

Thursday , July 2

08.30-09.30	Anna-Karin Tornberg, <i>Model reduction for efficient simulation of fiber suspensions</i> , chair Bengt Fornberg room H3						
09.30-10.00	Coffee break						
Room	H1	H2	H3	H4	A114	A144	B153
10.00-12.00	M23 Finite elements for convection-diffusion problems I	M21 Geometric aspects of finite element modeling I	M20 Numerical methods for Stochastic PDEs I	M22 Advanced techniques in radial basis function approximation for PDEs I	M19 Tensor numerical methods	C23 Flow problems II	
12.00-13.00	Lunch						
13.00-14.00	Daniele Boffi, <i>Eigenvalue approximation in mixed form and the hp version of edge finite elements</i> , chair Valeria Simoncini room H3						
14.00-15.00	C25 Flow problems III	C24 Schrödinger equations II	C27 Finite element methods II	C26 Radial basis functions	C28 High performance computing II	C29 Linear algebra I	
15.00-15.30	Coffee break						
15.30-17.30	M27 Finite elements for convection-diffusion problems II	M25 Geometric aspects of finite element modeling II	M24 Numerical methods for Stochastic PDEs II	M26 Advanced techniques in radial basis function approximation for PDEs II	C30 Flow with Finite element methods for flow problems, II	C31 Hyperbolic PDEs	
Room	H1	H2	H3	H4	A114	A144	B153

Thursday, July 2, Morning 10:00-12:00

M19: Minisymposium: Tensor numerical methods

Organizers: Eugene Tyrtshnikov, Boris Khoromskij

10:00-10:30 Eugene Tyrtshnikov, How to use SVD in many dimensions

10:30-11:00 Lars Grasedyck, Tensor approximation on fibre-crosses

11:00-11:30 Venera Khoromskaia, Tensor product approximation of operators and functions in the Hartree-Fock equation

11:30-12:00 Reinhold Schneider, Direct minimization with orthogonality constraints with applications in electronic structure computation

M20: Minisymposium: Numerical methods for stochastic partial differential equations, I

Organizers: Fabio Nobile, Raul Tempone

10:00-10:30 Raul Tempone, Analysis and implementation issues for the numerical approximation of parabolic equations with random coefficients

10:30-11:00 Anthony Nouy, A priori model reduction technique for solving stochastic partial differential equations

11:00-11:30 Catherine Powell, Solution strategies for stochastic Galerkin and stochastic collocation systems

11:30-12:00 Lionel Mathelin, Generalized stochastic decomposition for large evolution problems

M21: Minisymposium: Geometric aspects of the finite element modeling, I

Organizers: Sergey Korotov, Tomas Vejchodsky

- 10:00-10:30 Sergey Korotov, Geometric topics in reliable finite element modeling
- 10:30-11:00 María Cecilia Rivara, Longest-edge (nested) algorithms, applications and properties
- 11:00-11:30 Michal Krizek, On a bisection algorithm that produces conforming locally refined simplicial meshes
- 11:30-12:00 Alper Üngör, Software for computing acute and non-obtuse triangulations of complex geometric domains

M22: Minisymposium: Advanced techniques in radial basis function approximation for PDEs, I

Organizers: Natasha Flyer, Elisabeth Larsson

- 10:00-10:30 Natasha Flyer, 3-D fluid dynamics modeling with radial basis functions
- 10:30-11:00 Grady Wright, RBF approximation of vector functions and their derivatives on the sphere with applications
- 11:00-11:30 Armin Iske, Adaptive ADER schemes for scalar conservation laws using kernel-based WENO reconstructions
- 11:30-12:00 Sonia Gomes, Multiscale radial basis approximations for the numerical solution of PDE

M23: Minisymposium: Finite elements for convection-diffusion problems, I

Organizers: Miloslav Feistauer, Petr Knobloch

- 10:00-10:30 Miloslav Feistauer, Space-time DG method for nonstationary convection-diffusion problems
- 10:30-11:00 Petr Knobloch, Stability of finite element discretizations of convection-diffusion equations
- 11:00-11:30 Lutz Tobiska, Some variants of the local projection stabilization
- 11:30-12:00 Michael Roland, Numerical simulation of a population balance system with one internal coordinate

C23: Contributed session: Flow problems II chair Bernhard Müller

- 10:00-10:20 Ludek Benes, Numerical simulation of stratified flows past a body
- 10:20-10:40 Bettina Gottermeier, Adaptive two-step peer methods for incompressible Navier-Stokes equations
- 10:40-11:00 Tomas Neustupa, On stationary viscous incompressible flow through cascade of profiles with the modified nonlinear boundary condition on the outflow and large inflow
- 11:00-11:20 Jan Simak, Solution of an inverse problem for a 2-D turbulent flow around an airfoil
- 11:20-11:40 Radka Keslerova, Numerical modeling of steady and unsteady Newtonian and non-Newtonian fluids flow
- 11:40-12:00 Eddie Wadbro, Computational estimation of fluid mechanical benefits from modifying the shape of artificial vascular grafts

Thursday, July 2, Afternoon 14:00- 15:00

C24: Contributed session: Schrödinger equations II chair Sverker Holmgren

- 14:00-14:20 Katharina Kormann, Efficient solution of an optimal control problem in quantum Chemistry
- 14:20-14:40 Anna Nissen, An optimized perfectly matched layer for the Schrödinger equation
- 14:40-15:00 Matthias Wohlmuth, High frequency wave propagation in solid-state laser resonators

C25: Contributed session: Flow problems III chair Johan Hoffman

- 14:00-14:20 Francisco Pla Martos, Numerical solutions and bifurcations in a convection problem with temperature-dependent viscosity
- 14:20-14:40 Michael Dörfel, Iterative solvers and their control in fluid-structure interaction
- 14:40-15:00 Jens Lindström, Well-posedness and stability of a coupled fluid flow and heattransfer problem

