

MAFELAP 2009 PROGRAMME – Detailed version
Tue 9 – Fri 12 June 2009

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1 Tue 0945: H001: Invited talks

Chair: John Whiteman

Tue 0945: Viscous Flow Simulation Using Unstructured Meshes

K. Morgan and **O. Hassan**

Chair: Mark Ainsworth

Tue 1100: Kinetic Models of Dilute Polymers: Analysis, Approximation and Computation

John W. Barrett, **David J. Knezevic** and **Endre Süli**

Tue 1145: Mixed Finite Element Methods for Predictive Phase-Field Models of Tumor Growth

J. Tinsley Oden, **Andrea Hawkins** and **Serge Prudhomme**

2 Tue 1400A: LC061: Theoretical and computational aspects of Discontinuous Galerkin methods

Organisers: Yekaterina Epshteyn, Beatrice Riviere, Johnny Guzman

Tue 1400A: Coupled HDG-BEM

Bernardo Cockburn and **Francisco-Javier Sayas**

Tue 1425A: Bubble stabilized discontinuous Galerkin method using a symmetric formulation for second order elliptic problems: stability without penalty for the symmetric formulation

Erik Burman and **Benjamin Stamm**

Tue 1450A: Application of Adaptive Discontinuous Galerkin Methods to Bifurcation Phenomena in Pipe Flows

Paul Houston

Tue 1515A: A multinumercs method for solving a multiphysics problem

Beatrice Riviere

3 Tue 1400B: LC062: Goal-oriented error estimation and adaptivity

Organisers: Serge Prudhomme, Sergey Korotov, Paul Bauman

Tue 1400B: Parallel Goal-Oriented Adaptivity for a Fourier Finite Element Method. Applications to the Oil-Industry

D. Pardo, M. J. Nam, C. Torres-Verdín and J. Kurtz

Tue 1425B: Goal-oriented error estimation through strict and effective bounds for fracture mechanics problems solved with the XFEM

Ludovic Chamoin, Julien Panetier and Pierre Ladevèze

Tue 1450B: Goal-oriented mesh adaptivity for 3-D SP_N equations

Bruno Turcksin and Jean C. Ragusa

Tue 1515B: Mesh adaptation driven by a posteriori error estimators in an anisotropic framework

Simona Perotto

4 Tue 1400C: LC063: Contact problems

Organisers: Zdenek Dostál, Matthias Maischak

Tue 1400C: Approximation of higher order for unilateral problems and effective quadrature

Joachim Gwinner

Tue 1425C: Adaptive hp -finite element methods for the contact problem with Tresca friction in linear elasticity

Philipp Dörsek and Jens Markus Melenk

Tue 1450C: Mixed fem-bem coupling for non-linear transmission problems with Signorini contact

Matthias Maischak

Tue 1515C: Numerical modeling of electrical contacts

Christian Weißenfels and Peter Wriggers

5 Tue 1400D: LC064: Finite element methods in tissue and bone mechanics

Organiser: Fred Vermolen

Tue 1400D: Efficient Simulation Techniques for Complex Models in Biomechanics

Christian Groß, Rolf Krause, Thomas Dickopf and Johannes Steiner

Tue 1425D: Mathematical Model of Migration of the Enterocyte Cell Layer

David Swigon, Julia Arciero, Qi Mi, Beatrice Riviere, Kristen Pueschel and David Hackam

Tue 1450D: A finite element method for mechanical and morphological analysis of wound contraction

E. Javierre, P. Moreo, M. Doblar and J.M. García-Aznar

Tue 1515D: A suite of mathematical models incorporating several processes within wound healing

F.J. Vermolen and E. Javierre

6 Tue 1400E: LC065: Boundary element methods for high frequency problems

Organisers: Simon Chandler-Wilde, Ivan Graham, Stephen Langdon

Tue 1400E: mapping properties of Helmholtz integral operators and their application to the *hp*-BEM

Jens Markus Melenk and M. Löhndorf

Tue 1425E: Fully discrete *hp* BEM for high frequency scattering

Stephen Langdon and Jens Markus Melenk

Tue 1450E: Recent progress on hybrid numerical-asymptotic methods for high-frequency scattering problems

Víctor Domínguez, Ivan G. Graham, Tatiana Kim and Valery P. Smyshlyaev

Tue 1515E: Local solutions to highly oscillatory integral equations

Daan Huybrechs

7 Tue 1400F: **LC066: Advanced Discretization Methods**

Organisers: Mikhail Shashkov, Guglielmo Scovazzi, Konstantin Lipnikov

Tue 1400F: Local flux mimetic finite difference method

Konstantin Lipnikov, **M. Shashkov** and **Ivan Yotov**

Tue 1425F: A second-order flux approximation for the mimetic finite difference method
L. Beirão da Veiga, **Konstantin Lipnikov** and **G. Manzini**

Tue 1450F: Quasi-Positive Families of Continuous Darcy-Flux Finite Volume Schemes on Structured and Unstructured Grids

Michael G. Edwards and **Hongwen Zheng**

Tue 1515F: A unified approach to mimetic finite difference, hybrid finite volume and mixed finite volume methods

Jérôme Droniou, **Robert Eymard**, **Thierry Gallouët** and **Raphaële Herbin**

8 Tue 1400G: **LC067: Mathematical aspects of finite element methods**

Organisers: Alan Demlow, Dmitry Leykekhman

Tue 1400G: Local finite element error estimates for optimal control problems

Th. Apel, **Arnd Rösch**, **J. Pfefferer** and **Dieter Sirch**

Tue 1425G: Multilevel algorithms for saddle point problems

Constantin Bacuta and **Peter Monk**

Tue 1450G: Error Control in Elliptic Problems with Pollution

Varis Carey and **Alfred H. Schatz**

Tue 1515G: Pointwise gradient estimates on highly graded meshes

Alan Demlow

9 Tue 1610A: **LC061: Theoretical and computational aspects of Discontinuous Galerkin methods**

Organisers: Yekaterina Epshteyn, Beatrice Riviere, Johnny Guzman

Tue 1610A: An a posteriori error estimate for an augmented discontinuous Galerkin formulation for Stokes problem

Tomás P. Barrios and **Rommel Bustinza**

Tue 1635A: Numerical Methods for Chemotaxis Models

Yekaterina Epshteyn

Tue 1700A: Exponential Convergence of hp -DGFEM for Linear Second-Order Elliptic Problems in 3-d Polyhedra

Thomas P. Wihler

10 Tue 1610B: LC062: Goal-oriented error estimation and adaptivity

Organisers: Serge Prudhomme, Sergey Korotov, Paul Bauman

Tue 1610B: Discretization error and modelling error in the context of the inflation of hyperelastic membranes

Simon Shaw, **Michael Warby** and **John Whiteman**

Tue 1635B: Goal-Oriented Error Estimation and Adaptive Modeling of Coupled Particle and Continuum Models

Paul T. Bauman, **Serge Prudhomme** and **J. Tinsley Oden**

Tue 1700B: Modeling error estimation and adaptivity in electrocardiology applications
L. Gerardo Giorda, **L. Mirabella**, **F. Nobile**, **M. Perego** and **A. Veneziani**

11 Tue 1610C: LC063: Contact problems

Organisers: Zdenek Dostál, Matthias Maischak

Tue 1610C: From Large Deformations to Dynamic Problems: Stable Discretization Approaches for Contact Problems in Elasticity

Rolf Krause, **Christian Groß**, **Christina Mohr** and **Mirjam Walloth**

Tue 1635C: Nonconforming *hp*-FE/BE coupling for interface problems based on Nitsche's method

Alexey Chernov and **Peter Hansbo**

Tue 1700C: First-Order System Least Squares for the Signorini Contact Problem in Linear Elasticity

Frank S. Attia, **Zhiqiang Cai** and **Gerhard Starke**

12 Tue 1610D: LC064: Cardiovascular Biomechanics

Organisers: Leonid Kossovich, Irina Kirillova

Tue 1610D: Modelling of human carotid artery bifurcation in healthy, affected or post-corrective surgery condition

