Hussain M.Z.
14.00 – 14.30 Daan Huybrechs
Fourier series, Chebyshev polynomials and the Gibbs phenomenon on triangular domains
14.30 – 15.00 Georges Klein, J.-P. Berrut
Linear barycentric rational quadrature
15.00 – 15.30 Trond Steihaug, S. Suleiman
Newtons and methods using higher order derivatives

Room 01.85: chair M. Hall
14.00 – 14.30 Andrei Bourchein, L. Bourchein
On vertical discretization of the hydrostatic models of the atmosphere
14.30 – 15.00 Tong Kang, K.I. Kim, H. Zhang
Some potential-based finite element schemes for the harmonic eddy current problem
15.00 – 15.30 Saulo Pomponet Oliveira, D. G. Alfaro Vigo, A. Ruiz de Zarate, A. Nachbin
Stability and dispersion analysis of fully-discrete schemes for linear dispersive internal wave models

Session 3

Room 02.28: chair M. van Gijzen
16.00 – 16.30 Nick Vannieuwenhoven, K. Meerbergen
An element-by-element algebraic multilevel block-ILU preconditioner
16.30 – 17.00 Raf Vandebril, G. M. Del Corso
A multishift QR-algorithm for Hermitian plus low rank matrices
17.00 – 17.30 Josep Arnal, V. Migallon, J. Penades
Newton-like Schwarz iterative methods for solving systems of nonlinear equations

Room 00.85: chair D. Huybrechs
16.00 – 16.30 Yiannis G. Saridakis, A.G. Sifalakis, E.P. Papadopoulos
Efficient numerical solution of the generalized Dirichlet-Neumann map for linear elliptic PDEs
in regular polygon domains
16.30 – 17.00 Dikhaminjia Nana, J. Rogava, M. Tsiklauri
The third order of accuracy sequential type operator splitting scheme for quasi-linear
multidimensional evolution problem
17.00 – 17.30 Siraj Islam, B. Sarler, I. Aziz, F. Haq
Haar wavelet collocation method for the numerical solution of fully developed natural
convection fluid flow

Room 01.85: chair P. Suarez
16.00 – 16.30 Omid Jadidi
Multi-period lot-sizing with multi-product supplier selection under condition of price
breaks using developed goal programming
16.30 – 17.00 Ana Martinez, A. Castellanos
Applications of radial basis neural networks for prediction variables in engineering
17.00 – 17.30 Wojciech Michal Kempa
Transient analysis of the queue-size distribution in the batch arrival queueing system with
single vacations
Social programme

19.00 – 22.00  Conference Dinner in the Faculty Club – Groot Begijnhof 14 – 3000 Leuven

Friday, July 9

Plenary Session

Room 02.28: chair M. Van Daele
9.00 – 10.00  Wim Michiels
Analysis and control of dynamical systems with delays

Session 1

Room 02.28: chair K. Meerbergen
10.30 – 11.00  Roel Van Beeumen, K. Meerbergen
Model reduction by balanced truncation of linear systems with a quadratic output
11.00 – 11.30  Maryam Saadvandi, K. Meerbergen, E. Jarlebring
On dominant pole and model reduction of time-delay systems
11.30 – 12.00  Yao Yue, K. Meerbergen
Using model order reduction for quasi-Newton optimization of structures and vibrations

Room 00.85: chair W. Michiels
10.30 – 11.00  Zhen Wu, W. Michiels
Improved computation of characteristic roots of delay differential equation by pseudospectral differencing method
11.00 – 11.30  Ishtiaq Ali
Numerical solutions of general pantograph-type delay differential equations using spectral methods
11.30 – 12.00  Abderrazzak Boufala, H. Bouzahir, A. Maaden
Results for a class of partial neutral functional integrodifferential equations with infinite delay

Room 01.85: chair A. Borzi
10.30 – 11.00  Bart Vandereycken, S. Vandewalle
Multilevel Riemannian optimization for low-rank solutions of Lyapunov equations
11.00 – 11.30  Taner Buyukkoroglu
Common diagonal Lyapunov function for third order linear switched system
11.30 – 12.00  Husain S. Al Attas
Enhancing reliability of porous media flow through sensitivity analysis