C26: Contributed session: Radial basis functions chair Natasha Flyer

- 14:00-14:20 Francisco Bernal, Numerical solution of quasilinear elliptic PDEs with the RBF method
- 14:20-14:40 Erik Lehto, RBF generated finite differences on scattered nodes for hyperbolic PDEs
- 14:40-15:00 Lin-Tian Luh, RBF: The optimal choice for the shape parameter

C27: Contributed session: Finite element methods II chair Peter Hansbo

- 14:00-14:20 Silvia Bertoluzza, Domain decomposition strategies with black box subdomain solvers
14:20-14:40 Ihor Prokopyshyn, Domain decomposition schemes for frictionless multibody contact problems of elasticity
14:40-15:00 Carmen Rodrigo, Multigrid finite element method on semi-structured grids for the poroelasticity problem

C28: Contributed session: High performance computing II chair Michael Thuné

- 14:00-14:20 Pavel Strachota, Analysis of the parallel finite volume solver for the anisotropic Allen-Cahn equation in 3D
14:20-14:40 Daniel Peterseim, Parallel multistep methods for the wave equation
14:40-15:00 Yuri Senichenkov, Modeling complex dynamical systems in MvStudium

C29: Contributed session: Linear algebra I chair Eugene Tyrtshnikov

- 14:00-14:20 Othmar Koch, Analysis of a dynamical low rank approximation for tensors
14:20-14:40 Boris Khoromskij, Tensor-structured numerical methods for elliptic boundary-value/spectral problems in high dimensional applications
14:40-15:00 Martin Plesinger, The total least squares problem and reduction of data

Thursday, July 2, Afternoon 15:30-17:30

M24: Minisymposium: Numerical methods for Stochastic Partial Differential Equations, II

Organizers: Fabio Nobile, Raul Tempone

- 15:30-16:00 Stig Larsson, Finite element approximation of the linear stochastic Cahn-Hilliard equation
16:00-16:30 Helmut Harbrecht, A finite element method for PDEs with stochastic input data
16:30-17:00 Julie Tryoen, Multi-Resolution Scheme and Roe Solver for Stochastic Systems of Conservation Laws
17:00-17:30 Elmar Zander, Breaking the curse of dimensionality in stochastic Galerkin methods using tensor product approximations

M25: Minisymposium: Geometric aspects of the finite element modeling, II

Organizers: Sergey Korotov, Tomas Vejchodsky

- 15:30-16:00 Tomas Vejchodsky, Angle conditions for discrete maximum principles in higher-order FEM
16:00-16:30 Pavel Kus, The issue of arbitrary level hanging nodes in 3D
16:30-17:00 Antti Hannukainen, Discrete maximum principles on prismatic finite element meshes
17:00-17:30 Anton Sushchenko, On the numerical inverse problem of the detection of inhomogeneities for the Maxwell's equations

M26: Minisymposium: Advanced techniques in radial basis function approximation for PDEs, II

Organizers: Natasha Flyer, Elisabeth Larsson

- 15:30-16:00 Elisabeth Larsson, Domain decomposition and radial basis function approximation for PDE problems
16:00-16:30 Alfa Heryudono, Adaptive local radial basis function method for interpolation and collocation problems
16:30-17:00 Bengt Fornberg, Some algorithms for stable calculations with near-flat RBFs
17:00-17:30 Greg Fasshauer, "Optimal" scaling of meshfree kernel methods

M27: Minisymposium: Finite elements for convection-diffusion problems, II

Organizers: Miloslav Feistauer, Petr Knobloch

- 15:30-16:00 Matthias Möller, Goal-oriented adaptivity for flux-limited Galerkin approximations to convection-diffusion problems
16:00-16:30 Sebastian Franz, Local projection stabilization for convection-diffusion problems with characteristic layers
16:30-17:00 Malte Braack, Local projection stabilization for time-dependent flow problems

17:00-17:30 Vaclav Kucera, The discontinuous Galerkin method for convection-diffusion problems in time-dependent domains

C30: Contributed session: Finite element methods for flow problems II chair Stefan Turek

15:30-15:50 Ramon Codina, Unified stabilized finite element formulations for the Stokes and the Darcy problems

15:50-16:10 Agnes Petrau, Finite element approximation of a quasi-3D model for the river flow

16:10-16:30 Tomas Chacon Rebollo, Solution of incompressible flow equations by a high-order term-by-term stabilized method

16:30-16:50 Petr Bauer, FEM for flow and pollution transport in a street canyon

16:50-17:10 Önder Türk, FEM Solution of diffusion-convection-reaction equations in air pollution

17:10-17:30 Markus Bause, Stabilized finite element methods for nonstationary and nonlinear convection-diffusion-reaction equations

C31: Contributed session: Hyperbolic PDEs chair Mats Holmström

15:30-15:50 Maria Luz Munoz-Ruiz, Convergence of path-conservative numerical schemes for hyperbolic systems of balance laws

15:50-16:10 Anna Martínez Gavara, On stability issues for IMEX schemes applied to hyperbolic equations with stiff reaction terms

16:10-16:30 J.H.M. ten Thije Boonkkamp, Extension of the complete flux scheme to time-dependent conservation laws

16:30-16:50 Jose M. Gallardo, High-order finite volume methods for nonconservative hyperbolic systems

16:50-17:10 Petr Kubera, Study of moving mesh strategies for hyperbolic conservation laws

17:10-17:30 Petr Furmánek, High order finite volume schemes for numerical solution of stationary and non-stationary flows