L.Yu. Kossovich, **I.V. Kirillova** and **K.M. Morozov**

Tue 1635D: Blood flow and mechanical behaviour of physiologically real carotid artery bifurcation with pathological kinking

I.V. Kirillova and **K.M. Morozov**

Tue 1700D: Computational methodology for fluid-structure interaction problems in biomechanics of aneurysms

Padmanabhan Seshaiyer

13 Tue 1610E: LC065: Boundary element methods for high frequency problems

Organisers: Simon Chandler-Wilde, Ivan Graham, Stephen Langdon

Tue 1610E: Adaptive PU-BEM for Helmholtz problems

J. Trevelyan and **G. Coates**

Tue 1635E: Fast, High-Order, Well-Conditioned Algorithms for the Solution of Three-Dimensional Acoustic and Electromagnetic Scattering Problems

Catalin Turc, **Oscar Bruno** and **Tim Elling**

Tue 1700E: A fully discrete Galerkin method for high frequency acoustic scattering in three dimensions

M. Ganesh and **S. C. Hawkins**

14 Tue 1610F: LC066: Advanced Discretization Methods

Organisers: Mikhail Shashkov, Guglielmo Scovazzi, Konstantin Lipnikov

Tue 1610F: Advances in stabilized Lagrangian shock hydrodynamics on brick- and simplex-type finite elements

Guglielmo Scovazzi

Tue 1635F: Coupling of Stokes and Darcy flows using discontinuous Galerkin and mimetic finite difference methods

Konstantin Lipnikov, **Danail Vassilev** and **Ivan Yotov**

Tue 1700F: A Mimetic Finite Difference method for the Stokes problem

L. Beirão da Veiga, **V. Gyrya**, **Konstantin Lipnikov** and **G. Manzini**

15 Tue 1610G: LC067: Mathematical aspects of finite element methods

Organisers: Alan Demlow, Dmitry Leykekhman

Tue 1610G: Local energy estimates for the finite element method on sharply varying grids

Alan Demlow, **Johnny Guzmán** and **Alfred Schatz**

Tue 1635G: Hölder estimates for Green's functions on convex polyhedral domains and their applications to finite element methods

Johnny Guzmán, **Dmitriy Leykekhman**, **Jürgen Rossmann** and **Alfred Schatz**

Tue 1700G: An FEM for the asymmetric Laplace operator on polygonal domains

Hengguang Li

16 Tue 1730: H001: ZIENKIEWICZ LECTURE

Chair: John Whiteman

Tue 1730: Multiscale Computations: From Theory To Practice

Jacob Fish

17 Wed 0835A: LC061: Theoretical and computational aspects of Discontinuous Galerkin methods

Organisers: Yekaterina Epshteyn, Beatrice Riviere, Johnny Guzman

Wed 0835A: Discontinuous Galerkin approximation of eigenvalue problems

Ilaria Perugia

Wed 0900A: A new discontinuous Galerkin method for Hamilton-Jacobi equations

Jue Yan

Wed 0925A: Discontinuous Galerkin methods for radiative transfer in diffusive regimes

Guido Kanschat

Wed 0950A: A mixed DG method for linearized incompressible magnetohydrodynamics

Dominik Schötzau, Xiaoxi Wei and Paul Houston

Wed 1015A: Local Derivative Post-processing for the discontinuous Galerkin method

Jennifer K. Ryan

18 Wed 0835B: LC062: Validation and robust prediction in computational science

Organisers: Fabio Nobile, Raul Tempone, Serge Prudhomme

Wed 0835B: A general framework for the validation of a computational model

Ivo Babuška, F. Nobile and R. Tempone

Wed 0900B: Computationally Intensive Calibration and Validation of a Thermochemical Model with Shock Tube Radiation Measurements

Ernesto E. Prudencio, Jeremy Jagodzinski, Andre Maurente, Kenji Miki, Marco Panesi and Serge Prudhomme

Wed 0925B: Adaptive finite elements for optimal experimental design

T. Carraro

Wed 0950B: Uncertainty Quantification through Concentration of Measure Inequalities

Houman Owhadi, Ali Lashgari, Lenny Lucas, Michael Ortiz and Ufuk Topcu

Wed 1015B: Validating uncertain predictions

Anthony O'Hagan, Leonardo S. Bastos and Jeremy E. Oakley

19 Wed 0835C: LC063: Contact problems

Organisers: Zdenek Dostál, Matthias Maischak

Wed 0835C: A theoretically supported scalable TFETI based algorithm for contact problems

Zdeněk Dostál, Tomáš Brzobohatý, Tomáš Kozubek, Alex Markopoulos and Vít Vondrák

Wed 0900C: Scalable TBETI based solver for 3D contact problems

Marie Sadowská, Zdeněk Dostál and Tomáš Kozubek

Wed 0925C: Scalable TFETI for contact problems – dynamic and real world problems

Tomáš Brzobohatý, Tomáš Kozubek, Alex Markopoulos, Vít Vondrák and Zdeněk Dostál

Wed 0950C: Scalable TFETI for contact problems – parallel implementation and real world problems

Tomáš Kozubek, Tomáš Brzobohatý, Alex Markopoulos and Vít Vondrák

Wed 1015C: Scalable TFETI for 3D contact with Coulomb friction

Radek Kučera and Zdeněk Dostál

20 Wed 0835D: LC064: Finite Element Approximations in Optimal Control

Organisers: Thomas Apel, Arnd Rösch

Wed 0835D: A priori finite element error analysis for state-constrained boundary control problems

Klaus Krumbiegel, Christian Meyer and Arnd Rösch

Wed 0900D: Is boundary control suitable for singularly perturbed elliptic problems ?

G. Lube and B. Tews

Wed 0925D: On error estimates for the finite element discretization of elliptic semiinfinite optimization problems

Pedro Merina, Ira Neitzel and Fredi Tröltzsch

Wed 0950D: Convergence and regularization results for optimal control problems with sparsity functional

Daniel Wachsmuth

Wed 1015D: Optimal Control of the Two-Phase Stefan Problem: Numerical Approximation Techniques

Martin K. Bernauer and Roland Griesse

21 Wed 0835E: LC065: Boundary element methods for high frequency problems

Organisers: Simon Chandler-Wilde, Ivan Graham, Stephen Langdon

Wed 0835E: An iterative approach for the solution of multiple-scattering problems at high-frequencies using finite elements

Christophe Geuzaine

Wed 0900E: Lower bounds on the inverse of the combined potential operator at high frequency for a class of non-convex domains

Simon N. Chandler-Wilde, Ivan G. Graham, Stephen Langdon and Marko Lindner

Wed 0925E: Applications of fundamental solution methods in wave computations

Timo Betcke

Wed 0950E: High Frequency Scattering by Convex Polygons with Impedance Boundary Conditions

M. Mokgolele, Stephen Langdon and Simon N. Chandler-Wilde

Wed 1015E: A Spectral Collocation Method for the Laplace and Modified Helmholtz Equations in a Convex Polygon

Euan A. Spence

22 Wed 0835F: LC066: Recent Developments in Locally Conservative Methods for Flow in Porous Media

Organisers: Michael Edwards, Mary Wheeler

Wed 0835F: Computational Environment for Modeling Sequestration of Carbon in Saline Aquifers

Mary F. Wheeler, Sunil Thomas and Mojdeh Delshad

Wed 0900F: Multi-Dimensional Upwind Schemes for Flow in Porous Media on Structured and Unstructured Grids

Sadok Lamine and Michael G. Edwards

Wed 0925F: Fully conservative streamline methods for one and two-phase flows

T. Arbogast, Chieh-Sen (Jason) Huang, Thomas F. Russell and Wenhao Wang

Wed 0950F: Subdomain time stepping and space time domain decomposition

Caroline Japhet, Jérôme Jaffré, Michel Kern and Jean E. Roberts

Wed 1015F: Non-Linear Flux-Splitting Schemes with Imposed Discrete Maximum Principle for Elliptic Equations with Highly Anisotropic Coefficients

Mayur Pal and Michael G. Edwards

23 Wed 0835G: LC067: Finite element methods for convection dominated problems

Organisers: Volker John, Dmitri Kuzmin, Gert Lube

Wed 0835G: Analysis of higher-order streamline diffusion methods on arbitrary grids

Fatih Celiker and **Johnny Guzmán**

Wed 0900G: A new variant of the local projection method for convection–diffusion–reaction equations

Petr Knobloch

Wed 0925G: Adaptive postprocessing for local projection stabilization methods

Friedhelm Schieweck

Wed 0950G: Finite element methods with symmetric stabilization for the transient convection–diffusion–reaction equation

Erik Burman and **Miguel A. Fernández**

Wed 1015G: Explicit Runge–Kutta schemes and finite element methods with symmetric stabilization for first-order PDE systems

Erik Burman, **Alexandre Ern** and **Miguel A. Fernández**

24 Wed 1110: H001: Invited talks

Chair: George Hsiao

Wed 1110: Parametric Approximation of Geometric Evolution Equations

John W. Barrett, **Harald Garcke** and **Robert Nürnberg**

Wed 1155: Hybrid asymptotic-numerical boundary element methods for high frequency wave scattering

Simon N. Chandler-Wilde

25 Wed 1400A: LC061: Theoretical and computational aspects of Discontinuous Galerkin methods

Organisers: Yekaterina Epshteyn, Beatrice Riviere, Johnny Guzman

Wed 1400A: An HDG method for the biharmonic problem

Bernardo Cockburn, **Bo Dong** and **Johnny Guzmán**

Wed 1425A: Discontinuous Galerkin methods and local time-stepping for transient electromagnetic waves

Marcus J. Grote and **Teodora Mitkova**

Wed 1450A: Residual-Based *A Posteriori* Error Estimation for DG Methods

Slimane Adjerd

Wed 1515A: Locking-free optimal hybridized discontinuous Galerkin methods for Timoshenko beams

Fatih Celiker, **Bernardo Cockburn** and **Ke Shi**

26 Wed 1400B: LC062: Validation and robust prediction in computational science

Organisers: Fabio Nobile, Raul Tempone, Serge Prudhomme

Wed 1400B: Robust model updating for insufficient data

B. Goller, **H.J. Pradlwarter** and **G.I. Schuëller**

Wed 1425B: Model uncertainty modeling for the Reynolds-averaged Navier-Stokes equations

Todd A. Oliver

Wed 1450B: Monte-Carlo simulations and benchmarking for the stochastic Allen-Cahn problem

Markos Katoulakis, **Georgios Kossioris**, **Omar Lakkis** and **Marco Romito**

27 Wed 1400C: LC063: Contact problems

Organisers: Zdenek Dostál, Matthias Maischak

Wed 1400C: Contact shape optimization with parallel TFETI based solution of state problems

Vít Vondrák, **Tomáš Kozubek** and **Zdeněk Dostál**

Wed 1425C: Shape optimization in 3D contact problems with Coulomb friction

P. Beremlijski, **J. Haslinger**, **M. Kočvara**, **Radek Kučera** and **J.V. Outrata**

Wed 1450C: Dynamic contact problems for viscoelastic membranes: discretization

Igor Bock

Wed 1515C: Solution to nonlinear problems by TFETI domain decomposition method

Jiří Dobiáš, **Svatopluk Pták**, **Zdeněk Dostál**, **Vít Vondrák** and **Tomáš Kozubek**

28 Wed 1400D: LC064: Finite Element Approximations in Optimal Control

Organisers: Thomas Apel, Arnd Rösch

Wed 1400D: Convergence analysis of a simple adaptive finite element method for optimal control problem

Roland Becker and **Shipeng Mao**

Wed 1425D: A new estimation technique for state constrained optimal control problems

Arnd Rösch and **Daniel Wachsmuth**

Wed 1450D: A Priori Error Estimates for Finite Element Discretizations of Parabolic Optimization Problems with Pointwise State Constraints in Time

Dominik Meidner, **Rolf Rannacher** and **Boris Vexler**

Wed 1515D: Direct solution of non-smooth optimality systems for PDE control by FE software – space-time elements and smoothed projection formulas

Ira Neitzel, **Uwe Prüfert** and **Thomas Slawig**

29 Wed 1400E: LC065: Boundary element methods for high frequency problems/ Boundary Elements: theory and applications

Organisers: Simon Chandler-Wilde, Ivan Graham, Stephen Langdon/ Norbert Heuer, Antoine Sellier

Wed 1400E: Runge-Kutta methods for integral equations of time-dependent acoustic scattering

Lehel Banjai

Wed 1425E: Adaptive plane wave basis in Galerkin BEM for irregularly meshed scattering structures

E. Perrey-Debain and H. Bériot

Wed 1450E: Boundary integral equation method for an initial-boundary value problem in viscous compressible flow

George C. Hsiao

Wed 1515E: New results on non-symmetric BEM-FEM coupling schemes

Francisco-Javier Sayas

30 Wed 1400F: LC066: Recent Developments in Locally Conservative Methods for Flow in Porous Media

Organisers: Michael Edwards, Mary Wheeler

Wed 1400F: Convergence analysis of L type Finite Volume Schemes for diffusion problem on general meshes with discontinuous coefficients

L. Ag las, Daniele A. Di Pietro, Jérôme Droniou and R. Masson

Wed 1425F: A Posteriori Error Estimation for High Order Mixed Finite Elements

Mark Ainsworth

Wed 1450F: A Multilevel Multiscale Mimetic (M^3) Method for Two-Phase Flows in Porous Media

Konstantin Lipnikov, D. Moulton and D. Svyatskiy

Wed 1515F: Nodal symmetric locally mass conservative finite element methods for Darcy flow

Alejandro Allendes, Gabriel R. Barrenechea, Leopoldo P. Franca, Erwin Hernández and Frédéric Valentin

31 Wed 1400G: LC067: Finite element methods for convection dominated problems

Organisers: Volker John, Dmitri Kuzmin, Gert Lube

Wed 1400G: Limiting techniques for continuous and discontinuous Galerkin approximations to convection-dominated transport equations

Dmitri Kuzmin

Wed 1425G: Mass conservative coupling of fluid flow and species transport in electrochemical flow cells

Jürgen Fuhrmann, Hartmut Langmach and **Alexander Linke**

Wed 1450G: A local theta scheme for advection problems with strongly varying meshes and velocity profiles

P. van Slingerland, **M. Borsboom** and **C. Vuik**

Wed 1515G: Stabilization of Galerkin finite element methods for transient advection-diffusion problems

Javier de Frutos, Bosco García-Archilla and **Julia Novo**

32 Wed 1610A: LC061: Theoretical and computational aspects of Discontinuous Galerkin methods

Organisers: Yekaterina Epshteyn, Beatrice Riviere, Johnny Guzman

Wed 1610A: Bubble stabilization of the Baumann-Oden DG formulation

Paola F. Antonietti, **Franco Brezzi** and **L. Donatella Marini**

Wed 1635A: A posteriori estimates for the bubble stabilized discontinuous Galerkin method

Benjamin Stamm

Wed 1700A: A discontinuous Galerkin method for the Stokes equations related to non-conforming finite element methods

Roland Becker, **Daniela Capatina** and **Julie Joie**

33 Wed 1610B: LC062: Goal-oriented error estimation and adaptivity

Organisers: Serge Prudhomme, Sergey Korotov, Paul Bauman

Wed 1610B: Goal-oriented error estimation and adaptivity of fluid-structure interaction using exact linearized adjoints

Kristoffer G. van der Zee, **E. Harald van Brummelen** and **René de Borst**

Wed 1635B: Adaptive finite element solution of fluid-structure interaction

T. Dunne, **Rolf Rannacher** and **T. Richter**

Wed 1700B: A posteriori error estimates for state-constrained optimal control on non-smooth domains

Winnifried Wollner

34 Wed 1610C: LC063: Parallel session talks

Chair: Igor Bock

Wed 1610C: Analytic and Finite Element Solutions for a Cantilever Beam with PZT Patches using Velocity Feedback Control

C. Spier and **J. C. Bruch, Jr.**

Wed 1635C: Modelling and numerical computation of journal bearing lubrication

Martin Lanzendörfer and **Jan Stebel**

Wed 1700C: Eigenderivative analysis of actively controlled structures with asymmetric non-positive-definite stiffness and non-proportional damping matrices

R. Mirzaeifar and **H. Bahai**

35 Wed 1610D: LC064: Finite Element Approximations in Optimal Control

Organisers: Thomas Apel, Arnd Rösch

Wed 1610D: Local mesh grading for optimal control problems in nonconvex domains

Th. Apel, **Arnd Rösch**, **Dieter Sirch** and **G. Winkler**

Wed 1635D: Optimal control of the Stokes problem under reduced regularity

Serge Nicaise and **Dieter Sirch**

Wed 1700D: Finite Element Error Analysis for State-Constrained Optimal Control of the Stokes Equations

Juan Carlos de los Reyes, **Christian Meyer** and **Boris Vexler**

36 Wed 1610E: LC065: Boundary Elements: theory and applications

Organisers: Norbert Heuer, Antoine Sellier

Wed 1610E: Symmetric and Non-Symmetric FEM-BEM Coupling for the Exterior Stokes problem

A. J. Radcliffe and E. P. Stephan

Wed 1635E: The Gauss Problem

G. Of, W. L. Wendland and N. Zorii

Wed 1700E: The mortar boundary element method

Martin Healey and Norbert Heuer

37 Wed 1610F: LC066: Domain decomposition methods and hierarchical bases of finite elements

Organisers: Ivana Pultarová, Ivo Marek, Pavel Burda, Marta Čertíková, Jakub Šístek

Wed 1610F: Parallel implementation of the BDDC method for linear elasticity

Jakub Šístek, Pavel Burda, Marta Čertíková, Jan Mandel and Jaroslav Novotný

Wed 1635F: Adaptive-Multilevel BDDC

Bedřich Sousedík and Jan Mandel

Wed 1700F: Applying hierarchy to coarse problems in BDDC methods

Ivana Pultarová

38 Wed 1610G: LC067: Finite element methods for convection dominated problems

Organisers: Volker John, Dmitri Kuzmin, Gert Lube

Wed 1610G: Goal-oriented error estimates and mesh adaptation for flux-limited Galerkin schemes

Dmitri Kuzmin and Matthias Möller

Wed 1635G: A Robust Semi-Implicit Finite Element Scheme for Nonlinear Hyperbolic Systems

Marcel Garris, Dmitri Kuzmin and Stefan Turek

Wed 1700G: Regularity and Approximation of Elliptic-Hyperbolic Coupled Problems

Carola Kruse and Matthias Maischak

39 Wed 1730: H001: BABUŠKA LECTURE

Chair: Mary Wheeler

Wed 1730: *hp*-Adaptive Finite Elements for Convection Dominated Diffusion Problems
Leszek Demkowicz and **J. Gopalakrishnan**

40 Thu 0835A: LC061: A posteriori error estimates for discontinuous Galerkin methods

Organisers: Satyendra Tomar, Alexandre Ern

Thu 0835A: Gradient recovery by averaging for DG methods
Sarah Cochez-Dhondt, **Emmanuel Creusé** and Serge Nicaise

Thu 0900A: Fully computable error bounds for discontinuous Galerkin finite element approximations on meshes containing hanging nodes
Mark Ainsworth and Richard Rankin

Thu 0925A: Guaranteed and robust discontinuous Galerkin a posteriori error estimates for convection–diffusion–reaction problems
Alexandre Ern, **Annette F. Stephansen** and Martin Vohralík

Thu 0950A: Optimal cost for functional-type a posteriori error estimates for discontinuous Galerkin approximations
J.K. Kraus and S.K. Tomar

Thu 1015A: A posteriori error control for spatially discontinuous Galerkin schemes in evolution equations
Emmanuil Georgoulis and **Omar Lakkis**

41 Thu 0835B: LC062: Goal-oriented error estimation and adaptivity

Organisers: Serge Prudhomme, Sergey Korotov, Paul Bauman

Thu 0835B: Multiscale Modeling using Numerical Homogenization Adaptive Meshes and Moore-Penrose Pseudoinverse

Chetan Jhurani, Leszek Demkowicz, J. Tinsley Oden, Serge Prudhomme and Paul T. Bauman

Thu 0900B: Analytical and computational a posteriori error estimates for adaptive finite element methods

Karel Segeth

Thu 0925B: Fully computable error estimators for nonlinear problems

L. El Alaoui, Alexandre Ern and Martin Vohralík

Thu 0950B: On the upper bound property of the smoothed finite element method

Z.C. Xuan

Thu 1015B: Dual-based a posteriori error estimation for quasi-periodic problems

M. Braack, Erik Burman and N. Taschenberger

42 Thu 0835C: LC063: Finite elements and geometry

Organisers: Alexander Düster, Ernst Rank, Yuri Bazilevs

Thu 0835C: G^1 -Interpolation and Geometry Reconstruction for Higher Order Elements

Leszek Demkowicz, Paolo Gatto, Weifeng Qiu and A. Joplin

Thu 0900C: hp-Mesh Refinement on Curved Tetrahedral Meshes

Joachim Schöberl

Thu 0925C: Sensitivity of cylindrical isotropic shells

Marie Beaudouin, Monique Dauge and Erwan Faou

Thu 0950C: A general fictitious domain approach with non-boundary fitted meshes and multilevel nested structured grids: theory and applications

Isabelle Ramière

Thu 1015C: A comparison of fictitious domain methods appropriate for high-order finite element methods

Peter E.J. Vos, Raoul van Loon and Spencer J. Sherwin

43 Thu 0835D: LC064: Boundary Elements: theory and applications

Organisers: Norbert Heuer, Antoine Sellier

Thu 0835D: Convergence of adaptive BEM

Markus Aurada, Samuel Ferraz-Leite and Dirk Praetorius

Thu 0900D: On the mathematics for a hybrid BEM based on traditional and alternative BIE via the Fourier transform

Fabian Duddeck

Thu 0925D: Regularized boundary-integral equations for creeping-flow problems involving arbitrary clusters of spherical droplets

A. Sellier

Thu 0950D: On the convergence analysis of high-order BEM for electro-magnetic scattering in three dimensions

Alex Bespalov and Norbert Heuer

Thu 1015D: Mathematical analysis of a high order Nystrom method for BIEs in three dimensional scattering problems

Oscar Bruno, Víctor Domínguez and Francisco-Javier Sayas

44 Thu 0835E: LC065: Higher-order and hp finite element methods

Organisers: Leszek Demkowicz, Joachim Schöberl

Thu 0835E: Quasipotimal multilevel based solvers for hp-FEM discretizations in 3D

S. Beuchler

Thu 0900E: Spectral-Like Element Methods on Hybrid Meshes for the Wave Equations

M. Bergot, G. Cohen and M. Duruflé

Thu 0925E: A Spectral Spurious-Free H1-L2 Approximation of Maxwell Equations

G. Cohen and A. Sinding

Thu 0950E: Transfinite Interpolation and Construction of H1 Shape Functions for Hexas, Tets, Prisms and Pyramids

Paolo Gatto and Leszek Demkowicz

Thu 1015E: Opportunities and Challenges for Higher Order Methods in Commercial Electromagnetic Applications

T. Euler

45 Thu 0835F: LC066: FEM for highly indefinite and eigenvalue problems

Organisers: Marcus Melenk, Stefan Sauter

Thu 0835F: New multigrid approach for finding many eigenfunctions of discrete partial differential operators

Irene Livshits

Thu 0900F: A convergent adaptive finite element method for photonic crystal fiber applications

Stefano Giani and **Ivan G. Graham**

Thu 0925F: A robust error estimator for elliptic eigenvalue problems

Randolph Bank, **Luka Grubišić** and **Jeffrey S. Oval**

Thu 0950F: Convergence and complexity of an adaptive algorithm for eigenvalue computation

Thorsten Rohwedder

46 Thu 0835G: LC067: Finite element methods for convection dominated problems

Organisers: Volker John, Dmitri Kuzmin, Gert Lube

Thu 0835G: Local projection methods for flow problems

Gunar Matthies, **Piotr Skrzypacz** and **Lutz Tobiska**

Thu 0900G: Enforcement of constraints in the variational multiscale method for convection-dominated problems

John A. Evans, **Thomas J.R. Hughes** and **Giancarlo Sangalli**

Thu 0925G: A Variational Multiscale Method For Turbulent Flow Simulation With Adaptive Large Scale Space

Volker John and **Adela Kindl**

Thu 0950G: Finite element simulation of natural convection flows with minimal stabilization

G. Lube

Thu 1015G: Numerical studies on the thermal hydraulics of the spallation target module of an accelerator driven sub-critical system

K. Arul Prakash, **B. V. R. Kumar** and **G. Biswas**

47 Thu 1110: H001: Invited talks

Chair: Ken Morgan

Thu 1110: Recent Advances Toward Computationally Desirable Zigzag Bending Theories for Laminated-Composite and Sandwich Structures

Alexander Tessler, Marco Di Sciuva and Marco Gherlone

Thu 1155: Numerical Zoom for localized Multi-Scale Problems

Olivier Pironneau

48 Thu 1400A: LC061: A posteriori error estimates for discontinuous Galerkin methods

Organisers: Satyendra Tomar, Alexandre Ern

Thu 1400A: Convergent adaptive iterations for DG methods

Guido Kanschat

Thu 1425A: Energy norm a-posteriori error estimation for *hp*-adaptive discontinuous Galerkin methods for convection-diffusion equations

Liang Zhu and Dominik Schötzau

Thu 1450A: A unifying framework for a posteriori error control for discontinuous Galerkin FEM

Carsten Carstensen and Max Jensen

49 Thu 1400B: LC062: Goal-oriented error estimation and adaptivity/ Parallel session talks

Organisers: Serge Prudhomme, Sergey Korotov, Paul Bauman

Thu 1400B: Guaranteed and robust a posteriori error estimates for problems with inhomogeneous coefficients and dominant reaction

Martin Vohralík

Thu 1425B: On a time-sequential adaptive strategy in FE-analysis for the visco-plasticity problem

Fredrik Larsson and Kenneth Runesson

Thu 1450B: Goal Oriented Space-Time Adaptivity for Simulation and Optimization of Parabolic Systems

Dominik Meidner and Boris Vexler

Thu 1515B: A handy anisotropic recovery-based error estimator

Stefano Micheletti and Simona Perotto

50 Thu 1400C: LC063: Numerical analysis of unilateral contact between structures

Organisers: Adel Blouza, Faker Ben Belgacem

Thu 1400C: Finite element discretizations of the contact between two membranes

Christine Bernardi

Thu 1425C: Adaptive finite elements for variational inequalities with discontinuous coefficients and applications

Zakaria Belhachmi

Thu 1450C: The Singular Dynamic Method: a well-posed semi-discretization of contact problems in elastodynamics

Yves Renard

Thu 1515C: A residual error estimator for FE discretization of Coulomb friction

P. Hild

51 Thu 1400D: LC064: Higher-Order and Zigzag Bending Theories with Applications in Computational Mechanics

Organisers: Alex Tessler, Marco Di Sciuva, Marco Gherlone

Thu 1400D: A new theoretical framework for the formulation of general, nonlinear, multi-scale plate theories

Todd O. Williams

Thu 1425D: A C^0 -Continuous Two-Node Beam Element Based on Refined Zigzag Theory and Interdependent Interpolation

Marco Gherlone, Alexander Tessler and Marco Di Sciuva

Thu 1450D: Layerwise Model with Adaptive Refinement across the Thickness and Fixed Functional D.O.F.

U. Icardi and L. Ferrero

Thu 1515D: An Efficient, C^0 -Continuous Triangular Element for Laminated Composite and Sandwich Plates with Improved Zigzag Kinematics

D. Versino, M. Mattone, Marco Gherlone, Alexander Tessler and Marco Di Sciuva

52 Thu 1400E: LC065: Higher-order and hp finite element methods

Organisers: Leszek Demkowicz, Joachim Schöberl

Thu 1400E: Goal-Oriented hp-Adaptive Strategies for the Analysis of Scattering and Radiation of Electromagnetic Waves

Ignacio Gomez-Revuelto, **Luis E. Garcia-Castillo** and **Daniel Garcia-Doñoro**

Thu 1425E: Dispersive and Dissipative Behaviour of Optimally Blended Finite Element/Spectral Element Schemes for Wave Propagation

Mark Ainsworth and **Hafiz Abdul Wajid**

Thu 1450E: A Mixed Hybrid Finite Element Method for the Helmholtz Equation

A. Hannukainen, **M. Huber** and **Joachim Schöberl**

Thu 1515E: Efficient preconditioning for high order edge elements applied to wave propagation and eddy current problems

P.D. Ledger and **S. Zaglmayr**

53 Thu 1400F: LC066: Boundary Elements: theory and applications

Organisers: Norbert Heuer, Antoine Sellier

Thu 1400F: Exponential Convergence of *hp* Quadratures for Integral Operators with Gevrey Kernels

Alexey Chernov, **Tobias von Petersdorff** and **Christoph Schwab**

Thu 1425F: hp-BEM on curved surfaces

Matthias Maischak

Thu 1450F: A BEM technique for the detection of skin tumours by thermal analysis

L.C. Wrobel and **P.W. Partridge**

Thu 1515F: Rapid Solver for 3D Acoustic Problems Using Boundary Element Method

A. Brancati and **M. H. Aliabadi**

54 Thu 1400G: LC067: Finite elements and geometry

Organisers: Alexander Düster, Ernst Rank, Yuri Bazilevs

Thu 1400G: The Finite Cell Method

A. Düster, **Monique Dauge**, **Z. Yang** and **E. Rank**

Thu 1425G: Immersed B-Spline Finite Elements for Complex Domains

Rodolfo A. Kuche Sanches, **Quan Long** and **Fehmi Cirak**

Thu 1450G: Adaptive isogeometric analysis with T-splines

Bernd Simeon, **Michael Dörfel** and **Bert Jüttler**

Thu 1515G: Approximation properties of *k*-refined NURBS in isogeometric analysis

John A. Evans, **Yuri Bazilevs**, **Ivo Babuška** and **Thomas J.R. Hughes**

55 Thu 1400H: H001: FEM with non-polynomial basis functions

Organisers: Peter Monk, Ilaria Perugia

Thu 1400H: The ultra-weak variational formulation using Bessel basis functions

Teemu Luostari, **Tomi Huttunen** and **Peter Monk**

Thu 1425H: Plane Wave Discontinuous Galerkin Methods: Convergence Theory

Ralf Hiptmair, **C. Gittelson**, **Andrea Moiola** and **Ilaria Perugia**

Thu 1450H: Approximation by plane waves

Andrea Moiola and **Ralf Hiptmair**

Thu 1515H: Non-reflecting and modal boundary conditions for the wave-based discontinuous Galerkin method

G. Gabard and **G. Kennedy**

56 Thu 1610A: LC061: Parallel session talks

Chair: John Bruch

Thu 1610A: Electromagnetic wave propagation at classical material/meta-material interfaces

A.-S. Bonnet-Bendhia and P. Ciarlet, Jr

Thu 1635A: Numerical analysis of a finite element method for an electromagnetic forming problem in axisymmetric domains

Alfredo Bermúdez, Carlos Reales, **Rodolfo Rodríguez** and **Pilar Salgado**

Thu 1700A: On the convergence of a finite element method for a Maxwell eigenvalue problem with variational crimes

Wouter Hamelinck

Thu 1725A: Boundary element method for exterior Helmholtz equation problems

Pavel Moses

Thu 1750A: Nonlinearly Preconditioned Globalization Strategies – Convergence Results and Numerical Examples

Christian Groß and **Rolf Krause**

57 Thu 1610B: LC062: Stochastic and multiscale numerical modeling of PDEs/ Parallel session talks

Organisers: Ivan Yotov, Mary Wheeler

Thu 1610B: Homogenization-based Multiscale Finite Elements for Heterogeneous Porous Media

T. Arbogast

Thu 1635B: Uncertainty estimation for flow in non-stationary random porous media using stochastic collocation and a mortar multiscale flux basis

Benjamina Ganis and **Ivan Yotov**

Thu 1700B: Multiscale Basis Mortar Mixed Finite Element for Multiphase Flow

Mary F. Wheeler and **Tim Widley**

Thu 1725B: Coupling mixed methods using mortar finite elements for elliptic and parabolic problems

Eun-Jae Park

Thu 1750B: Stochastic equations with fractional Brownian motion

Jan Pospíšil

58 Thu 1610C: LC063: New trends in micromagnetics

Organiser: Thomas Schrefl

Thu 1610C: Numerical methods for Landau-Lifshitz-Gilbert equations

Sören Bartels

Thu 1635C: Innovative finite elements scheme for Landau-Lifshitz equations

Pascal Jaisson, **Francois Alouges** and **Jean-Christophe Toussaint**

Thu 1700C: Mixed conforming elements for the large-body limit in micromagnetics

Markus Aurada, **Jens Markus Melenk** and **Dirk Praetorius**

Thu 1725C: Finite element discretization of a reduced model in thin-film micromagnetics

Samuel Ferraz-Leite, **Jens Markus Melenk** and **Dirk Praetorius**

59 Thu 1610D: LC064: Parallel session talks

Chair: Hamid Bahai

Thu 1610D: Convergence of a finite element - finite volume scheme for the compressible barotropic Navier-Stokes equations

Robert Eymard, Thierry Gallouët, Raphaële Herbin and Jean-Claude Latché

Thu 1635D: Convergence of a family of Galerkin discretizations for the Stokes-Darcy coupled problem

Gabriel N. Gatica, Ricardo Oyarzúa and Francisco-Javier Sayas

Thu 1700D: Application of discontinuous Galerkin method for viscous compressible flow

Martin Holík

Thu 1725D: On Finite Element Approximation of Navier-Stokes Equations by WEB-Splines

B. V. R. Kumar, V. V. S. Kumar and P. C. Das

Thu 1750D: Involutive formulation and simulation for electroneutral microfluids

Bijan Mohammadi and Jukka Tuomela

60 Thu 1610E: LC065: FEM for highly indefinite and eigenvalue problems/ Higher-order and hp finite element methods

Organisers: Marcus Melenk, Stefan Sauter/ Leszek Demkowicz, Joachim Schöberl

Thu 1610E: Hybrid Finite Elements for the Helmholtz Equation

Joachim Schöberl

Thu 1635E: Convergence Analysis for Finite Element Discretizations of the Helmholtz Equation on Bounded and Unbounded Domains

Stefan A. Sauter and Jens Markus Melenk

Thu 1700E: Efficient High Order DG Method for Time-domain Maxwell Equations

C. Lehrenfeld and Joachim Schöberl

Thu 1725E: Hardy space infinite elements for scattering and resonance problems

L. Nannen

Thu 1750E: Mixed *hp* finite element method for linear elasticity with weakly imposed symmetry

Weifeng Qiu and Leszek Demkowicz

61 Thu 1610F: LC066: Boundary Elements: theory and applications/ Domain Decomposition and BEM

Organisers: Norbert Heuer, Antoine Sellier/ Ulrich Langer, Olaf Steinbach

Thu 1610F: Applications of Fast Multipole Method in Aeronautics

Guillaume Sylvand and **Isabelle Terrasse**

Thu 1635F: Treatment of singularities for a volume integral equation

Martin Costabel, **Eric Darrigrand**, **El Hadji Kone** and **Daniel Martin**

Thu 1700F: FETI/BETI methods in unbounded domains

Clemens Pechstein

Thu 1725F: Coupling of boundary and finite element methods for time-domain problems

Thomas Rüberg

Thu 1750F: Boundary element tearing and interconnecting methods for non-elliptic partial differential equations

Olaf Steinbach

62 Thu 1610G: LC067: Finite elements and geometry/ Parallel session talks

Organisers: Alexander Düster, Ernst Rank, Yuri Bazilevs

Thu 1610G: NURBS-based isogeometric analysis versus p-finite elements in structural dynamics and wave propagation

Thomas J.R. Hughes, **A. Reali** and **Giancarlo Sangalli**

Thu 1635G: Efficient Quadrature for NURBS-based Isogeometric Analysis

Thomas J.R. Hughes, **A. Reali** and **Giancarlo Sangalli**

Thu 1700G: Free form design of thin shells: Lateral design noise filters and in-plane-Plateau stabilization

Kai-Uwe Bletzinger, **Matthias Firl**, **Johannes Linhard** and **Roland Wüchner**

Thu 1725G: Adaptive Finite Elements for Shape Optimization Problems

Pedro Morin, **Ricardo H. Nochetto**, **M. Sebastian Pauletti** and **Marco Verani**

Thu 1750G: Averaging of directional derivatives in vertices of unstructured triangulations

Josef Dalík

63 Fri 0835A: LC061: Recent Advances in Discontinuous Galerkin Methods

Organisers: Miloslav Feistauer, Vit Dolejší, Jaap van der Vegt

Fri 0835A: *hp*-Anisotropic Adaptive Discontinuous Galerkin Finite Element Methods for Compressible Flows

Paul Houston

Fri 0900A: *hp*-Optimality in DG Methods for Elliptic Problems

Thomas P. Wihler

Fri 0925A: A high-order DG method for the time harmonic Maxwell equations

Ferenc Izsák

Fri 0950A: On the DG method for the solution of IBVP's in time dependent domains

Miloslav Feistauer

Fri 1015A: Analysis of multigrid techniques for higher order accurate space-time DG discretizations

Jaap van der Vegt and Sander Rhebergen

64 Fri 0835B: LC062: Numerical problems in density functional theory

Organiser: Reinhold Schneider

Fri 0835B: Nonlinear eigenvalues problems and applications to DFT

Eric Cancès

Fri 0900B: Reduced Density Matrix Functional for Many-Electron Systems

S. Sharma, J. K. Dewhurst, N. N. Lathiotakis and E. K. U. Gross

Fri 0925B: Iterative Solution of the Kohn-Sham System for Semiconductor Devices

Kurt Hoke

Fri 0950B: Direct minimization and a posteriori error estimators in Density Functional Theory

R. Schneider

Fri 1015B: A posteriori error estimators for Hartree Fock and DFT

Stephan Schwinger

65 Fri 0900C: **LC063: New trends in micromagnetics**

Organiser: Thomas Schrefl

Fri 0900C: Large-scale micromagnetic simulations with hierarchical matrices

Riccardo Hertel, **Attila Kakay** and **Steffen Börm**

Fri 0925C: Hierarchical tensors for fast field evaluation in micromagnetics

A. Goncharov, **G. Hrkac** and **T. Schrefl**

Fri 0950C: Mathematical modelling of heat assisted micromagnetic processes

Marián Slodička

Fri 1015C: Multiscale strategies for the micromagnetic numerical analysis of large bodies

Oriano Bottauscio, **Mario Chiampi** and **Alessandra Manzin**

66 Fri 0835D: **LC064: Error control and adaption in evolution problems**

Organisers: Omar Lakkis, Emmanuil Georgoulis

Fri 0835D: A local-in-space-timestep approach to a finite element discretization of the heat equation with *a posteriori* estimates

Stefano Berrone

Fri 0900D: Error estimation in time dependent convection-diffusion equations

Javier de Frutos, **Bosco García-Archilla** and **Julia Novo**

Fri 0925D: Localized pointwise a posteriori error estimates for parabolic problems

Alan Demlow and **Ch. Makridakis**

Fri 0950D: A posteriori error estimates for fully discrete approximations for parabolic problems

F. Karakatsani, **E. Bänsch** and **Ch. Makridakis**

Fri 1015D: A posteriori error estimates for a nonconforming finite element discretization of the time-dependent Stokes problem

Serge Nicaise and **Nadir Soualem**

67 Fri 0835E: LC065: Higher-order and hp finite element methods

Organisers: Leszek Demkowicz, Joachim Schöberl

Fri 0835E: Numerical approximation of Maxwell equations using B-splines

Annalisa Buffa and **Rafael Vázquez**

Fri 0900E: Construction of hp-finite elements for pyramids

S. Zaglmayr

Fri 0925E: Adaptive Electromagnetic Scattering Analysis of Jet Engine Inlets

A. Zdunek and **W. Rachowicz**

Fri 0950E: *hp*-adaptive finite element modeling of the Pekeris waveguide

Jeffrey Zitelli

Fri 1015E: Discrete compactness for the p-version of edge elements in view of a spectrally correct approximation of Maxwell equations

Daniele Boffi, **Martin Costabel**, **Monique Dauge** and **Leszek Demkowicz**

68 Fri 0835F: LC066: Theory and Numerics of Boundary-Domain Integral Equations/ Finite element approximation of singularities

Organisers: Sergey Mikhailov/ Alex Bespalov

Fri 0835F: Localized boundary-domain integral equations formulation for crack type problems

O. Chkadua, **S.E. Mikhailov** and **D. Natroshvili**

Fri 0900F: Finite element solution of corner singularities in fluid flow problems

Pavel Burda, **Jaroslav Novotný** and **Jakub Šístek**

Fri 0925F: Least-Squares FEM for Problems with Boundary Singularities

Chad Westphal

Fri 0950F: Approximations of singularities by boundary element methods

Alex Bespalov and **Norbert Heuer**

Fri 1015F: An FEM for the Neumann and transmission problems

Hengguang Li, **Anna Mazzucato** and **Victor Nistor**

69 Fri 0835G: LC067: FEM with non-polynomial basis functions

Organisers: Peter Monk, Ilaria Perugia

Fri 0835G: The discontinuous enrichment method for the Helmholtz equation

Charbel Farhat, Radek Tezaur and Jari Toivanen

Fri 0900G: Analysis of a least-squares finite element method for scattering on polygons
Timo Betcke

Fri 0925G: On the use of a Trefftz-based wave based prediction technique for solving Helmholtz problems involving multiple scatterers

Bert Van Genechten, Bart Bergen, Dirk Vandepitte and Wim Desmet

Fri 0950G: NURBS based discretization methods for PDEs

Annalisa Buffa, Giancarlo Sangalli and Rafael Vázquez

Fri 1015G: On preconditioners for the numerical solution by PUFEM of the time-harmonic elastic wave equations

A. El Kacimi and O. Laghrouche

70 Fri 1110: H001: Invited talks

Chair: Norbert Heuer

Fri 1110: On the Implicit, Adaptive, Multilevel Solution of Nonlinear Parabolic Systems for Phase Change Problems in Two and Three Dimensions

James Green, Peter Jimack, Andrew Mullis and Jan Rosam

Fri 1155: On Traces, Extensions, Co-normal Derivatives and Solution Regularity of Elliptic Systems with Smooth and Non-smooth Coefficients

S.E. Mikhailov

71 Fri 1400A: LC061: Recent Advances in Discontinuous Galerkin Methods

Organisers: Miloslav Feistauer, Vit Dolejší, Jaap van der Vegt

Fri 1400A: On the optimality of IPG methods for odd degrees of polynomial approximation

V. Dolejší and Oto Havle

Fri 1425A: Error Analysis of a DG approximation of problems in nonpolygonal domains
Veronika Sobotíková

Fri 1450A: Discrete functional analysis tools for Discontinuous Galerkin methods

Daniele A. Di Pietro and Alexandre Ern

Fri 1515A: Optimal error estimates for nonlinear diffusion in the DG method

Václav Kučera

72 Fri 1400D: LC064: Error control and adaption in evolution problems

Organisers: Omar Lakkis, Emmanuil Georgoulis

Fri 1400D: Recovery Based Adaptivity for Parabolic Problems

Tristan Pryer

Fri 1425D: Space-Time Adaptive Wavelet Methods for Parabolic Evolution Problems

Rob Stevenson and **Christoph Schwab**

Fri 1450D: Primal-dual active set methods for Allen-Cahn variational inequalities

Luise Blank, **Harald Garcke**, **Lavinia Sarbu** and **Vanessa Styles**

Fri 1515D: Robust approximation of phase field models past topological changes

Sören Bartels, **Rüdiger Müller** and **Christoph Ortner**

Fri 1540D: A posteriori error estimates for the BDF2 method for parabolic equations

Georgios Akrivis and **Panagiotis Chatzipantelidis**

Times and rooms of speakers

WE1450A LC061 Adjerid	WE1515A LC061 Celiker
WE1425F LC066 Ainsworth	TU1425B LC062 Chamoin
TH0925B LC062 Alaoui	WE1155I H001 Chandler-Wilde
WE1610A LC061 Antonietti	FR1540D LC064 Chatzipantelidis
TU1400G LC067 Apel	TU1635C LC063 Chernov
WE1610D LC064 Apel	TH1400F LC066 Chernov
WE0925F LC066 Arbogast	TH1610A LC061 Ciarlet, Jr
TH1610B LC062 Arbogast	TH1425G LC067 Cirak
TU1700C LC063 Attia	TH0925E LC065 Cohen
TH1700C LC063 Aurada	TH1750G LC067 Dalík
TU1425G LC067 Bacuta	FR1015E LC065 Dauge
WE1400E LC065 Banjai	FR0900D LC064 de Frutos
WE1515F LC066 Barrenechea	WE1700D LC064 de los Reyes
WE1110I H001 Barrett	WE1730I H001 Demkowicz
TH1610C LC063 Bartels	TH0835C LC063 Demkowicz
FR1515D LC064 Bartels	TH1750E LC065 Demkowicz
TU1635B LC062 Bauman	TU1515G LC067 Demlow
TH0925C LC063 Beaudouin	FR0925D LC064 Demlow
TH1425C LC063 Belhachmi	WE1400F LC066 Di Pietro
WE1425C LC063 Beremlijski	WE1515C LC063 Dobiáš
FR0925G LC067 Bergen	TU1425C LC063 Dörsek
TH0900E LC065 Bergot	FR1400A LC061 Dolejší
TH1400C LC063 Bernardi	TH1015D LC064 Domínguez
WE1015D LC064 Bernauer	WE0835C LC063 Dostál
FR0835D LC064 Berrone	TH0900D LC064 Duddeck
TH0950D LC064 Bespalov	TH1400G LC067 Düster
FR0950F LC066 Bespalov	TU1450F LC066 Edwards
WE0925E LC065 Betcke	WE0900F LC066 Edwards
FR0900G LC067 Betcke	FR1015G LC067 El Kacimi
TH0835E LC065 Beuchler	TU1635A LC061 Epshteyn
TU1700F LC066 Beirão da Veiga	WE1015G LC067 Ern
TH1700G LC067 Bletzinger	FR1450A LC061 Ern
WE1450C LC063 Bock	TH1015E LC065 Euler
FR1015C LC063 Bottauscio	TH0900G LC067 Evans
TH1015B LC062 Braack	TH1515G LC067 Evans
TH1515F LC066 Brancati	FR0950A LC061 Feistauer
WE1610C LC063 Bruch, Jr.	TH1725C LC063 Ferraz-Leite
WE0925C LC063 Brzobohatý	TU1730I H001 Fish
FR0950G LC067 Buffa	TH1515H H001 Gabard
FR0900F LC066 Burda	TH1610D LC064 Gallouët
TU1425A LC061 Burman	TU1700E LC065 Ganesh
WE0950G LC067 Burman	TH1400E LC065 Garcia-Castillo
TU1610A LC061 Bustinza	TH0950E LC065 Gatto
FR0835B LC062 Cances	TH1015A LC061 Georgoulis
WE1700A LC061 Capatina	WE0835E LC065 Geuzaine
TU1450G LC067 Carey	TH1425D LC064 Gherlone
WE0925B LC062 Carraro	TH0900F LC066 Giani

WE1400B LC062 Goller
 FR0925C LC063 Goncharov
 WE0900E LC065 Graham
 TH1750A LC061 Groß
 WE1425A LC061 Grote
 WE1635G LC067 Gurris
 TU1610G LC067 Guzmán
 WE0835G LC067 Guzmán
 WE1400A LC061 Guzmán
 TU1400C LC063 Gwinner
 TH1700A LC061 Hamelinck
 WE1700E LC065 Healey
 TU1515F LC066 Herbin
 FR0900C LC063 Hertel
 TH1515C LC063 Hild
 TH1425H H001 Hiptmair
 FR0925B LC062 Hoke
 TH1700D LC064 Holík
 TU1450A LC061 Houston
 FR0835A LC061 Houston
 WE1450E LC065 Hsiao
 TH1450E LC065 Huber
 TU1515E LC065 Huybrechs
 TH1450D LC064 Icardi
 FR0925A LC061 Izsák
 WE0950F LC066 Jaffré
 TH1635C LC063 Jaisson
 TU1450D LC064 Javierre
 TH1450A LC061 Jensen
 FR1110I H001 Jimack
 TH0925G LC067 John
 WE0925A LC061 Kanschäat
 TH1400A LC061 Kanschäat
 FR0950D LC064 Karakatsani
 TU1450E LC065 Kim
 TU1635D LC064 Kirillova
 WE0900G LC067 Knobloch
 TH1635F LC066 Kone
 TU1610D LC064 Kossovich
 WE0950C LC063 Kozubek
 TU1400D LC064 Krause
 TU1610C LC063 Krause
 WE1700G LC067 Kruse
 WE1015C LC063 Kučera
 FR1515A LC061 Kučera
 TH1725D LC064 Kumar
 WE1400G LC067 Kuzmin
 WE1450B LC062 Lakkis
 TU1425E LC065 Langdon

TH1425B LC062 Larsson
 TH1515E LC065 Ledger
 TH1700E LC065 Lehrenfeld
 TU1635G LC067 Leykekhman
 TU1700G LC067 Li
 FR1015F LC066 Li
 WE1425G LC067 Linke
 TU1400F LC066 Lipnikov
 WE1450F LC066 Lipnikov
 TH0835F LC066 Livshits
 WE0900D LC064 Lube
 TH0950G LC067 Lube
 TH1400H H001 Luostari
 TU1450C LC063 Maischak
 TH1425F LC066 Maischak
 TU1425F LC066 Manzini
 WE1400D LC064 Mao
 TH0835G LC067 Matthies
 WE1450D LC064 Meidner
 TH1450B LC062 Meidner
 TU1400E LC065 Melenk
 WE0835D LC064 Meyer
 TH1515B LC062 Micheletti
 FR1155I H001 Mikhailov
 WE1700C LC063 Mirzaeifar
 WE1610G LC067 Möller
 TH1750D LC064 Mohammadi
 TH1450H H001 Moiola
 WE0950E LC065 Mokgolele
 TU0945I H001 Morgan
 TH1725A LC061 Moses
 TH1725E LC065 Nannen
 FR0835F LC066 Natroshvili
 WE0925D LC064 Neitzel
 WE1635D LC064 Nicaise
 TH0835A LC061 Nicaise
 FR1015D LC064 Nicaise
 TU1700B LC062 Nobile
 WE0835B LC062 Nobile
 WE1515G LC067 Novo
 TU1145I H001 Oden
 WE1015B LC062 O'Hagan
 WE1425B LC062 Oliver
 TH0925F LC066 Ovall
 WE0950B LC062 Owhadi
 TH1635D LC064 Oyarzúa
 WE1015F LC066 Pal
 TU1400B LC062 Pardo
 TH1725B LC062 Park

TH1700F LC066	Pechstein	WE1635A LC061	Stamm
TU1515B LC062	Perotto	WE1635C LC063	Stebel
WE1425E LC065	Perrey-Debain	TH1750F LC066	Steinbach
WE0835A LC061	Perugia	FR1425D LC064	Stevenson
TH1155I H001	Pironneau	FR1450D LC064	Styles
TH1750B LC062	Pospíšil	TU1100I H001	Süli
TH0835D LC064	Praetorius	TU1425D LC064	Swigon
TH1015G LC067	Prakash	TH1610F LC066	Terrasse
WE0900B LC062	Prudencio	TH1110I H001	Tessler
TH0835B LC062	Prudhomme	FR0835G LC067	Toivanen
WE1515D LC064	Prüfert	TH0950A LC061	Tomar
FR1400D LC064	Pryer	TU1610E LC065	Trevelyan
WE1700F LC066	Pultarová	TU1635E LC065	Turc
WE1610E LC065	Radcliffe	TU1450B LC062	Turcksin
TH0950C LC063	Ramière	FR1015A LC061	van der Vegt
TH0900A LC061	Rankin	WE1610B LC062	van der Zee
TH1635A LC061	Reales	WE1450G LC067	van Slingerland
TH1610G LC067	Realì	FR0835E LC065	Vázquez
TH1450C LC063	Renard	TH1725G LC067	Verani
WE1635B LC062	Richter	TU1515D LC064	Vermolen
TU1515A LC061	Riviere	TH1515D LC064	Versino
WE1425D LC064	Rösch	TH0925A LC061	Vohralík
TH0950F LC066	Rohwedder	TH1400B LC062	Vohralík
TH1725F LC066	Rüberg	WE1400C LC063	Vondrák
WE1015A LC061	Ryan	TH1015C LC063	Vos
WE0900C LC063	Sadowská	WE0950D LC064	Wachsmuth
TH1635G LC067	Sangalli	TH1425E LC065	Wajid
TH1635E LC065	Sauter	TU1610B LC062	Warby
TU1400A LC061	Sayas	TU1515C LC063	Weißenfels
WE1515E LC065	Sayas	WE1635E LC065	Wendland
WE0925G LC067	Schieweck	FR0925F LC066	Westphal
FR0950B LC062	Schneider	WE0835F LC066	Wheeler
TH0900C LC063	Schöberl	TH1700B LC062	Wheeler
TH1610E LC065	Schöberl	TU1700A LC061	Wihler
WE0950A LC061	Schötzau	FR0900A LC061	Wihler
FR1015B LC062	Schwinger	TH1400D LC064	Williams
TU1610F LC066	Scovazzi	WE1700B LC062	Wollner
TH0900B LC062	Segeth	TH1450F LC066	Wrobel
TH0925D LC064	Sellier	TH0950B LC062	Xuan
TU1700D LC064	Seshaiyer	WE0900A LC061	Yan
FR0900B LC062	Sharma	TU1635F LC066	Yotov
TH1450G LC067	Simeon	TH1635B LC062	Yotov
WE1610F LC066	Šístek	FR0900E LC065	Zaglmayr
FR0950C LC063	Slodička	FR0925E LC065	Zdunek
FR1425A LC061	Sobotíková	TH1425A LC061	Zhu
WE1635F LC066	Sousedík	FR0950E LC065	Zitelli
WE1015E LC065	Spence		